2012 • Press

Golan Levin

Select books, critical reviews, published interviews, and press clippings.

003 Huhtamo, Erkki. “Golan Levin: Interactive Art”. In Eyecode (Solo exhibition catalogue), Beall Center for Art and Technology, UC Irvine, 2012.
011 Familian, David: “Golan Levin / Eyecode: The Kinesthetic and Synaesthetic Effect”. In Eyecode (Solo exhibition catalogue) Beall Center for Art and Technology, UC Irvine, 2012.
053 Leopold, Todd. “Roboticist sees improvisation through machine’s eyes.” CNN.com, 2/3/2012.
061 Guillaud, Hubert. “What happens when artists think of technology as engineers?” InternetActu, 10/5/2012.
067 Guillaud, Hubert. “Que se passe-t-il quand les artistes pensent la technologie comme les ingénieurs?” InternetActu, 10/5/2012.
080 Holmes, Kevin. “Golan Levin ups the Ante for Reddit’s IAMA Project”. Creators Project, 2/1/2012.
088 Kamiński, Paweł. “Nielegalne drukowanie rzeczywistości (Illegal printing of reality)”. Gazeta.PL
LaMonica, Martin. “Point cloud portraits' bring ghostly 3D images to movies.” CNET.com, 5/3/2012.
EYECODE
GOLAN LEVIN

BEALL
Donald R. and Joan F. Beall
Center for Art + Technology
University of California, Irvine
By the late nineties the initial enthusiasm had faded, and the novelty worn off. New media channels, most notably the internet and mobile telecommunications, posed different challenges than the ones tackled by the first generation of “interactive artists.” By now their new works often felt repetitive, and some of them even gave up applying explicit one-to-one user interactivity. There were critics complaining that a new art form – if that is what interactive art was – should not be defined by its tools or technology only.

It was at this moment of crisis when I first encountered the work of Golan Levin. Appropriately it happened at Ars Electronica and in the beginning of a new Millennium. Levin appeared as if out of the blue, and instantly became a staple of the festival. Year after year he had something imaginative and unusual to show. Just seeing his name on the program justified the price of the flight ticket. In short, Levin’s appearance felt like a breeze of fresh air for the somewhat languishing electronic arts.

All the creations that I came to witness used interactivity in one way or another. Levin certainly knew and respected his predecessors, but he also brought in scores of new sources and ideas: creative programming, data visualization, writing systems, music & speech notation systems, alphabets (already a childhood discovery), mobile and networked media. Writing one’s own proprietary code for real-time applications was the core of Levin’s passion.
The pioneers from computer graphics gurus like Frieder Nake to figures like Harold Cohen and Myron Krueger were not alien to programming either, but younger artists and designers like Levin, Zachary Lieberman, John Maeda, and Casey Reas introduced new sophistication, flexibility, and variety to the field of the digital arts with their idiosyncratic approaches. Instead of resorting to off-the-shelf software, writing one's own code became an essential part of the palette of the digital artist, and Levin was at the forefront of this trend.

In his Master's thesis for the MIT Media Lab (2000), Levin set himself the ambitious task of designing an audiovisual instrument of unparalleled expressivity. It had several goals: to allow the creation and performance of dynamic imagery and sound in real-time; to produce results that were inexhaustible and infinitely variable, yet plastic; the sonic and visual dimensions were to be malleable; the system was to avoid the arbitrary conventions and idioms of established languages, and to allow the performer to create or superimpose one's own; the basic principles were supposed to be easy to deduce, but they had to enable sophisticated expressions, and to make mastery elusive.

Much of Levin's subsequent work sprung from this 'program,' although it took several paths. There were software applications (including data visualizations) and demonstrations; stage performances; interactive installations; robotic projects; iPhone and iPad applications.
The variety is such that the individual pieces may at first appear distinct; in fact, they are tightly interconnected. A persistent feature is collaboration: with other programmers (in particular, with Zachary Lieberman), engineers, performance artists, and of course with users and spectators.

My earliest encounter with Levin’s work was Scribble, a playful performance demonstration of the Audiovisual Environment Suite (2000), a series of software applications for abstract animations and sounds in real-time (based on his Master’s thesis). It had already been preceded by applications like Yellowtail (1997–), which turned the user’s strokes of the display into constantly changing worm-like textures (and is now an iPhone application).

*The Secret Life of Numbers* (1997–2002) was another early software project. It tracked — for years — huge quantities of numbers (from zero to one million) on the internet, and challenged the observer to make sense of their changing ‘fates.’ The zeros and ones ceased to be pure abstractions, turning into indexical pointers toward cultural meanings.

Levin’s large-scale stage events began with the “telesymphony” Dialtones (2001). The audience participated by having dial tones loaded in their mobile phones before the event, and having them activated by the performers. This subtle and quiet (?) piece calmed down the frantic mobile phone user: breaking the nerve-wracking routines of the everyday, the spectator’s role was just to hold the phone, and to experience the sounds filling the concert hall. In a remarkable technological and artistic feat, Golan inverted a prosaic but ambiguous object, unleashing its unexplored qualities. This was certainly a “metacommentary.”
Then came *Messa di Voce* (2003), a collaboration with Zachary Lieberman, and the voice magicians Joan La Barbara and Jaap Blonk. The verbal acrobatics of the latter two activated the potential of proprietary software, producing an astonishing visual spectacle on a panoramic screen. The result was both magic and humoristic; kind of abstract dadaistic slapstick — whimsical, but at the same time graphically and aesthetically highly controlled. It is a tribute to the team’s skills to discover that the outcome really defies written descriptions; it just had to be experienced.

Levin next focused on a historical target, producing with Blonk an extraordinary rendition of Kurt Schwitters’s notorious concrete poem *Ursonate* (*Ursonography*, 2005) — easily the highlight of that year’s Ars Electronica. Blonk’s verbal ravings were augmented by a visual commentary (“intelligent subtitles”), an explosive interpretation of the poem’s nonsensical rhymes, based on advanced computer-based speech recognition and score-following technologies. Dada’s untamed anarchism merged neatly with programmed operations, leading the audience into a kind of delirium tremens without chemical stimulants (and hangover afterwards).

Levin himself took the stage in *Scribble* (2000), *Scrapple* (2005–06), and *Manual Input Sessions* (2004). In the latter he performed with Lieberman a series of playful (inter)actions, where their hands took center stage. By means of an adapted overhead projector as user interface
and custom software, the hands of the performers triggered astonishing and humorous aural and visual responses. A tight feedback loop between actions and reactions was created.

A stage performance is an event carved out of time. It requires a script and a dramaturgy, no matter how loose; there must be a beginning and a closure. As a consequence, the audience’s range of participation is necessarily predetermined; in Dialtones it was deliberately limited to a “teletactile” connection mediated by holding an instrument that was operated remotely; in the other performances the performers functioned in a more traditional way as kinds of surrogate interactors, doing what the spectators might have done.

Demonstrating the flexibility of interactive systems, Levin has presented many of these works also as installations where the systems have been offered for open-ended exploration by non-experts. It would be interesting to speculate to what extent the performances and the installations can be considered versions of the same. Where is the difference between the rehearsed interactions of virtuosos like Joan La Barbara or Jaap Blonk and those of a child who encounters the system for the first time and explores it by means of trial and error?

Galloway’s and Rabinowitz’s idea of metadesign can be evoked here. The same system can be molded to serve different contexts. The software and the user interface may be the same, but the phenomenological dimension of the works is probably quite different. The versions mirror each other but not in a symmetrical way. They are both linked and separated; interconnected and self-sufficient.

In more recent works installation has gained prominence, perhaps indicating that Levin wants to draw a sharper line between traditional modes of participation and interactive experiences made possible by code-based digital systems. The issues of perception, identity formation, and the exchange of looks form thematic links between works like Eyecode (2007), Opto-Isolator (2007-08, with Greg Baltus), Double-Taker (Snout) (2008), as well as Eyeshine (2011, with Kyle McDonald).

The presence of eye(s) — real/mediated or simulated/artificial — is the common feature of all these works. In Eyecode the spectators’ eyes are captured into a curious moving tapestry, while in Opto-Isolator a single animatronic eye intently observes the viewer, both
mirroring his/her eye movements and seemingly scrutinizing the onlooker independently.

In *Double-Taker (Snout)* the eye belongs to a giant robotic “inchworm” observing the spectator from above the entrance of a museum. All these works emphasize the uncanny — the relationship between the self (image) and the other is blurred, creating an air of uneasiness.

With such a variety of works to his credit, all produced within little more than a decade, one may legitimately ask: what characterizes Levin’s profile as an artist? Models come to mind, but none of them matches perfectly. One thinks about the early heroes of art and technology like Thomas Wilfred and Oskar Fischinger who were occupied with synesthesia, color light music, and abstract moving images.² Both created their own technological tools and aesthetic canons as well.

Then there are the pioneers of interactive art, like Myron Krueger, who have already been evoked. They did something similar, but decades later and in a different cultural and technological context, combining digital programming, and hardware construction. The playful interactions between humans and synthetic worlds they created extended and questioned the more prosaic uses of interactive technology.

One may also think about radio amateurism and electrical tinkering. Technological hobbyism and reverse engineering were embraced by hackers, crackers, coders, and later digital artists who concocted things digital and material from scratch for themselves and others to explore. However, these activities may be more related with the open source movement than with the kind of programming culture Levin represents. I once heard him make a strong plea for his right to keep the secrets of the programs he creates for own his artistic use.

---

² Oskar Fischinger was not only a master of abstract animations, he also invented and patented in 1955 the Lumigraph, a tactile performance interface / instrument for manipulating colored lights.
As a media archaeologist, I cannot help thinking about other historical parallels that are rarely identified with art: nineteenth-century "lightning sketches" or chalk talks where a master draughtsman drew transforming images on a blackboard in front of an audience; the magic shows of Robert Houdin and Georges Méliès; "ombromans," or shadow artists, who concocted surprising visions with their own hands and a simple light source; variety entertainments of all kinds. All these forms contributed to media culture where transformations and manipulations were seen as (or more) important as straightforward "documentaries" and "transmissions."

The very title of *The Manual Input Sessions* indexically refers to the hand that creates ("manipulate," a word so dear to interactive artists, also comes from the root "mano," hand). For me it evokes sleight-of-hand — the hand that produces wonders by tricks and feats. In old iconography and mythology, such a hand belonged to God reaching out to the realm of the humans from the great beyond. The magician, the animation artist, and later the software wizard appropriated the mystical hand, and turned it into a human attribute. Watching Levin perform, I see him as a wizard whose creations — powered by secret codes — amaze, delight, and intrigue.

Honestly, Levin's research into codes, languages and expressive idioms goes much deeper. In a sense the wizard is only a stage persona, an alter ego. Levin is on a quest for secret harmonies, principles that could bring the myriad manifestations of reality together in undiscovered ways. As he himself has written: "I have been preoccupied by the possibility that abstract forms can connect us to a reality beyond language, and bridge the thin line between nonsense and the divine."\(^1\)

Perhaps it would not be inappropriate, then, to characterize Levin's works as kinds of magic mirrors that can, if touched in the right way and with right sensitivity, and viewed from the appropriate perspective under optimal light conditions, give the user a glimpse of something more profound and essential behind the ripple effects of external reality?

---

\(^1\) In personal notes submitted to the author (2011).
by David Familian

[This is] the adventure that is our future, as we immerse ourselves ever more deeply in our own technologies; as the boundaries between our technologies and ourselves continue to implode; as we inexorably become creatures that we cannot even now imagine. It is a moment, which simultaneously holds immense threat and immense promise.¹

— Allucquère Rosanne Stone

Immersion in technologies — and the implosion of the boundaries between ourselves and our technologies described above by Stone — is what Golan Levin has explored in his work for the past fifteen years. Created for both gallery and theatrical stages, Levin’s performances, responsive artifacts, and virtual environments engage the viewer in an immersive manner as their body initiates a computational feedback that generates images and sound. He is not interested in creating a “real” space per se, but an abstract space animated by the physical movement of the participant.

Levin’s work demands a more fluid interplay between the mind and our senses as it explores both the external and internal effects of technologies on our bodies. His interactive, performative works allow for a shift from the ocularcentric (visual) to a proprioceptive (multisensory) experience in which we perceive not only with our eyes, but with our whole bodies.² He takes the spectator’s movements and translates them into feedback that is aural and visual, invoking both a kinesthetic and synaesthetic experience.

² Charles Olson, Proproception: Sensorium: Embodied Experience, Technology, and Contemporary Art. The MIT Press, 2006. From “proprius-ception, one’s own’ ception (...) the ‘body’ itself as, by movement of its own tissues, giving the data of, depth”
Not surprisingly, Levin is interested in the “secret harmonies” of the aural and visual explored in Wassily Kandinsky’s paintings and in the visual music films of Oskar Fischinger and John Whitney Jr. However, unlike these modernist forms, Levin’s responsive works activate the viewer into a participant determining and influencing their own aesthetic experience. A virtual conversation between the computational process of the work and the participant’s actual movements creates an embodied experience.

As Levin has commented:

I am interested in the medium of response, and in the conditions that enable people to experience “flow,” or sustained creative feedback with reactive systems. In this regard I have found inspiration in the engaging interactive artworks of Myron Krueger and Toshio Iwai, and in the research of cognitive psychologist Mihaly Csikszentmihalyi.

Levin’s works see and process infinitesimal movements, including minute finger and facial expressions, to create a wide array of visual and aural variables that are manifest

---

1 See Erkki Huttunen’s essay in this catalog.
2 Golan Levin, Artist Statement, October 2005 http://www.fiong.com/texts/essays/statement_art_2005/ In Csikszentmihalyi’s seminal work, Flow: The Psychology of Optimal Experience (1990) outlines his theory that people are most happy when they are in a state of flow—a state of deep concentration or complete absorption with a situation or an activity at hand. It is a state in which people are so involved in an activity that nothing else seems to matter.
differently in each individual work. For instance, *eyecode* (2009) and *Ghost Pole Propagator* (2007) both invert the notion of space-time by recording the history of participants who have interacted with the work, then feed this back to the next viewer. Time is transformed from the fourth dimension to the third.

In *Eyecode* the software isolates a viewer’s eyes, then records a moving image of one or both eyes between blinks. The grid on the screen represents a history of all the viewers that have interacted previously with the work. When the viewer sees the grid of eyes oscillating back and forth, they are simultaneously recorded: one cannot see the work without the eyes of others that have looked at the work looking back at themselves.

*Ghost Pole Propagator* takes a slightly different approach. While most of Levin’s work creates a more direct, intimate connection with the participant, this work has a wider, more environmental perspective. The camera captures the entire room, turning the spectators into colorful stick figures that are then transformed from the three dimensional realm into a flat image of moving bodies.

Levin’s *Interstitial Fragment Processor* (2007) allows the body to draw an image. But instead of drawing an image with the viewer’s shadow, the light streams through in the
negative space that is initially drawn. But the object is not simply drawn: when the viewer
releases the shape it comes to life, making a sound, based on its relative size, as it falls to
the bottom of the screen.

_Messa di Voce_ (2003), originally a live performance at Ars Electronica, was made
by Levin in collaboration with Zachary Lieberman and the sound artists Jaap Blonk and
Joan La Barbara. The performance version had fourteen interaction modes, or scenes,
each creating various states that engage distinctly different forms of interaction. This work,
more than any other in the exhibition, creates a stage-like environment that makes the
participant a performer. The performer holds a microphone, moves around the stage, and makes
sounds that elicits different visual effects. In discussing _Messa di Voce_, Levin has commented
that “the project touches on themes of abstract communication, synesthetic relationships,
cartoon language, and writing and scoring systems, within the context of a sophisticated,
playful, and virtuosic audiovisual narrative.” Utilizing computational processes to generate
visual and sonic responses transforms a simple mirroring or reflection of movement into a
more expressive, embodied interaction. This creates what Philip Auslander has described
as a sense of “liveness.” Levin clearly shows how the relationship of a live person moving and
a media-generated image have equal expressive power. The quality of the images and sounds
fed back to us is as “live” as the person’s movements that activate the feedback.

Each of these works has a distinct pattern of images that the viewer would alter with
a mouse, but they were re-programmed to work on an iPad for this exhibition. Without the

---

6 Philip Auslander, _Liveness_, Routledge, 1999. “In other words, the common assumption is that a live event is “real” and that is mediatised
events are secondary.” Auslander understood that these parallel forms that were not hierarchical.
mouse, the viewer uses their fingers to manipulate the screen images, creating a deeper interaction between their mind, body, and the work of art.

**MOVEMENT (THE KINESTHETIC)**

Since Levin's works are wholly dependent on the viewer's engagement with the ensemble of interaction, images, and sounds, he achieves what Gilles Deleuze called “movement-image.” In his book *Cinema 1*, he defines movement-image as “the acentered set [ensemble] of variable elements which act and react on each other.” Deleuze derives this idea about movement and how it can be applied to cinema from Henri Bergson's ideas of durée (duration or interval) that has its roots in the historical investigations about movement in art, science, and philosophy.

To briefly trace this history, one must begin with the Zeno of Elea (circa 490-430 BC), a pre-Socratic Greek philosopher known for this famous paradox of movement:

> Before an object can traverse a given distant, it must first traverse half of this distance; before it can cover half, however it must cover a quarter and so on, *ad infinitum*. Therefore, since the regression is infinite, motion is impossible, inasmuch as the body would have to traverse an infinite number of divisions in a finite time.

This paradox points to the Greeks inability to deal with infinity, multiplicity, and variability which is encapsulated in the experience of continuity. At the core of the problem is that sensory perception of movement (continuity) cannot be used to define kinetic variability. As Carl Boyer states in the *History of the Calculus*, “mathematicians had to transcend sensory imagination in order to divine the calculus.” It was not until the 17th century discovery of infinitesimal calculus by Leibniz and Newton that this problem was solved, launching the beginning of modern science. For the first time any natural process that had the characteristic of rate of change could be quantified. This was not just used to determine the speed of things such as planetary orbits, but also the rate at which a contagious disease would spread.

---

With the advent of photography this idea of motion could finally be visualized. In the late 19th century Eadweard Muybridge and E. J. Marey both captured the imperceptible and infinitesimal movement in their chronophotography of living things. Muybridge’s *Animal Locomotion* (1878) famously revealed, for example, that a horse running at full gallop will momentarily have all four hooves off the ground.

By exposing a single plate or plaque fixed at regular intervals in *Geometric Chronophotograph of a Man In the Black Suit* (1883), E. J. Marey was able to study the motion of animals and humans in seemingly infinite positions. The perception of the pose is limited by our ability to see with the human eye, and technology allows us to see the depth of movements. In turn this allows us to precisely characterize both the quantity as well as the quality of motion.

Once the infinitesimal movement could be quantified (both mathematically and visually), it could be understood phenomenologically. When Henri Bergson first discussed the concept of the infinitesimal in *Time and Free Will* (1889), he observed that as we are bombarded with flow of data in the world, our body processes infinitesimally small temporal mental states he called durée (duration). Bergson divided this processing in two phases: the actual (sensual) which is the measurable energy or value of a particular stimulus, and the virtual (associative) which is how the brain responds to that stimulus. It is within the virtual that the infinitesimal takes place, and he defined them as virtual multiplicities. Bergson saw the action of the body as the mediator of the external world and individual consciousness.

Likewise, the interactive artwork also allows for a visceral experience of these two different states. Computational recognition techniques can reveal these infinitesimal virtual multiplicities. The real-time capture of subtle body movements can be mirrored to the participant through various forms of feedback. Levin’s work operates within this realm. Levin is part of a larger group of artists exploring a new linguistic syntax of how the body reacts to stimuli. This new language allows for a deeper awareness of the world and individual consciousness through both our senses and our minds.

---

6 Bergson’s early training was in mathematics and throughout his writings are illusions to the philosophical properties of the infinitesimal.

THE SYNAESTHETIC

Just as one may trace an historical lineage and the philosophical implications for movement in interactive work such as Levin's, one may also see how it evokes a proprioceptive multisensory experience. The exhibition *Sensorium: Embodied Experience, Technology, and Contemporary Art* (2006) curated by Bill Arning, Jane Farver, Yuko Hasegawa, and Marjory Jacobson, at the List Gallery at Massachusetts Institute of Technology, specifically explored multi-sensory environments in recent artistic productions. The art in *Sensorium* specifically captured the “hybrid moment when modernist segmentation of the senses gave way to dramatic multi-sensory mixes or transpositions.” In her introduction to the exhibition publication for Sensorium, Carolyn Jones argues against Greenbergian formalism and its reliance on a purely ocularcentric framework at the expense of all other senses. Jones points out how this contemporary artwork proposes more embodied experiences of art:

> The resulting set of experiences can be called a sensorium: the subject's way of coordinating all of the body's perceptual and proprioceptive signals as well as changing sensory envelope of the self... The sensorium is at any historical moment shifting contingent, dynamic, and alive. It lives only in us and through us, enhanced by our technologies and extended prosthetically but always subject to our consciousness (itself dependent on sensory information).''

The sensorium can also be seen more generally as a conceptual space that can provoke a multitude of embodied interactions. For instance, when a spatially open responsive work, like Golan Levin’s, invites multiple viewer/participants to interact, it creates a phenomenological space which has three primary characteristics: a pre-discursive experience, a direct interplay of mind and body, and a further blurring between technology and our bodies.

In her book, *Volatile Bodies: Toward a Corporeal Feminism*, Elisabeth Grosz uses the Möbius strip — a never-ending circle where one side folds into the other without a break — as a metaphor to articulate the blurring of mind and body that was once seen as completely separate.

---

by both Western culture and modern science. It is this re-connection of mind/body in concert with technology's ability to heighten our senses that Levin and other artists employ in their new forms of art.

This essay began with Allucquère Rosanne Stone's warning of the "immense threat and immense promise" of the dissipating boundaries between bodies and our technologies. This points to a new technological sublime that infiltrates our bodies in a multitude of ways and also affects our consciousness. We are forced, by this blurring of the internal and external, into an expanded state of embodiment folding together technological and biological feedback systems.

Golan Levin mines computational techniques to both record the infinitesimally subtle movements of an artwork's participants, as well as transcode these movements into engaging and compelling feedback loops. These computational processes he employs give the viewer a visceral experience of the interplay between mind and body. This process (and processing) forms a sensorial space (sensorium) evoking both a kinesthetic and synaesthetic experience. Ultimately, the heightened awareness of movement and the co-mingling of sonic and visual feedback creates an interplay of our senses that allows for work that is not merely representational, but embodied and experiential.
Roll Your Own Legos

What could be controversial about a dad building his son new toys? Nothing, unless that dad’s an intellectual property provocateur.

BY ANDY GREENBERG

LAST YEAR GOLAN LEVIN’S SON decided to build a car. Aside from the minor inconvenience of being 4 years old, the younger Levin faced an engineering challenge. His Tinkertoys, which he wanted to use for the vehicle’s frame, wouldn’t attach to his K’Nex, the pieces he wanted to use for the wheels.

It took his father, an artist, hacker and professor at Carnegie Mellon, a year to solve that problem. In the process he cracked open a much larger one: In an age when anyone can share, download and create not just digital files but also physical things, thanks to the proliferation of cheap 3-D printers, are companies at risk of losing control of the objects they sell?

In March Levin and his former student Shawn Sims released a set of digital blueprints that a 3-D printer
can use to create more than 45 plastic objects, each of which provides the missing interface between pieces from toy construction sets. They call it the Free Universal Construction Kit. The tens of thousands of consumers who now own devices such as MakerBot’s $1,100 Thing-O-Matic can download those files and immediately print a plastic piece that connects their Lego bricks to their Fischertechnik girders, their Krinkles to their Duplos, or half a dozen other formerly incompatible sets of modular plastic blocks, sticks and gears.

One blog called it the “ultimate nerd dad triumph.” But as the project’s unprintable acronym implies, Levin and Sims are out to raise hackles—particularly those of intellectual property lawyers. “This isn’t a product. It’s a provocation,” says Levin. “We should be free to invent without having to worry about infringement, royalties, going to jail or being sued and bullied by large industries. We don’t want to see what happened in music and film play out in the area of shapes.”

Levin and Sims didn’t just make near replicas of the commercial toys, they also used a measurement tool called an optical comparator to copy the toys’ dimensions to within 3 microns. And then they published those models on the Web. “Our lawyers were a bit concerned,” admits Levin, so much so that the pair initially planned to release the project anonymously.

Levin counts himself part of F.A.T. Lab, a hacktivist collective, and he wouldn’t be the first of its members to get into trouble. One of them had his PCs confiscated by the Secret Service last summer after installing software on Apple store computers that secretly took photos of shoppers’ faces.

Levin and Sims have been more careful. The patents on all the toys integrated in their kit expired years ago. But a copyright lasts many decades longer than a patent, and that’s the cudgel lawyers are using against downloadable objects. In June of last year Paramount sent a cease-and-desist notice to the designer of a 3-D printable cube that resembled the alien technology from the film Super 8. In December the company Games Workshop used copyright takedown notices to pressure the 3-D printing site Thingiverse into removing fan-uploaded designs for 3-D printable figurines from the game Warhammer.

Just a month later the Swedish copyright-flouting site the Pirate Bay began devoting a section to downloadable objects. One file, for instance, allows users to make 3-D prints of the Guy Fawkes mask from the film V for Vendetta. The mustachioed mask is the favorite symbol of the hacker group Anonymous, whose anticorporate members would much rather pirate the disguise than allow Time Warner, which owns the copyright, to profit from its sale.

A Lego spokesperson says the company has no problem with Levin and Sims’ work but is keeping an eye out for printed objects that infringe on its brand. Neither Hasbro nor any of the smaller companies that sell construction toys responded to requests for comment. So far the pair haven’t received a cease-and-desist letter.

As long as Levin and Sims stick with functional objects rather than aesthetic ones, they should be able to steer clear of copyright and trademark law, says Michael Weinberg, a lawyer with the nonprofit Public Knowledge who advised on the project. “You probably can’t stamp the name Lego on them, but if you don’t it’s hard to imagine what rights the companies could assert,” he says. “The real lesson is the vast majority of physical things aren’t protected by intellectual property law.”

Even so, Levin calls his project a “shot across the bow” of any company that wants to limit and control how their physical designs are copied, remixed or improved in the future. “Yes, it’s just a toy. But it’s also a harbinger of what’s to come. Things are going to get complicated.”

The Free Universal Construction Kit makes toys inter-operable, whether their makers like it or not.
CREATIVE CODES: A CONVERSATION WITH GOLAN LEVIN

Though aptly dubbed the “godfather of creative code” and “Geek Superstar” by techie art bloggers for his individual contributions to the digital arts, Golan Levin’s work and interests have always had an inclusive and collaborative tone. So it will come as no surprise to his audiences that Levin’s most recent projects reveal a more overt rebellion against software monopolization and the homogenizing tendencies of commercial visual culture.

Levin aims his myriad personal artistic projects precisely toward the current technological and cultural moment. His engineering and computer science savvy allows him to create work that responds just-in-time to the very latest digital impact on human life. Levin’s work reflects our initial marvel at the devices of the day. While playful, the underlying exploration of digitally mediated gesture and human-machine interaction is thought-provoking and impeccably designed. His signature style has involved creating and coding a highly technical device toward a time-based and visually poetic audio-visual performance or artifact. A classic early example, *Dialogues (A Telesymphony)* (2001), involved orchestrating a program to systematically dial and ring the varied tones of the audience members’ cell phones in a symphonic hall—not as the embarrassing interruption it was considered at the time, but rather as a musical recital. A composer’s sensitivity to timing is also essential to the humor linking Levin’s works, such as in *Double-Taker (Snoat)* (2008), where a larger-than-life, one-eyed robotic creature mounted on the roof of an academic building reacts with simulated surprise as people approach the door.

As one of a number of prolific digital artists nurtured early in their careers by John Maeda’s Aesthetics and Computational Group at Massachusetts Institute of Technology, Levin has already made a marked impact of his own in media education. He promotes a radical demystification of artistic coding and an insistence on the possibilities of universal skill access. From his students at Carnegie Mellon University (CMU), where he is currently an associate professor of Electronic Time-Based Art, to the diverse attendees of the ongoing ART & CODE conferences he spearheads, Levin debunks the stereotype of data hoarding and academic infighting with the generous sharing of resources and knowledge. In the following Skype-mediated conversation from December 2011, Levin considers the impact of some of his latest collaborative projects and educational efforts that fall outside the more commonly published academic and commercial gallery contexts.

**JOANNA HEATWOLE:** Looking into your new work, I was particularly interested in *QR_HOBO_CODES* (2011) as an example of one of your Free Art & Technology Lab (F.A.T. Lab) collaborations.

**GOLAN LEVIN:** The F.A.T. Lab is my posse. When I want to work quasi-anonymously and when I want to work with people my age who are really juvenile, then I work with these guys. A lot of these projects are intended to tweak the media and be provocative almost for the sake of being provocative. Their main mission is to create new work at the intersection of pop culture and open source. What that means in terms of pop culture is that they really are engaged with creating viral media—work that grabs people’s attention because it deals with current issues and things people care about. Dealing with open source means creating and sharing free tools that people can use to engage—and mash up and destroy—pop culture.

**JH:** At first that particular series seemed like a different era of work for you. But I remembered that you’d done graffiti-themed work before. Has that been a long-time interest of yours?

**GL:** I think it’s an important phenomenon, but I don’t necessarily think it’s beautiful. That may be funny to say given that there was a time in my life when I got very into the aesthetics of graffiti. As a twelve year old I was interested in the formal aspects of typography and color and what seemed to me as a very energetic, vibrant, and youthful form of play. I couldn’t really think of any other visual youth cultures at the time where anyone could engage with the medium—where how good a visual artist you were actually seemed to be important. Finding a way that kind of stuff could be shared, “broadcasted,” appreciated, and respected, was something that interested me as a twelve year old.

Now my interest in graffiti is very different and it comes from a deep-seated aggravation I have with the way public space
has been taken over by corporate messaging. I think the public sphere no longer seems to belong to the public. We need to take back public space. I don't think we need to do this with an aggressive movement of uglification, but I think we need some tools to counterbalance the kind of messages that are happening in public space right now—messages that are reinforcing an order that may not be a good order to have. The term I came up with in developing the QR code was situated visualization.

**JH:** I recently attended a talk at the Rochester Institute of Technology where your emphasis on aesthetics seemed primary, whereas this work with the F.A.T. Lab seems tangibly political in comparison.

**GL:** As my wife would say, “Everything is political, honey—even your polite audio-visual work is political.” It’s who you’re in bed with. In my collaborations with the F.A.T. Lab, I’m personally exploring a persona where I get to be a little bit of an asshole and mess with the order. It’s a different way of working from the audio-visual experiments that I do that get called “whimsical and sublime.” And I found increasing dissatisfaction in the gallery scene. My gallery sold an installation of mine to a notorious pornographer. I had to install the work and then later go back and repair the piece, so here I am suddenly beholden to do work in this guy’s house. The whole experience was such a turnoff. The F.A.T. Lab is a bunch of people who are tweaking the system. They are trying to wake up people’s minds and address political inequality. They are trying to empower people in a variety of provocative and funny ways. I think what I like about it is the sense of humor that is in a lot of the work. As much as it’s provocative, it’s propaganda with a huge sense of irony—and that’s important to me.

**JH:** Your work has always had a sense of humor and playfulness, so I can see how that is a great community for you. It’s also interesting to think you could have chosen a different, totally anonymous identity for your F.A.T. Lab collaborations—but instead you’re basically keeping your name associated with these projects.

**GL:** Officially the projects are by the F.A.T. Lab, but I’m not trying to hide my identity in the sense that there is a list of credits at the end, and the person posting the project to the blog will be “Golan,” so one can fairly easily attribute that I was the one who did it. But I’m specifically donating this project to the collective as the collective’s output. Once you’re in the posse everything you do is branded with the posse—but no one has to ask permission to post work once you’re in—it’s a wonderful feeling of freedom.

**JH:** One aspect of the **QR_HOBO_CODES** project—and its predecessor **Infowiz + Graffiti: A Pie Chart Stencil** (2011)—is a very low-tech output compared to your earlier work. I wondered if you had a name for that approach.

**GL:** Part of what makes the **QR_HOBO_CODES** work new for me is releasing something to the public that anyone can download—I simply hadn’t done enough of that. In the past a lot of my work required a lot of equipment—like special projection set-up units—where it didn’t make sense to release that data to the public.

QR codes, though, are considered by some to be kind of nerdy and by others to be a stopgap measure until we have perfect optical character recognition in our phones—but they are all over the place. Allowing people to make stencils with them seems disruptive.

I needed some way to demonstrate to people how QR codes could be used in a way that is different. By the way, the project is not exactly low tech—to figure out how to create the stencil from the QR code involves lots of different geometric kinds of stuff, like computer vision and computational geometry. It’s gracefully hidden, but it’s there in the background.

**JH:** I can only imagine, which is why I was trying to be careful to say that the output—the end product—was low tech.

**GL:** And my wife herself said, “I don’t understand why you’re working on this QR code thing. Are you just trying to make more graffiti? Because it’s ugly.” Her prompting made me think about the way I was envisioning people using these. That’s when
I remembered something I had learned when I was a kid from some book about activities for ten year olds. One segment was about hobo codes, and how people would chalk-mark these things [to pass along survival tips each other]. I remember a brief period a couple of years ago when it was called “war chalking.” People would note, “There’s a strong Wi-Fi signal here,” or, “This store sells really shitty coffee.”

**JH:** The kind of stuff that a storeowner would be quick to clean up if it was easily legible?

**GL:** I got some critiques where people said homeless people wouldn’t have smartphones. I got some responses like, “This is dumb because there is no one who is both poor and smart enough to understand what a QR code is, and if they’re so poor why would they have a smartphone?” My perspective is that anyone can get a phone for twenty dollars that will parse QR codes. Secondly, if you’re homeless, you need a smartphone because it’s your office. There is a new category of people emerging called tech nomads—modern hobos in a way. They are radically mobile migrant workers. Some of them are poor, while some of them are not. Who do you see at Ritual Coffee in San Francisco but a bunch of twenty-five year olds with their laptops? Where is their office? Right there in the cafe! And any urban dweller is nomadic for half the day. The idea behind the QR project was to give those people a tool for marking up the world.

Do I really think people are going to mark up [public] space with QR codes? No. I don’t think it’s really going to happen. I don’t think it’s going to catch on. But I submitted it into the public domain so that people could ruminate about that and think about the implications of that.

**JH:** You recently organized and directed a conference called ART & CODE 3D—the third of its kind at CMU. It is interesting that the conference was partially sponsored by Microsoft, because among the traditional artistic coding workshops were workshops that created open space specifically for hacking the Microsoft Kinect gaming system. Is Microsoft buying into the open source movement—do they want to see an iPod touch-style app revolution around the Kinect?

**GL:** I think that Microsoft is a big boat and it’s very slow to turn around big boats. But they are not dumb and they see the maker revolution happening around them. Elements within their management were really blindsided by the success of the Kinect among people who wanted to make new kinds of experiences. They suddenly realized that a lot of the cultural cache of Kinect was the fact that people could make stuff with it. And they also genuinely did not understand that the camera they had initially expected to be peripheral for the Xbox was actually a revolutionary device that enabled a huge number of applications. What the Kinect basically does is erase some of the most difficult problems of computer vision of the last twenty years—just erases them. Now you can have robots that can navigate special terrains, you can do 3D scanning of the world, you can make more kinds of interactive experiences. You can know where people are exactly in space and you can do a lot of interesting kinds of things you couldn’t do before. It took makers and artists, tinkerers and hackers to teach that to Microsoft. I realized that I should make a pitch to Microsoft to say the device you just released intersects well with the initiatives of the ART & CODE conference: exploring the new kinds of artistic and tactical possibilities of low-cost DIY 3D scanning. In late 2011 that means the Kinect, so without so much as calling it a Kinect hacking conference explicitly, it was clear that this was going to be a conference that was primarily engaged with using this kind of depth camera and others like it.

**JH:** You structured the conference openly to get a lot of participation from a very diverse group of invitees. Was there anything that came out of the conference that surprised you?

**GL:** We had a hackathon, we had an unconference—these are things that are participant-driven. I definitely feel like we’re in an era now where people can get excited about participant-driven kinds of things. The previous two conferences I ran were good conferences that, in my opinion, were successful, but there were some events that were real winners and others that were duds. You never know. One thing to say is, “That’s life”—the other is to say, “Okay here’s an open template, I’m getting everyone together, I’ve got all the right people—you guys decide what you want to do.” One thing that came out of ART & CODE that was a really interesting and unexpected surprise that is carrying forward, happened during the hackathon. I invited about fifteen of the world’s best Kinect hackers from arts communities and they were in my lab working, so we decided that it would be fun to interview them. But to just interview them on video would not be interesting enough. Instead, we would develop a special
camera to interview them that had never been made before—a regular video camera plus depth. Now we have this data that is incredibly juicy, because we have these interviews with people about how they started getting into computational arts and their thoughts on the future and depth cameras. But what is interesting about it is this material that allows me to re-edit with depth and create virtual cameras around the subject. Or I could create virtual effects that could synchronize what I’m talking about so that as I talk, you suddenly see me in a new way.

**JT:** College professors will be clamoring for that kind of resource.

**GL:** ART & CODE is basically about these educational interests of mine—and it’s about democratization. A lot of my work is about democratization, whether it’s my own audio-visual work, my work with the F.A.T. Lab, or the ART & CODE conferences, which allow people to gain skills.

**JT:** What about the perception that having both computer science savvy and art skill is a rare combination? Do you find that ability to work with both skill sets, as you do, is becoming more common?

**GL:** There are a lot more people who have the ability than you might expect. I also think there has been a revolution in tools to make it possible for more people to do so. Also, people are aware that new culture can sometimes only be made through software, and so they learn to use code when they may not have been inclined otherwise. I had a really amazing experience last semester with my students here in the School of Art at CMU. I teach in a very traditional fine arts program. If you just put yourself in the frame of a very traditional fine arts conservatory where people are into universal technology, you can imagine that many came to art school specifically to get away from computers. They have told themselves, “I’m bad at math and computers hate me.” The electronic arts faculty concluded that programming is a skill that is important for the twenty-first century, and so we changed the curriculum. From this past fall on, all sixty or so sophomores in the entire CMU School of Art are learning to program in Processing. They are learning to make circuits with Arduino and they are learning to program with Max/MSP.

I had kind of written the students off, assuming they were going to hate this course. Instead, they really loved it and they did really well. People who thought that computers hated them realized they had something to say with computers.

This could only be possible now with tools made by artists, for artists. If you look at the materials in Max/MSP or Processing, they are obviously written by a designer, for a designer, and created to do things that a designer cares about. The second thing is that the programs are free and open source, so there is a huge community of people they can see, and they can see all this work online. Students realize that it’s not really rocket science. I had a lot of students—especially women, and especially painters, who became very interested and decided to pursue programming further beyond the required course. They realized they could engage in culture in ways that were beyond what they could have imagined before. A lot of them made a project and threw it on YouTube and got ten thousand hits. Now, ten thousand hits on YouTube is respectable but not really amazing. You could have a cat do something dumb and get half a million hits. But compared to putting a painting in the university gallery where up to fifty people might view it, to suddenly have ten thousand hits for a video of a class project totally blew their minds.

**JT:** It’s the feedback you were craving when you were twelve.

**GL:** But it’s compounded, right? It’s compounded right now with the way things work virally. If someone thinks it is cool they are going to tell someone else, and from there it’s easy to re-tweet, or whatever metaphor you want to use, and suddenly it spreads in ways it couldn’t spread before. I was unbelievably blown away by how this experience positively affected the students’ artistic identity. They have a very malleable self-concept still. I guess that’s why I like educating—it’s great to see that.

**JOANNA HEATWOLE** is a multimedia artist and freelance writer in Rochester, New York.

---

**Subscribe to Afterimage**

- **$20** Student, US only
  (include copy of student ID)
- **$33** Individual, US
- **$100** Institution, US
- **$90** Individual, Foreign
- **$165** Institution, Foreign

**Contact Information**

**NAME:**

**ADDRESS:**

__________________________

__________________________

__________________________

__________________________

**STREET, Apt/Suite, CITY, STATE, ZIP, COUNTRY**

**EMAIL:**

__________________________

**Payment Information**

- **CHECK/MONEY ORDER**
- **VISA**
- **MASTERCARD**

**CARD NUMBER:**

__________________________

**SIGNATURE:**

**Please send payment to:**

**AFTERIMAGE SUBSCRIPTIONS**

**Visual Studies Workshop**

31 Prince Street
Rochester, NY 14607

ph: (585) 442-8676 x 26
fax: (585) 442-1992
Hara advocates the "super-normal"—that is, ordinary objects made extraordinary by fastidiously careful design decisions. He is a guiding spirit of the Japanese lifestyle retailer Muji’s inspiring spare design ethos. And his numerous books have made him an influencer in the league of Dieter Rams.

Holz’s startup will soon release a potentially paradigmatic gestural interface that can detect movements as fine as 1/100th of a millimeter. Forget Kinect-style waving of arms and legs; Holz wants you to control your TV and computer with the twitch of a finger.

If Carnegie Mellon is to technology what Hogwarts is to magic, then Levin is its Dumbledore. He leads the Pittsburgh university’s Studio for Creative Inquiry, where students work at the intersection of technology and culture, building robots that can raise babies as well as 3-D cameras that Hollywood can only dream about.

Stanford’s d.school, which embraces design-thinking ethos, baffled many educators in its first years. But since then, Kemble has grown the curriculum from a few workshops into classes that teach thousands of students each year. The Wall Street Journal has called the d.school the next B-school.

Premium-class seats are a strapped airline’s best friend and profit center, and Lloyd and Pearson deploy cutting-edge ergonomics and enticing comforts to justify the sky-high prices. Their work includes Lufthansa’s new business class, whose seats are oriented in V-shapes that maximize legroom and personal space.

A Leonardo da Vinci of contemporary design, Heatherwick blends technical wizardry with flights of conceptual fancy. Among his London studio’s creations: a boat shaped like a Möbius strip, the British capital’s new double-decker buses, a bridge that rolls up like a pill box, and the multiperforated cauldron that lit up the opening ceremony of the 2012 Olympics.
GENERATIVE DESIGN

Visualize, Program, and Create with Processing

Hartmut Bohnacker
Benedikt Groß
Julia Laub
Claudius Lazzeroni, editor
S.17

Segmentation and Symptom

The concept of image filtering has long been part of computer art. Famous examples such as Ken Knowlton and Leon Harmon's alphabetic nude Studies in Perception I from 1966–1967 and, more recently, Jim Campbell's dynamic LED displays and Daniel Rozin's interactive pixelated mirrors attest to its popularity, as does the long list of Photoshop filters. The application of a filter is often the starting point for students who wish to use computerized calculations.

It was against this background that Segmentation and Symptom was created as an investigation of the imaging capabilities of Voronoi diagrams. The geometric structures of Voronoi diagrams often appear in nature: in cells, air bubbles, and crystals. They occur in pressurized spatial structures, creating characteristic balance-seeking boundaries.

In this series created for the British Zoo Quarterly, Golan Levin used the Voronoi algorithm as an image filter on photographs of displaced and homeless people, creating portraits from numerous vector lines. Their fragile condition is echoed in the delicate structures of the Voronoi diagram.

To achieve this result, several thousand dots were placed in the image based on the brightness of the original photographs. The gray values in the image acted as reference points for distribution—the darker areas were given more points, lighter areas fewer. This structure served as a basis for calculations using the Voronoi algorithm, which generated images with tens of thousands of lines that were output as a PostScript file. The project was implemented entirely in Java.
Footfalls is an interactive audiovisual projection in which the viewer's stomping sets off an avalanche of bouncing virtual objects. It was part of an exhibition on TMEMA projections by NTT InterCommunication Center (ICC), Tokyo, in July 2006.

Golan Levin and Zachary Lieberman developed this installation from another collaboration, *Messa di Voce*. Microphones in the floor registered visitors' walking and stomping sounds. The intensity of the noise controlled the size and number of balls that fell from above onto the six-meter-high projection screen. The more vigorously the viewer stomped, the more objects fell.

Visitors could use their silhouettes to catch, rearrange, and throw objects. Each collision between two objects produced a minimal percussion sound. If a number of balls collided simultaneously, the noise level increased abruptly, creating a piece of jarring music. Visitors could perform this piece of music, both visually and musically, by generating a fast-paced audiovisual spectacle with their entire bodies.

*Footfalls* was developed in C++ with the openFrameworks toolkit, a cross-platform open-source library. Visitors' silhouettes were tracked using infrared light, converted into geometric representations, and—with the help of a physics simulation—integrated into the logic of the installation. Thousands of virtual particles collided with the invisible contours to create the silhouettes.
REMIX THEORY
THE AESTHETICS OF SAMPLING
Eduardo Navas
cause interaction, touching, or in the case of the online user, clicking, is now integrated in new media culture. It is part of consumption and entertainment: “To call computer media ‘interactive’ is meaningless—it simply means stating the most basic fact about computers.” In order to understand interactivity in new media, specific analyses are necessary. To reflect further on this convention of interactivity, as well as the acts of remixing by DJs, it will be productive to examine manifestations in which principles of Remix in new media are at play. Art has always been a reflection of cultures, and in this case it is a good and effective field in which to begin.

REMIX IN ART

The following is an examination of various works from the Turbulence.org archive, a non-profit based in Boston and New York which funds Internet art, and archives projects which have explored the possibilities of new media since the popularization of the Internet. To better understand Remix, the projects are compared with art from the twentieth century. This opens a critical window to show how specific codes later found in music remixes and eventually in Remix have been at play under different names throughout history. This section will discuss Grafik Dynamo (2005) by Kate Armstrong and Michael Tippett, and The Secret Lives of Numbers (2002) by Golan Levin, et. al.

As previously noted, there are four types of remixes at play today: the extended remix, the selective remix, the reflexive remix, and the regenerative remix. In what follows the implementation of principles of the selective and reflexive remixes in art will be examined.

For the selective remix, the DJ adds to and deletes parts from the original composition, while leaving its spectacular aura intact. An example from art history in which principles of the selective remix were already at play is Marcel Duchamp’s Fountain (1917); this work consists of an untouched urinal (save for a traditional artist signature) to reinforce the question, what is art? And principles of a second level remix on Duchamp can be found in Fountain (after Marcel Duchamp) by Sherrie Levine who, in 1991, questioned Duchamp as a man and his urinal as art, leaving intact Duchamp’s aura as an artist but not the urinal’s spectacular aura as a mass

---

19 Manovich, 55, see chapter one for full citation, 14.
Eduardo Navas

Tamar. Although they were made 30 years apart, both decontextualize the objects they appropriate. Here we have body parts of men and women combined to create a collage of de-gendered figures. The authority of the image lies in the acknowledgment of each fragment individually, and a specific social commentary like the one found in Heartfield’s work is no longer at play; instead, each individual fragment in Höch’s work needs to hold on to its cultural value in order to create meaning, although with a much more open-ended position. This, again, is done in similar fashion as Armstrong and Tippet, and Lichtenstein, who make generalized references.

For Heartfield and Höch the subject which gives the work of art its authority is actually questioned; the result is a friction, a tension that demands that the viewers reconsider everything in front of them. This is what makes their art powerful.

Figure 3.18 Golan Levin, et. al., The Secret Lives of Numbers, 2002

Keeping in mind how principles of the reflexive remix work for Heartfield and Höch, we can now examine The Secret Lives of Numbers by Golan Levin, et. al. (Figure 3.18) The work consists of a visualization of numbers and their popularity in culture for the years 1997, 1998 and 2002. The artists conducted an extensive study of the numbers between one and a million; and put online the visualization of data for one hundred thousand. The reason they give for this numerical range is that presenting a visuali-

---


33 http://turbulence.org/Works/nums/index.html
zation for up to a million is not possible online, but they claim to have an offline installation which presents all the numbers. The data visualization consists of three panels. The first on the far left provides contextual information about the other two. It presents a menu bar that allows the user to choose between the years 1997, 1998 and 2002, and then provides him/her with the popularity of the number selected, its percentile, rank, and association. The user can choose numbers on the other two panels. The middle panel offers a bright yellow bar-chart at a ninety-degree angle, while the third panel on the right presents a field of green and yellow which varies from lighter to darker values. The color varies with the popularity of the number in culture. When a number is chosen on either the center or the right panel, the left panel then provides information on that number. While all numbers are ranked, not all of them are associated with an actual activity. Some appear to be zip codes, and when the user chooses a number of this type, the following statement appears “Association for 15139: Oakmont, PA.” But at times the user may receive the statement “There are no associations for number______.” In fact, this is a common result.

In the end, The Secret Lives of Numbers takes numbers from the everyday and combines them as abstraction—which at times can become quite specific as shown above with the zip code association; however, even then the association is cartographic (unless you live there) and only points to the activity of measuring. Here the source cited is also abstract in a parallel gesture to Armstrong and Tippet’s, as well as Lichtenstein’s citation of comics; only in this case it is science that is referenced. Also note that specific data is directly sampled, but its source is abstracted in order to comment on science. This project is about numerology. It questions scientific methods of measurement, as the introductory statement reads, “[L]ike every symbiotic couple, the tool we would like to believe is separate from us (and thus objective) is actually an intricate reflection of our thoughts, interests, and capabilities.”34 The project allegorizes the authority of numbers and the authority of science, yet its aim is not to leave intact our methodology, but rather to bring forth its limitations as a measuring device of human experience. Like Heartfield’s Superman, which was conceived to question Hitler as the German leader during WWII, the aim of The Secret Lives of Numbers is to question poignantly the way numbers are seen as “objective” in the world. And to do this effectively the artists appropriate the tools of measurement normally associated with numbers: graphs and charts. One comes to realize the possibility for the project to be a well-orchestrated pun on the parameters of modernism. The project then can be considered a reflexive remix because it demands that the Internet user re-

---

34 Levin.
Eduardo Navas

flects upon and questions everything, including the authority science normally enjoys, just like the viewer must question the realness of Heartfield’s photo-montage.

The Secret Lives of Numbers also shares a sense of deconstruction with Höch; like her collages, it presents material that is impossible to engage with precision. One is limited to acknowledge that there is a preexisting process that led to the presentation of the material; in the case of Höch this means her cutting and pasting from different magazines and popular journals, while for Levin this implies the extraction of numbers from different areas of mass electronic media. But in both, one is not able to know the actual sources; the only thing that is certain is that what is presented is part or was part of a bigger whole. Thus, for Höch the body becomes gendered, and turned into pieces that point to the fragmentation that media makes possible when pushed toward the spectacular, while for Levin it points to the collapse of numbers into a purposeless exercise that exposes the preoccupations of measuring that also make mass media possible.

Both new media art works by Artmstrong, Tippet, and Levin show the unprecedented possibilities for expression in new media, when artists use new technologies to develop innovative projects. Also they all share a tendency to cite a genre or abstract concept in their projects. This is possible because of optimization and strategic manipulation of data, a recent form of mechanical reproduction. As can be seen, sampling is a key element in all the works examined, not only in new media, but also earlier examples of modern art in the twentieth century. This form of sampling in new media due to the type of technology used at the time of this writing in music studios, as well as culture at large, which is computer technology, is intimately linked to the type of sampling performed by DJs.

*****

The definitions of Remix just considered above extend to visual culture with great efficiency, both as content and form. They demonstrate that the power of remixing lies in its effectiveness as action and aesthetic. This is the reason why remixing eventually becomes discourse: it moves beyond material recognition into the ideological realm, where as noted with the remixes in music by Kraftwerk and Underworld, once an aesthetic is established, a textual (cultural) citation may be enough to exude Remix. Thus Remix finds its real power in the realm of ideas. This is the space in which the regenerative remix is best at play, as it combines material according to specific needs.

It is evident that some of the principles of the selective and reflexive remixes in the examples so far provided had been at play in visual culture
mainly because part of its database (selected texts) are limited preselections by the authors. But the database of images can potentially grow according to the activity of Livejournal.

The Waning of affect finds a home in database logic when we consider *The Secret Lives of Numbers*. Golan Levin et al. are so aware of people’s indifference to reality that the artists go on to make a parody of it. Levin and his collaborators take this to the point that the viewer is not able to connect with the piece on any level. It is completely closed off from any possible hermeneutical reading. Here the power of abstraction, which has made the philosophy of Hegel, for example, a powerful tool to understand the complexity of human interests and anxieties, is appropriated and turned into a banal exercise of numerology, which the viewer may try to engage, but in the end the object of contemplation is kept at bay, at best, at a distance allowing for indifference.

This means that the waning affect of postmodernism has not withered, but rather gained force since the 1990s. The reason for this is that the possibilities of cultural production, both popular and elitist have reached an efficiency based on increasing compression of material, that has superseded the postmodern period. And it is the compression of content, the obsession of condensing material for faster consumption and assimilation that gives Remix public legitimation.

It is obvious from the above analysis that both the selective and reflexive remixes depend on the efficiency that made mass media powerful—they appropriate this very element to critique media itself. Cultural critics who apply principles of the selective and the reflexive remix deliver material with the same efficiency and expectations of immediate recognition that the culture industry expects, only their aim is still very much ingrained in the avant-garde tradition of shocking viewers in order for them to realize people’s role in mass culture.45

All of the works described above depend on mechanical recording, which is used for the particular purpose to attain cultural value. The works, then, are dependent on the inter-relation of repetition and representation, which is a key element in the waning of affect of postmodernism. Based on the current assessment, new media art uses repetition as an aesthetic strategy, and implements recording technology directly as its main form of validation. New media art has assimilated the indifference found in the work of Warhol, as a vital ingredient to attain legitimation and cultural value.

---

needs to choose three countries; for Napier the user needs not only to begin the movement of the three points by pulling or pushing them, but also by moving their point of reference, thus making each composition unique for each user; for Brooks, the user does very little except click the button to have the current pages of the three newspapers appear combined. Brooks’ is the least interactive and least demanding of the three projects. The other two allow the user to have more choices in how to experience the work. But all three works function in the traditional form of a music remix. To be specific, in a music remix the name of the original song will provide authority and cultural validation; this is Remix as defined in the musical examples of Kraftwerk and Underworld, as discussed in chapter three. In all three online projects, the name of the remix is replaced by Paul’s concept: “three points in space.” These artists have reinterpreted her instructions—aesthetically speaking “remixed her concept.” Without such concept, their works would not have the cultural authority that validates them. And in this sense, all projects are selective remixes because, while they may be questioning global culture within the parameters given by Paul, they are not questioning her authority as curator—if anything, they reassert it as is expected of selective remixes. Notice, however, that the selective remix, in this case, functions in terms of cultural citation: a variable primarily associated with the reflexive remix. This complexity demonstrates how the three basic definitions of Remix should be taken as starting points of analysis.

Figure 4.4 Golan Levin, Axis, 2002
Revisualizing Visual Culture
Chapter 10
Museum Migration in Century 2.08

Jemima Rellie

The impact that digital technologies are having on fine art museums is both complex and profound. Everything, from the creation of art to its circulation and reception is being transformed by digital technologies. This transformation requires a reassessment of the structure and logic of art museums. It offers art museums a range of new opportunities, which, if identified and embraced, will result in a radically modified notion of what such institutions are and what they do.

In order to consider the impact that digital technologies are having on art museums as fully as possible, it is necessary to keep in mind the whole art museum ecosystem. Fine art is at the centre of the system and the practice of art-making itself is evolving in the digital age. Indeed digital technologies are transforming every step in the creative process. Artists working with more traditional media such as painting or sculpture now regularly use digital technologies to research their subjects. Artists whose work might be considered to be based firmly in the tradition of producing unique objects will also now frequently employ both electronic software and hardware in the physical production of their work.

One such artist is Fiona Rae, who since the 1990s has used computer software to work out her abstract painterly applications before projecting them onto a canvas to trace. Rae describes her painting as ‘a series of edits’.1 She goes on to suggest that ‘To edit is to shape something and adjust it and cut things out’. The reason that artists like Rae employ digital technologies in their practice is that such methods have made this editing process significantly easier.

The transformation of art-making by digital technologies is not confined to artists making use of these technologies as tools to research or to make work. Rather, these digital technologies increasingly actually make up the materials or media which twenty-first-century artists now employ in the work itself. A whole generation of new media artists has emerged making work ranging from installation art to internet art, whose very existence is dependent on new media. What is more, these artists, such as Golan Levin (see Plate 10.1), Jodi, Thompson and Craighead and Cory Arcangel, are increasingly finding institutional acceptance and commercial success.

---
‘Silenc’ at CIID – Visualisation of silent letters in a language / Processing

written by Filip Vlajic

This project by Manas Karambelkar, Momo Miyazaki and Kenneth A. Robertsen at the CIID explores how much of a language is silent. ‘Silenc’ is a visualisation of an interpretation of silent letters within Danish, English and French languages done by eliminating or highlighting the silent letters within a prescribed text.

One of the hardest parts about language learning is pronunciation; the less phonetic the alphabet, the harder it is to correctly say the words. A common peculiarity amongst many Western languages is the silent letter. A silent letter is a letter that appears in a particular word, but does not correspond to any sound in the word’s pronunciation. A selection of works by Hans Christian Andersen is used as a common denominator for these “translations”. All silent letters are set in red text. When viewed with a red light filter, these letters disappear, leaving only the pronounced text.

Data Visualization 2012; Copenhagen Institute of Interaction Design with Golan Levin and Marcin Ignac

More photos here.
ciid.dk
Resonate Festival 2013 – Exploring boundaries of art, media and technology

written by Filip Vlajic

Following the success of the first Resonate festival that took place in March 2012, Magnetic Field B in collaboration with CreativeApplications.Net and Dom Omladične in Belgrade are pleased to announce the new edition of the festival, taking place 21-23 March 2013 in Belgrade, Serbia.

Continuing to explore boundaries of art, media and technology, the new edition of Resonate festival expands its programme to three days in March and will include over 40 participating artists and thinkers across a range of activities including talks, workshops, panel discussions and music performances. This year Resonate is also partnering with a number of educational institutions and organisations to even further diversify programme and provide visitors with an in-depth overview of current situation in the fields of music, visual arts and digital culture.

2013 participating artists include Casey Reas, Joachim Sauter (ART-COM), Zimoun, Moritz Stefaner, Zach Gage, Golan Levin, Raquel Meyers, Anthony Dunne (RCA D), Revital Cohen, Karsten Schmidt, Spaces of Play, Memo Akten (MarshmallowLasrFeast), Andreas Müller (Nanikawa), James Bridle, Liam Young (The Unknown Fields Division), Andreas Gysin, Greg J Smith, Kyle McDonald, Peter Kim, Studio NAND, onedotzero and many more.

In 2012 Resonate tickets sold out within weeks. We are now pleased to announce the availability of “early bird” tickets from tomorrow – 23rd October 2012. The special discounted ticket, costing only €55.00, provides access to all 3 days of Resonate 2013 including day and night events (music performances), 15 workshops and over 30 talks.

“Early Bird” tickets are available in limited numbers and are sold on first come, first serve basis. Standard price for Resonate 2013 is £75.00 and “on the door” price is £90.00. Sign-ups for workshops will be open in early February 2013. Access to workshops is based on application process and all workshops are FREE if you have full 3 day ticket to Resonate (above).

Purchase tickets from 23rd October at http://www.resonate.io
Kinect RGB+Depth Filmmaking [openFrameworks]

written by Filip Vranjic

Golan Levin was invited by the FITC conference to answer a series of "Ask Me Anything" questions posed by Reddit visitors. At the STUDIO for Creative Inquiry, Golan's video was created by Fellows James George and Jonathan Minard, artists-in-residence researching new forms of experimental 3D cinema. Their work explores the notion of "re-photography", in which otherwise frozen moments in time may be visualized from new points of view.

Despite the sometimes wildly moving camera, the video was in fact shot with a stationary Kinect-like depth sensor coupled to a digital SLR video camera. To compose their shots, the filmmakers developed custom openFrameworks software that aligns and combines color video and depth data into a dynamic sculptural relief. In a process of "virtual cinematography", James and Jonathan rephotographed Golan's 3D likeness — selecting new angles, dollying, and zooming — to compose new perspectives on the data as if playing a video game. Fixed camerawork is thus transformed into a malleable and negotiable post-process, in which shots can be carefully recomposed to highlight and inflect different latent meanings.

This experiment developed out of concepts and collaborations born at Art & Code, a conference on 3D sensing and visualization organized by Golan’s laboratory, the STUDIO for Creative Inquiry at Carnegie Mellon University. Artist-hackers assembled to explore the artistic, technical, tactical and cultural potentials of low-cost depth sensors, such as the Kinect. As an outcome of the conference, James George, a creative coder interested in cinema, and Jonathan Minard, a documentary filmmaker interested in new-media technology, are now collaborating on the development of open-source tools and techniques for augmenting high-resolution video with depth information.

Watch the interview below.
Software Development as Artistic Practice: How Open Source Is Changing the Way Art is Made

BY KYLE CHAYKA | MAY 25, 2012

Artists are notoriously secretive about their processes. Rothko never revealed the complex formulas behind his diaphanous color fields. Picasso gave his famous dictum, “Bad artists copy. Good artists steal,” which may have been why Brancusi was so loath to let the Cubist into his studio (http://books.google.com/books?id=wZB51NGODUC&pg=PA453&lpg=PA453&dq=brancusi+picasso+studio&source=bl&ots=XwJeaKlTIs7&sig=K2ryR-q58YBXoZi61HYvibmytM&hl=en&sa=X&ei=6k29T5zPGPP26gH16MBG&ved=0CE4Q6AEwBA#v=onepage&q=brancusi%20picasso%20studio&f=false) But what about when sharing becomes a fundamental part of the artistic practice? For new media artists, whose work embraces the latest innovations in computing technology and digital imaging, being transparent with their working process is a fundamental part of being a member of the creative community — everyone copies and adapts from each other, sharing strategies, tools, and techniques.

Rather than locking their studio doors, media artists are in a constant, open dialogue over how, and how best, to make use of the technologies that drive their work. It’s not just about making use of pre-existing platforms, but inventing new ones. Groups of media artists are constantly developing original software tools that are made free to use and adapt, under the same open source banner (http://en.wikipedia.org/wiki/Open_source) that drives the well-known Linux operating system, among countless other projects.

Though these open-source creative tools were developed by artists, they don’t need to be considered works of art in and of themselves. They are, however, allowing more and more artists to begin working with code to make art. The most widely used examples of artist-directed custom software development are Processing (http://processing.org/) and OpenFrameworks (http://www.openframeworks.cc/), two open-source creative programming environments created to be accessible for computer-shy artists and experienced coders alike. The platforms have been integral to projects ranging from Marius Watz’s generative graphics (http://processing.unlekker.net/) to James George’s depth-sensing Kinect videos (http://www.artinfo.com/news/story/803811/kinect-ing-the-dots-how-artists-are-using-hacked-infrared-cameras-to-stretch-the-limits-of-visual-art).
The difference between a media artist creating a tool like OpenFrameworks and a painter developing a new admixture of oil paint, for example, is that the coding tools are designed to be functional and public, a provocative quality in the traditionally covetous art-world context. “It’s the difference between something that represents and something that operates,” said Golan Levin (http://www.flong.com/), a media artist and director of Carnegie Mellon’s STUDIO for Creative Inquiry, in a recent conversation with ARTINFO. “When people do this propositional tool-making, even if there’s only two or three people who ever use it, it actually works — it’s part of its rhetorical force.” Levin teaches OpenFrameworks and Processing to visual art students in a now-mandatory class in Carnegie Mellon’s art program called Electronic Media Studio Two.

Creative programming environments are functional by necessity, especially with utilities like Processing and OpenFrameworks. “The moment they get widely used, you have to think about issues of functionality more than you have to think about provocation,” Levin continued. But this openness hasn’t always been the hallmark of creative software development.

In 1998, John Maeda, the director and founder of the MIT Media Lab’s Aesthetics and Computation Group, developed a programming environment called Design by Numbers (http://mitpress.mit.edu/catalog/item/default.asp?type=2&tid=3498). Created for “anyone who likes to pick up a pencil and doodle” (http://mitpress.mit.edu/catalog/item/default.asp?type=2&tid=3498), the private environment was intentionally minimal, a 100-by-100-pixel square that only displayed greyscale, its output determined by simple commands. It was a “level zero teaching tool,” remembers Levin, who was a student of Maeda’s. Two other students, Casey Reas and Ben Fry, decided that Design by Numbers didn’t go far enough — they wanted a bigger digital canvas, and full color. They developed Processing, which was made public in 2001.

OpenFrameworks also came in reaction to Maeda’s work. While working at Parsons, artist Zach Lieberman wanted to teach Maeda’s environment and his ACU code library to students but couldn’t because the earlier system wasn’t open source. Lieberman worked with his student Theo Watson and developer Arturo Castro (the only contributor with a background in computer science, rather than art) to create OpenFrameworks, which was released in 2005. The platform continues to evolve with the work of a core group of artists and developers, and is constantly being added to with new plugins and capabilities by the OpenFrameworks community.

When asked if he minded that businesses were using his software to create commercial projects, Lieberman told The Creators Project (http://www.thecreatorsproject.com/en-uk/blog/a-qa-with-zach-lieberman-founder-of-openframeworks-pt-i), “My theory is that putting better tools out there means that people can make better projects and then companies and institutions will see those projects and take more risks, and in that way everybody’s work will be able to improve. There’s just more opportunity.” The radical sharing of the open community source has helped companies and artists alike — and sometimes both at the same time.

Developer and artist Jonathan Vingiano, along with Internet artist Ryder Ripps, are the founders of OKFocus (http://okfoc.us/), a creative agency that has produced a slew of provocative Web-based projects in the last year, including Art or Not (http://artornot.info/art) and Tug of Store (http://tugofstore.com/). They also periodically release the Javascript plugins and tools that they develop in order to execute their work, and have even made their entire Web site design public. “What we’ve done is open source our aesthetic,” Vingiano explained. “We use a lot of open source tools. It’s the nature of being a part of this community,” he continued. “The second that you use something that’s free, you’re part of it, and it makes sense to give back to it.”

For OpenFrameworks and Processing, having a large number of contributing developers and users — more cooks in the kitchen — is a good thing, but the downside is that it can get messy. Cinder (http://libcinder.org/about/), a C++ library for creative coding, is led by a single developer, Andrew Bell. It’s still open source, but it was designed for a more professional, expert group of users familiar with the strictures of software engineering. In the right hands, it’s a powerful tool, but it doesn’t provide the same educational experience that makes Processing and OpenFrameworks accessible to larger audiences.
Rather than as artworks or tools, it might be best to think of these software platforms in terms of the community of creators and users that they bring together. Artists develop new methods for working and share them, connecting with and enabling their audiences. The audience, or the user base, then takes the new software and runs with it, moving it in directions its architects may have never considered. It's an open model for innovation and creativity that challenges many of the traditional values of the entrenched art world, emphasizing transparency over opacity and interconnection over secrecy. Isn't it about time we moved beyond the closed-door policy?

[content:advertisement-center]
A R T
How Open Source Is Disrupting Visual Art

KC  KYLE CHAYKA
Apr 4 2012, 10:59am

Open source practices are turning the art world on its head. Here’s the long and short of what that means for today’s artists.

_Golan Levin and Kyle McDonald, Rectified Flowers._

If you’ve seen an unbelievable interactive projection or a mind-blowing piece of generative video art, odds are you’ve come across openFrameworks, an accessible programming platform that has helped create projects like Arturo Castro and Kyle McDonald’s _Faces_, a real-time face-substitution project, the _EyeWriter_ graffiti headset from F.A.T. Labs, and Chris O’Shea’s playful, Monty Python-inspired _Hand from Above_, among many other works of technology-based art. What makes openFrameworks and similar coding tools like Processing so powerful in an artistic context is that they are open source, free for any artist to use and hack to their own ends, and are made by artists, for artists.
Künstler: Martin Fuchs (rechts im Bild; www.undef.ch),
Peter Bichsel (http://derpete.ch), Basel.

ORT: HyperWork – Hochschule für Gestaltung und Kunst (HfG) an der Fachhochschule
Vorarlberg (FHVW), Basel (http://hyperwork.ch).

PROJEKT: Written Images (www.writtenimages.net).

ZIEL: Ein Kunstbuch, das sich mithilfe von Programm codes immer wieder neu generiert.

KOSTEN: Circa 33 000 US-Dollar für die erste Serie von 300 Stück.

TECHNIK: C++, openFrameworks, ImageMagick (www.imagemagick.org),
libharu (libharu.org), PDFjam (http://rs.gp/Ag2R5Wz),
pdfTeX (www.tex.org/applications/pdfTeX).

* Diese 42 Künstler sind in Martin Fuchs’ generativem Buch „Written Images“ vertreten: Ryan
Alexander, Kim Asendorf, David Bollinger, David
Bouchard, Roberto Christen, clone, Julien Deswaef,
Michael Zick Doherty, emoc, flight404, Marcin
Ignac, Szymon Kaliski, Antoni Kaniowski, kraftner,
Golan Levin, Lisa William Lindmeier, Stefano
Maccarelli, Rui Madeira, Arield Maiya, Victor Martins,
Ricard Marker, Jonathan McCabe, Moka, paulon,
Perceptor, Jörg Pirkinger, Carl-Johan Rosán, Casey
Reas, rémyandreason, Sansumbrella, Oliver
Smith, sojma, Leonardo Solaas, Luke Sturgeon,
Nervous Systems, Marius Wetz, WillU, Ryland
Wharton, Mitchell Whitelaw und zenbullets.

ONLINE: Links und Videos zum Projekt gibt’s unter
www.weave.de/linkliste/writtenimages0412
DIE SERIENTÄTER

Die Basler Designer Martin Fuchs und Peter Bichsel realisierten gemeinsam mit 70 internationalen Künstlern eine erste programmierte Serie aus Buchunikaten, deren Texte und Bilder sich auf Basis von Echtzeitedaten aus dem Web für jeden Druck neu generieren. WEAVE sprach mit den beiden frisch gebackenen Verlegern über Konzept, Umsetzung und Entstehung von »Written Images«

GES-000-2011
7:20
02906-4
Künstlerinnen und Künstler entwickelten kleine bildgenerierende Programme, die Daten aus dem Internet interpretieren oder selbst erzeugte Werte visualisieren und hochauflösende, sich nie wiederholende komplexe Bilder berechnen und speichern. Für jede Buchausgabe wiederholt das Masterprogramm von Martin Fuchs die Bilderberechnungen und stellt sie zu einem gedruckten Unikat zusammen.


Vom Prototyp zur Umsetzung

Schon nach kurzer Zeit schlug das Projekt im Internet Wellen – immerhin hatte sogar Golan Levin, Associate Professor of Electronic Art, Design und Computer Science an der Carnegie Mellon University in Pittsburgh, Werbung dafür gemacht. »Irgendwann habe ich realisiert, dass ich die ganzen E-Mails alleine gar nicht mehr bewältigen kann, und habe Pete gefragt, ob er mir hilft«, sagt Fuchs. Zumal Administration nicht gerade das ist, was den gelernten Hochbauzeichner an Prozessgestaltung besonders reizt – er liebt es mehr mathematisch. Peter Bichsel ist dagegen für die gesamte Korrespondenz, vorwiegend in Englisch, und fürs Projektmanagement zuständig, seit das Projekt Ende 2010 die Prototyping-Phase des Diploms verließ und sich zu einem wahren Internetsebstläufer entwickelte.


Zur Auswahl standen 70 Bildprogramme, von denen es anfangs eigentlich nur 20 ins Buch schaffen sollten. »Doch dann hat es uns irgendwie wehgetan, und wir haben ver sucht, so viele wie möglich unterzubringen. Jetzt sind es 42 geworden«, sagt Fuchs. Die endgültige Auswahl wollten die beiden dann aber doch nicht allein treffen, und Fuchs berief kurzerhand eine Jury, schrieb wieder Künstler und Grafiker an und holte sich schließlich sieben davon auf eine selbst programmierte Internetplattform, wo sie über die besten Arbeiten abstimmen sollten. »Das habe ich dann ausgewertet und so schließlich auch die Zahl 42 erhalten«, schmunzelt Fuchs.

Jeder Künstler, also jedes Programm, bekam acht Seiten; drei aufeinanderfolgende Doppelseiten, eine Seite vorne neben dem Titel des Autors und eine Seite hinten im Index bei den Programmteilen. Diese Indizes variieren ebenfalls mit jeder Ausgabe, genau wie die Reihenfolge der Künstler. Auch das Vorwort von Bruce Sterling generiert Fuchs’ Programmcode jedes Mal neu. Der amerikanische Science-Fiction-Schriftsteller und Blogger hat dazu zwölf «kleine technische Manifeste verfasst, die sich für jedes Buch neu anordnen lassen. Ein solches Vorwort verleiht dem ganzen Werk sogar einen Hauch Gesellschaftskritik im Stile von Brechts epischem Theater. Es verleitet...
zu einer Analyse des schöpferischen Spannungsfeldes, auf dem einerseits das Internet und Programme stehen, mit denen sich Kunst quasi per Knopfdruck generieren lässt und die zusätzlich die modernsten Vervielfältigungstechniken, hier Print-on-Demand, bieten, mit denen sich andererseits einzigartige künstlerische Ergebnisse produzieren lassen.

**Kickstarter-Finanzierung mit der GAFFTA**


Fuchs fragte sogar einen der teilnehmenden Künstler, ob dieser ihm vielleicht sein Konto zur Verfügung stellen würde, doch als man über eine andere Ecke von der Gray Area Foundation for the Arts (GAFFTA; www.gaffta.org) hörte, war das glücklicherweise nicht mehr notwendig. Die Stiftung unterstützt weltweite Kunstprojekte, verfügt über alle Voraussetzungen, um bei Kickstarter für Sponsoren zu werben, und half schließlich auch bei der Finanzierung von "Written Images". Innerhalb von drei Monaten sammelten die beiden dort über 33.000 US-Dollar.

Fuchs schildert, wie sich sein Spendenaufruf in Windeseile im Netz verbreitete und so insgesamt 186 Unterstützer fand: "Die Leute in der Community drummerten die Gefahr, dass sie nicht ins Buch geschafft hatten, waren immer noch überzeugt von dem Projekt und haben es in ihren Netzwerken empfohlen. Schließlich hatten sie genug Geld für die Serie von 300 Stück zusammen.

**Schöne Aussichten**


Wie es weitergeht, fragen sich Fuchs und Bichsel immer wieder. Immerhin hatten die beiden im Verlauf des Projekts verloren und an einem der Projekte. Ihre Idee war eine der vier Finalisten, die ein 50.000 Euro Förderpreis von der Generali Kunstübertragung erhalten. Den Bichtesten schafft es "Written Images" demnächst wohl eine Weihe, damit konnte die Idee weitergehen; die Produktionskosten erreichen 33.000 Euro pro Exemplar. Laut Fuchs bald eine zweite Serie bei indefinex erscheinen.
Roboticist sees improvisation through machine's eyes - CNN.com

Heather Knight, who specializes in social robotics, sees the robot Data as a way of investigating her area of study.

The comedian, a small robot named Data, takes the stage.

Rising from a crouch, as if psyching himself up for his audience, he waves. "It's an honor to be here," he says in a voice that makes him sound like a geeky adolescent boy with a helium-sucking addiction.

He launches right in to his routine, telling a doctor-patient joke, a Swiss army joke, old chestnuts from Fred Allen and Groucho Marx such as the line about why television is called a medium -- it's neither rare nor well done. (Rimshot, please.) His owner and programmer, roboticist Heather Knight, looks on with amusement.

To a human's eyes, Data is engaged in rudimentary improvisation: "the ability to respond effectively to the unexpected and unplanned," in the words of creativity consultant and DePaul University instructor Pamela Meyer.

The audience applauds (or doesn't) and flashes colored cards handed out by Knight before the performance -- green for approval, red for disapproval. Data adjusts accordingly, his sensors noting color and noise level, tapping into his programming to adopt from a variety of options -- changing jokes, expressing disappointment.

Knight is a social roboticist, and having Data improvise is a way for her to investigate how to connect people better with technology.
What's Next: A gal and her robot

Improvisation is an activity humans often take for granted, the “prototypical creative behavior,” writes researcher Shelley Carson in her book “Your Creative Brain.” On a basic level, everybody improvises, because there are many daily situations that require spur-of-the-moment actions in which we draw from experience and choose unconsciously: avoiding a collision on a highway, for example, or throwing together a meal when you’re missing an ingredient.

But on a more creative and mindful level, improvisation has “value,” says creativity expert Robert Epstein, a former editor of Psychology Today and founder of the Cambridge Center for Behavioral Studies. It can help generate new ideas and new ways of doing things.

Computers have been able to do that for some time, he points out. "There have been programs that have been around for decades that will get a computer to generate new material that crosses that line into the significant new," such as a drawing program created by artist Harold Cohen.

So why are we so much better at improvising than robots -- which are essentially mechanical devices controlled by computers? You’d think that, by now, some form of artificial intelligence -- the iPhone's Siri or "Jeopardy’s" Watson or perhaps some combination of IBM's Deep Blue and MIT's Kismet -- would have been able to meet the challenge.

But Data -- named for the "Star Trek" android that yearns to be human -- and robots like him lack certain human attributes, most notably experience. That training to think, react and do includes not just conceptual knowledge but muscular and sensory memory -- and starts the moment we’re born. Moreover, we don’t just draw from our own history, but from the histories and reactions of those around us and before us.

Computers are well short of having the memory power needed to acquire and employ that experience. The human brain, the organ that keeps track of our lives, remains one of the most remarkable creations ever known. In a 2011 article for the scholarly journal Science, researchers Martin Hilbert and Priscila Lopez estimated that the entire processing power of the world's stock of general-purpose computers in 2007 more or less equaled that of one human brain (about 6.4 quintillion instructions per second -- the standard measure of computer speed).

Stefan Schaal, a professor of neuroscience and biomedical engineering at the University of Southern California, stresses the importance of life experience in learning.

"One beauty about humans, and animals in general, is we learn developmentally," Schaal says. We may look at a robot as being incredibly adultlike and smart: Machines such as IBM's chess-playing Deep Blue and "Jeopardy!"-playing Watson, for example, defeated some of their human counterparts through sheer memory power. But they're still like small children compared with the vast scope of human ability.
Improvising practice

Which isn't to say Data -- a prefab model called the Nao from the Paris-based company Aldebaran Robotics -- doesn't have at least some small capabilities. His hardware includes two cameras, an accelerometer, position sensors in his joints and electric current sensors so he knows if he's pushing hard against something. Knight has added jokes, monologues and gestures to Data's memory.

He's "basically a laptop computer, plus a huge amount of sensors," Knight says.

A doctoral student at Carnegie Mellon University's Robotics Institute and owner of a firm called Marilyn Monrobot, Knight specializes in social robotics -- the interaction of humans and robots. Data is an entertainer who -- through his sensors, memory and programming -- provides a foundation for a future of routine human-robot relationships.

For Knight, putting Data on stage is a means to an end.

"I think that robotics has a tremendous amount to work with from theater," she said, her speech alternately full of girlish enthusiasm and steady with technical detail. Theater, she adds, is focused explicitly on character interactions -- and her research is engaged in how to help robots "read" people and vice versa.

Familiarity breeds improvisation ability. Think of the three-man weave, a popular basketball exercise. Three players run up and down the court, weaving to the inside or outside while passing the ball to one another. The players must learn to adjust the speed of their pace, the accuracy of their passes (which, optimally, are launched to a place a player is expected to be, not where he is) and any number of physical idiosyncrasies. In a game situation, all that practice can mean the difference between easy layups or passes that go sailing out of bounds.

A colleague of Knight's, new media artist Golan Levin, has helped create intriguingly similar tasks for robots. In one, four iCreate robots -- Roomba vacuum cleaner-type machines -- were put through the paces of Samuel Beckett's play "Quad." It's a wordless, scripted piece that focuses on movement, but there's enough randomness in the staging for the actors to create idiosyncrasies -- which, in turn, they must react to.

With enough experience, improvisation comes naturally -- which allows the improviser to combine years of expertise with a sense of freedom into the unknown. Think of a jazz musician embarking on a solo, or a chess player seizing on a sudden strategy.

The concept has become codified in the "10,000-hour rule," based on a study by the psychologist Anders Ericsson that Malcolm Gladwell popularized in his book "Outliers" -- the idea that raw talent is honed by constant practice. Through that process, a person gains expertise and comfort with the "rules" -- and a comfort with breaking them. Gladwell's examples include the Beatles, who put in their 10,000 hours through their nightly, hourslong Hamburg shows. In 1960, when the Beatles first traveled to Germany, the band was still finding its way. By 1963, the group was a tight unit -- and ready to take pop music in unforeseen directions.

"(W)hen a challenging activity is encountered for which you have developed expertise, you will respond impulsively and automatically with one of your implicitly stored expert training programs," writes "Your Creative Brain's" Carson. It's an area in which humans still have a big edge on machines -- even machines that play "Jeopardy!"
From a personal perspective, it opens us up, says Dave Buckman, who directs and performs with the Austin, Texas-based improv group **the Frank Mills**.

"A lot of people have hang-ups. They need a wall of protection to guard against other ideas," says Buckman, who frequently works with corporate clients. "If you get over the fear of being seen in a vulnerable light, it lends itself to other areas of life."

For companies, improvisation can lead to new discoveries that may not have even been on their radar, adds DePaul's Meyer.

"Valuing improvisation creates space for emergent creativity, (so we don't) become tightly fixed to our agendas," Meyer says. "If we allow room for improvisation, some of the wonderful, unexpected things may come up that take organizations in new directions."

There's a story, perhaps apocryphal, concerning a daydreaming staer of Henry Ford. The auto magnate had hired an efficiency expert to improve operations at the company, and the expert suggested Ford fire the man. Ford refused.

But Mr. Ford, the stunned expert insisted, every time I walk by his office he's got his feet up on his desk and he's staring at the ceiling. He hasn't done a lick of work since I got here.

Sir, Ford replied, that man once had an idea that saved this company millions of dollars. And he was sitting in just that position when he had that idea.

Improvisation is also a way of recharging the brain. Sometimes we have to be willing to let the mind wander to take creative leaps. (It's no wonder so many good ideas come to us, almost unbidden, in the shower or while walking; the mind is relaxed and free.)

With a constant stream of stimuli we face -- the Internet, television, music, all the noise of 21st-century life -- it may be harder today than ever before to create space for such mental relaxation. John Seely Brown, the former head of Xerox's Palo Alto Research Center lab, says he's concerned that recent generations, under the constant spell of activity, are losing that ability.

"I think kids today are afraid of being bored," he says. "And that's when you imagine something."

It's a topic that comes up with increasing frequency these days, most notably in Nicholas Carr's "The Shallows." Carr's thesis, memorably summarized by the title of his *Atlantic* article -- "Is Google Making Us Stupid?" -- is that by immersing ourselves in the Internet, humans are becoming less present: that we are browsing, not thinking, and possibly rewiring our brains in the bargain.

We have to elevate the value of unstructured time, says Meyer, who points out that the most effective improvisation happens in a sweet spot between the extremes of boredom (uninterest) and panic (freezing up) -- a groove, as a musician might put it. Within those extremes, improvisation can be thought of as a continuum between unthinking reactions and fully engaged playfulness.

"We can overprogram our time, whether we're younger or have full adult responsibilities, and that can essentially suck out that time for serendipity and improvisation," she says.

**Away from HAL**

There may come a day when computers become more human. Futurists are fond of talking about the "singularity," the ultimate merging of human and machine. Perhaps eventually we'll create a computer as ingenious (but not as flawed) as "2001: A Space Odyssey's" HAL 9000.
But HAL isn't here yet, and neither are any of his sentient brethren. Seemingly brilliant machines such as Watson and Deep Blue are a mile deep but an inch wide. They can do one thing very, very well -- even going so far as to learn from their mistakes in their area of specialization -- but they don't have a wider context in which to view the world. A robot such as Knight's Data might be able to engage in improvisational behavior but doesn't have the combination of "knowledge" (programming) and experience to match a human.

Still, it's the journey that keeps Knight enthusiastic. She's programmed the "boyish and overconfident" robot to do a routine with her, attempting to impress her with wit and dance moves to "Thriller." He quotes Shakespeare and replaces it with robot-centric references: "If you prick us in our battery pack, do we not bleed our alkaline fluid?"

The sketch routine, like the stand-up, had its bugs: At a performance last summer, the little robot shut down as he was starting his act.

She hit his on-off switch and rebooted him: her own rudimentary improvisation.

Data is just the beginning, she imagines. She has plans ("Don't tell him this," she asks impishly) to work with other robots, investigating how robots and humans engage until robots become a common part of our lives. Asked if she's concerned about her work being a step in creating something malevolent, she scoffs.

"What's much more interesting is the idea of how we can work together," she says. "There's already ways technology has completely transformed the way we operate on a daily level and how we understand the world. Technology always transforms society, but it can also empower society."

Robots already work in factories; in years to come, they'll become personal assistants in ways Siri can't even comprehend.

And working with robots, she emphasizes, has actually highlighted what a complex and wonderful machine the human brain is -- capable of taking giant leaps, even imagining robots that tell jokes and dance.

"Things our brains have been specifically created to do over thousands and millions of years are difficult to duplicate with machines," she says. "But it has helped me, in working with systems that work with humans, to see how complex human behavior actually is."
A 3-D Animated Human Created Without An Animator, Using Just Kinect And A Camera

New 3-D video technologies could redefine everything from Skype chats to Hollywood movies.

By Mark Wilson

1 Minute Read

We live much of our lives in digital spaces, but our avatars are basic at best. Even full-motion HD video lacks the substance and nuance of a good old-fashioned analog encounter. But a new imaging system by two creative technologists James George and Jonathan Minard is redefining the talking head.

The duo, who work in the lab of famed artist and technologist Golan Levin, call their invention “virtual cinematography,” and it’s powered by stock electronics: a Microsoft Kinect coupled with an SLR camera. The Kinect tracks a figure in 3-D space while the SLR provides a sizable upgrade to the Kinect’s own camera.
Custom software maps the SLR image onto the Kinect model, creating a fully-textured, digitized human.

“You can’t take your eyes off of this digital phantasm,” Jonathan Minard tells us. “The texture of the depth video is also unlike any previous medium. The physical form subtly writhes and oscillates as a result of ‘depth noise.’ The details are abstracted, and artifact laden, but the motion of the figure and audio are perfectly true to life. The 3-D figures embody both abstract and hyper-realistic elements. This ‘almost’ real quality keeps the viewer engaged.”

We’re inclined to agree. The example video here, featuring new media artist Golan Levin simply answering some questions for a recent Reddit AMA, is nothing short of entrancing. Furthermore, the shots you see here are entirely malleable. Once the Kinect/SLR system has captured a subject, that subject is a true 3-D model, allowing completely new perspectives in post-production through their in-house RGBD Visualize software.
RGBD Visualize is much like the virtual camera technology that’s fueled the machinima culture behind games like *Halo* and *Team Fortress 2*, coupled with a touch of Final Cut Pro’s nonlinear editing. The difference here is the human element: the smallest quirks of movement coupled with the uniqueness of one’s own face and skin. It’s 3-D animation without the animator. “As the medium progresses, it’s only a matter of time before the cameras evolve to the point of recording all of the photons to be reassembled in a virtual 3-D space which will be indistinguishable from reality,” says Minard.

Now take the idea one step further. Mix in a few Hollywood actors with the advanced AI we see in video games, and we could be talking about a whole new medium of storytelling—one that’s unpredictable, dynamic, and, above all else, strikingly human.

[Hat tip: NOTCOT]
What happens when artists think of technology as engineers?

BY HUBERT GuillaUD

05/10/2012

HUBERT GuillaUD (HTTP://WWW.INternETACTU.NET/AUTHOR/HUBERT/) ▶

GOODS (HTTP://WWW.INternETACTU.NET/CATEGORY/ARTICLES) ▶

BiOTECHNOLOgy (HTTP://WWW.INternETACTU.NET/TAG/BiOTECHNOLOGIES/)

COMPLEXITY (HTTP://WWW.INternETACTU.NET/TAG/COMPLEXITE/)

BODY (HTTP://WWW.INternETACTU.NET/TAG/CORPS/)

8 HOTEL REVIEWS ▶

7225 VIEWS ▶

~ 8 MINUTES ◇
"Artists who use new technologies are an essential source for understanding how our world is confronted with technology," said Honor Harger. Take the example of the 3D printer, one of the most interesting current technologies, allowing to build any object from its specifications. If 3D printing has the potential to change the way objects are made, the artist's illustration of this potential is not new.

The artist and theorist of photography Laszlo Moholy-Nagy (http://fr.wikipedia.org/wiki/L%C3%A1szl%C3%B3_Moholy-Nagy) in 1923 imagined Construction in Enamel 2 preserved in (http://www.moma.org/collection/object.php?object_id=78747) the Museum of Modern Art of New York. It is a work, a cross between painting and sculpture, manufactured remotely from instructions given by the artist to a craftsman, just as the 3D printer would allow an artist to create a work without a sound intervention. Senster of the cybernetic sculptor Edward Ihnatowicz (1969) is another example of realization applied to technology. Senster was a structure capable of responding to sounds and movements and Edward Ihnatowicz was one of the first to design a computer-controlled sculpture, as presented in the exhibition of the lost arts (http://galleryoflostart.com), Presented at the Tate Galery. Genesis (http://www.fondation-langlois.org/html/f/page.php?NumPage=278) by Eduardo Kac (http://www.ekac.org/) (1999) (Wikipedia
Eduardo Kac was the first installation that explored the links between biology and computing, producing a synthetic gene from a Genesis phrase. As the Guardian pointed out in August, DNA could soon be used to store information, as had been suggested more than 10 years ago by the artist in his installation. Are artists always precursors? Producing a synthetic gene from a phrase of the Genesis.

Art is always ahead

In 2004, Eléonore Hellio and Joachim Montessuis had with MUSH (Multi-User Sensorial Hallucination, video (http://www.youtube.com/watch?v=WobnzbU02_U0)) imagined a media art show using a device close to the Wiimote, before it existed. In 2009, Golan Levin published an article (http://www.flong.com/blog/2009/new-media-artworks-prequels-to-everyday-life/) about several art installations as prologues to what has become since our digital everyday life. Art is often ahead of technical achievements... Unless it is the technological societies that end up integrating art into their tools, ironizes Honor Harger.

The many sensitive cartographic achievements such as Ester Polak’s Amsterdam Realtime (http://realtime.waag.org/) (2002), Thorsten Knaub’s GPS Journal (http://www.gpsdiary.org/) (2003) or the Karosta Realtime Map (http://locative.x-i.net/) (2003) show 10 years before Apple’s iO6 cartoon blunders (http://www.gizmodo.fr/2012/09/21/plans-ios-6.html), Art challenges the world in which we live. If art is going to take us to the unknown, surely iO6 cards are art, fun Harvey Honor by mocking the mistakes of Apple’s mapping application update the week last.
“Both the artists and the authors of SF know the language of new media as defined by Lev Manovich. Like engineers, artists are involved in studies on the implications of technologies. Often they come to the same conclusions as they do, but not at the same time. It is in this respect that media art is often a good vehicle for detecting the weak signals that await us in the field of technology.”

Critical Engineering Time

“The world of art makes us pass messages: the more coded the world is, the harder it is to decipher. The world of techno becomes more opaque as technical infrastructures become more invisible. Cloud computing de-solidifies the infrastructure, "brick and mortar". A recent Citrix survey (http://www.citrix.com/lang/English/lp/lp_2328330.asp) showed that 51% of Americans think the weather can have an effect on cloud computing ... Proof that we have difficulty understanding the transformations underway.

Tomorrow, our cities will be entirely managed by machines, without our knowing very well how. Danja Vasiliev (http://k0ala.net/) and Julian Oliver (http://julianoliver.com/), members of the Berlin-based art collective Weise 7, (http://weise7.org/) have imagined Men in Gray (http://meningrey.net/) (video (http://stasick.org/1463)), men who capture and collect the data that our computers exchange with the Wi-Fi hotspot routers we use, rewarded for 2010 at Ars Electronica. A disconcerting device, which interrogates our practices in depth, as Marie Lechner pointed out at the time for Libération (http://www.liberation.fr/medias/01012296547-les-men-in-grey-poussent-un-gris):
Men in Gray (MIG) operate in this gray area, increasingly ambiguous, between what is considered private and what belongs to public space in the ubiquitous era.

You are on the street or in a cafe, checking out a website on your laptop or smartphone, posting statuses on Facebook, sharing a naughty picture or sending you sweet words by chat, thinking to be at The shelter of the glances, and then you hear a vocal synthesis trumpeting in the face of the world what you have just whispered on your keyboard. The mechanical voice from curious cases worn by the two men in gray also announces the IP number of your machine, while your message is displayed on the inlaid screens of their attachments.

These bureaucrat-like operators interpose in unsecured wireless traffic and take control of the network. Acting as routers (this intermediate element in a network that ensures the transit of data packets), they intercept, manipulate and make visible the streams of intangible data that are wandering through the ether. Sometimes on giant screens, as was the case at the Media Facades festival this fall.

"Manifestation of anxiety generated by the network", the Men in Gray are a disturbing appearance in the era of government eavesdropping, Facebook spies, Google caches,
Internet filtering. "We are the direct manifestation of the stress generated by the network ... We capture and reconstruct what is hidden in the air. We are prisms, revealing the fears of the citizen network, His doubts, his disappointments, his desires and his lies, "the authors write on a black website with conspiracy-like looks. "

This project was very disturbing to those who were the victims, since it showed how the networks in which we have all the confidence can be fragile. It was extended in 2011 by the Newstweek (http://newstweek.com/) project, which made it possible to access what people have read since their computers and cached the information they accessed. This "information adjuster" that was very recently evoked by the program Tracks (http://www.arte.tv/fr/au-paradis-digital-bienheureux-les-paranoiaques/6909544,CmC=6909550.html) d’Arte makes it possible to take control of the copy of the biggest press sites on a local hotspot. Two projects that draw attention to the role of the network infrastructure, which raise the question of who controls it and how we can be manipulated.
Que se passe-t-il quand les artistes pensent la technologie comme les ingénieurs ?

PAR HUBERT GUILLAUD

05/10/2012

Hubert Guillaud (http://www.internetactu.net/author/hubert/) ▲

Articles (http://www.internetactu.net/category/articles) □

Biotechnologies (http://www.internetactu.net/tag/biotechnologies/)
Complexité (http://www.internetactu.net/tag/complexite/)
Corps (http://www.internetactu.net/tag/corps/)

8 commentaires ▽

7225 vues ⊗

~ 8 minutes ▲
L'artiste Honor Harger (http://about.me/honor) (@honorharger (https://twitter.com/honorharger)) s'occupe de Lighthouse (http://www.lighthouse.org.uk/), une agence culturelle numérique chargée de monter des productions et des expositions pour montrer que la culture numérique n'est pas qu'une question d'outils et de technologie, mais bien avant tout une question d'émotions et d'apprentissages. Son blog, le décélérateur de particules (http://decelerator.blogspot.co.uk/) (@_decelerator (https://twitter.com/_decelerator)), est ainsi à son image, à la confluence entre l'art et la technologie.

Sur la scène de Lift France 2012 (http://liftconference.com/fr/lift-france-12/home_fr), elle nous posait la question suivante : Que se passe-t-il quand les artistes pensent la technologie comme les ingénieurs ?

« Les artistes qui utilisent les nouvelles technologies sont une source essentielle pour comprendre la manière dont notre monde se confronte aux technologies », estime Honor Harger. Prenons l'exemple de l'imprimante 3D, une des technologies actuelles les plus intéressantes, permettant de construire n'importe quel objet depuis ses spécifications. Si l'impression 3D a le potentiel de modifier la manière dont on fabrique les objets, l'illustration de ce potentiel par les artistes ne date pas d'aujourd'hui.

L'artiste et théoricien de la photographie Laszlo Moholy-Nagy (http://fr.wikipedia.org/wiki/L%C3%A1szl%C3%B3_Moholy-Nagy) en 1923 a imaginé Construction in Enamel 2 (http://www.moma.org/collection/object.php?object_id=78747) conservé au muséum d'Art moderne de New York. C'est une œuvre, croisement entre le tableau et la sculpture, fabriquée à distance à partir d'instructions données par l'artiste à un artisan, tout comme l'imprimante 3D permettrait aujourd'hui à un artiste de créer une œuvre sans son intervention. Senster du sculpteur cybernétique Edward Ihnatowicz (1969) est un autre exemple de réalisation appliquée à la technologie. Senster était une structure capable de répondre aux sons et aux mouvements et Edward Ihnatowicz a été l'un des premiers à concevoir une sculpture contrôlée par l'ordinateur, comme la présentait...

### L’art est toujours en avance


« Les artistes comme les auteurs de SF connaissent bien le langage des nouveaux médias tel que défini par Lev Manovich. Comme les ingénieurs, les artistes s’impliquent dans des études sur les implications des technologies. Souvent, ils arrivent aux mêmes conclusions qu’eux, mais pas au même moment. C’est en cela que l’art médiatique est souvent un bon vecteur pour détecter les signaux faibles qui nous attendent dans le domaine des technologies. »

### Le temps de l’ingénierie critique
« Le monde de l'art nous fait passer actuellement des messages : plus le monde est codé, plus il est difficile à décrypter. Le monde des technos devient plus opaque à mesure que les infrastructures techniques deviennent plus invisibles. L'informatique en nuage désolidifie l'infrastructure, la « brique et le mortier ». » Un récent sondage de Citrix (http://www.citrix.com/lang/English/lp/lp_2328330.asp) montrait que 51 % des Américains pensent que le mauvais temps peut avoir un effet sur l'informatique en nuage… Preuve que nous avons du mal à comprendre les transformations en cours.

Demain, nos villes seront entièrement gérées par des machines, sans que nous sachions très bien comment. Danja Vasiliev (http://k0ala.net/) et Julian Oliver (http://julianoliver.com/), membres du collectif artistique berlinois Weise 7 (http://weise7.org/) ont imaginé des Hommes en gris (http://meningrey.net/) (vidéo (http://stasick.org/1463)), des hommes qui captent et récoltent les données qu'échangent nos ordinateurs avec les routeurs des hotspots Wi-Fi que nous utilisons, récompensé en 2010 à Ars Electronica. Un dispositif déroutant, qui interroge en profondeur nos pratiques, comme le soulignait Marie Lechner à l'époque pour Libération (http://www.liberation.fr/medias/01012296547-les-men-in-grey-poussent-un-gris) :
Les Men in Grey (MIG) opèrent dans cette zone grise, de plus en plus ambiguë, entre ce qui est considéré comme privé et ce qui relève de l'espace public à l'ère de l'informatique ubiquiste.

Vous êtes dans la rue ou dans un café, en train de consulter un site web sur votre ordinateur portable ou votre smartphone, de poster des statuts sur Facebook, de partager une photo coquine ou de vous envoyer des mots doux par tchat, pensant être à l'abri des regards, et voilà que vous entendez une synthèse vocale claironnant à la face du monde ce que vous venez de chuchoter sur votre clavier. La voix mécanique qui émane de curieuses mallettes portées par les deux Men in Grey annonce de surcroît le numéro IP de votre machine, tandis que votre message s'affiche en toutes lettres sur les écrans incrustés de leurs attachés-cases.

Ces opérateurs aux allures de bureaucrates s'interposent dans le trafic sans fil non sécurisé et prennent le contrôle du réseau. Agissant comme des routeurs (cet élément intermédiaire dans un réseau qui assure le transit des paquets de données), ils interceptent, manipulent et rendent visibles les flux de données immatérielles qui se baladent dans l'éther. Parfois sur écrans géants, comme...
c'était le cas au Media Facades festival cet automne. «Manifestation de l'anxiété générée par le réseau», les Men in Grey sont une apparition inquiétante à l'ère des mises sur écoutes gouvernementales, des espions Facebook, des caches Google, du filtrage sur Internet. «Nous sommes la manifestation directe du stress généré par le réseau. [...] Nous capturons et reconstruisons ce qui est caché dans l'air. Nous sommes des prismes, révélant les peurs du réseau citoyen, ses doutes, ses désillusions, ses désirs et ses mensonges», écrivent les auteurs sur un site web noir aux allures conspirationnistes. »

Ce projet très perturbant pour ceux qui en étaient les victimes, puisqu'il montrait combien les réseaux dans lesquels nous avons toute confiance peuvent être fragiles a été prolongé en 2011 par le projet Newstweek (http://newstweek.com/), qui permettait d'accéder à ce que lisaient les gens depuis leurs ordinateurs et de proposer en cache l'information à laquelle ils accédaient rééditorialisée. Cet « ajusteur d'information » qu'évoquait très récemment l'émission Tracks (http://www.arte.tv/fr/au-paradis-digital-bienheureux-les-paranoiaques/6909544,CmC=6909550.html) d'Arte permet de prendre le contrôle de copie des plus grands sites de presse sur un hotspot local. Deux projets qui attirent l'attention sur le rôle de l'infrastructure du réseau, qui posent la question de qui la contrôle et de comment nous pouvons être manipulés.
A View from Ada Brunstein

Programmers are the New Art World Renegades

The best software artists gathered at the Leaders in Software and Art conference in New York.

October 26, 2012

Just as photography was a controversial new art form in the late 19th century (critics questioned the role of the artist if the machine ultimately produced the work), it seems computer programmers have yet to be fully accepted into the art world.

A visualization from researchers at Google shows wind flowing over the United States.
This much was clear at the first Leaders in Software and Art (LISA) Conference, which took place at the Guggenheim Museum in New York last week. The conference grew out of the LISA Salons that conference organizer Isabel Draves has hosted for three years in an effort to create a sense of community among software artists.

Panel discussions at the event addressed questions about the place of software art in history. Draves said in her opening remarks that it could even become the next big artistic movement: “something has to come after post-modernism. It’s only a matter of time” before media art takes its rightful place in history.

But software art—images, videos, and interactive content created by programming computers—is still experiencing resistance from the mainstream art community, according to Draves and others at the conference. While the field is decades old, they said, it still hasn’t been accepted as a mainstream art form.

Panel discussions included media art collectors, museum curators and new media artists asking how does one evaluate, collect and distribute this kind of art? How can social media and crowd sourcing play a role in art? And how does software change the language of art and the space in which it is exhibited?

Much of the rest of the event was dedicated to celebrating work that could perhaps help convince some of those doubters.

Keynote speaker Scott Snibbe called the computer “the ultimate looking glass” through which to create alternate universes. His work with musician Bjork on the first app album Biophilia (October, 2011) is exactly that: a cosmos of clickable constellations, each of which leads to an “interactive”
song over which the user has some control. His forthcoming project is an interactive app for REWORK_Philip Glass Remixed (out this month).

Of the lightening speakers there were several standouts. Data visualization expert Martin Wattenberg, half of two-person team leading the “Big Picture,” visualization research team at Google, presented the Wind Map which displays data from the National Digital Forecast Database with brush-stroke beauty across a map of the United States. His colleague, Fernanda Viegas, showed edit wars in the Wikipedia entry for “chocolate” by colorfully charting each change made to the page. What looks like a zig-zagging artistic effect is in fact a scuffle over the roots of chocolate “coulage”.

Bang-Geul Han showed her Blogreader project, a haunting video in which she sits on a stool in a snowy plane robotically telling personal narratives. The narratives are pulled from blog entries by a Perl script from a now-defunct site called teenagediary.com. She recorded herself reading 3800 of the site's most frequent words and played them back in the stark visual context. If a word existed in the blog but wasn’t recorded it appears in text on the video. The effect is a visual and audio disconnect from the emotional content of the blogs, many of which recount crushes and heartbreaks.

Jake Barton, founder of Local Projects, which was involved in the 911 Memorial Museum, talked about his design for an interactive addition to the Cleveland Museum of Art. The display will show the museum's entire collection on a digital panel through which users can create their own collections sorted by theme. For example, if a user searches for art depicting “Love and Lust” the panel would display the racier paintings and sculptures in the collection. The new space opens in January.

Karolina Sobecka’s work might’ve been the most haunting: virtual storefronts housing crowds that don’t exist but which nevertheless turn to
look at passersby. And a virtual dog that, using tracking software, follows the viewer as if it could see and sniff.

And the most popular of the bunch, Golan Levin, showed work he feels should be “driven by civic concerns and conscience.” When his son noticed that the parts of the toys he played with don’t work together (Legos, Tinkertoys), Levin created the Free Universal Construction Kit, 3D printed parts that allow the two divergent toy species to mate.

Mainstream or not, several of the works displayed reflected the very best of the overlap between art and science.
Some of the biggest uncanny valley problems we have with making 3D-models (i.e. video games and CGI movies) involve fine detail and making moving characters not look like marionette dolls. In most cases, animators have to create extremely detailed models and apply them on top of a 3D-dot frame taken from motion capture.

Filmmaker Jonathan Minard and artist/programmer James George have created a new imaging system, called “virtual cinematography,” that manages to do both at the same time using a stock Kinect and SLR camera. The duo used the SLR camera to capture a high-definition image of Carnegie Melon University’s Golan Levin, and grafted his face onto the Kinect’s depth model.

The end result is a real-time 3D model that captures Levin’s motions on a 1:1 scale, as well as all his facial expressions. In the video, Levin is filmed by the imaging system while he answers Reddit AMA questions.
The system is not perfect, though; in the video you can see parts of Levin’s model oscillate and drop out to blank spots as he moves about. But it is pretty incredible that the system still works as the camera pans around and zooms in and out on Levin.

The 3D models created by virtual cinematography somewhat replicate the models captured by Team Bondi for the video game L.A. Noire (http://en.wikipedia.org/wiki/L.A._Noire), but that used a system of 32-cameras surrounding a stationary actor (http://www.pcworld.com/article/218704/in_la_noire_asking_questions_trumps_firing_bullets.html). A system using only one camera and one Kinect that captures motion and faces at the same time is much more approachable. This technology could completely revolutionize video games, virtual filmmaking, computer avatars…and non-Wolf Blitzer holograms (http://www.pcworld.com/article/153342/cnns_election_coverage_meets_star_wars.html)?

Newsmaker: Golan Levin

Golan Levin, 40, of Oakland has been named by Fast Company magazine named as one of the “50 most influential designers shaping the future” in its October issue. He is director of the Frank-Ratchye STUDIO for Creative Inquiry, and professor of art at Carnegie Mellon University's School of Art. He helped create the Bachelor of Computer Science and Art degree program.

Name: Golan Levin, 40, of Oakland has been named by Fast Company magazine named as one of the “50 most influential designers shaping the future” in its October issue.

Noteworthy: Fast Company magazine named Levin one of the “50 most influential designers shaping the future” in its October issue.

Age: 40

Residence: Oakland

Occupation: He is director of the Frank-Ratchye STUDIO for Creative Inquiry and professor of art at Carnegie Mellon University's School of Art. He helped create the school's Bachelor of Computer Science and Art degree program.

Education: Levin earned a bachelor's degree in art and design with a minor in music from the Massachusetts Institute of Technology in 1994, and a master's degree in media arts and sciences from MIT's Media Laboratory in 2000.

Quote: “Every artist or creative person has their tools of choice. I don't find it unnatural or surprising for an artist to want to engage in the most powerful and influential media of his or her day. Computers and information technology have had such a huge impact on our lives, it's natural for an artist to want to engage in those media.”

— Mike Wereshagin
The new media artist fields questions from the hive mind via an experimental 3D video.
there, fielding questions from strangers tapping on remote keyboards. It’s seen Louis CK meet a former PA of his to discuss whether he got it on with an eager fan, actress Ali Larter discuss SOPA and new media professor and artist Golan Levin partake in a video version of the format. Levin’s IAmA was part of an event put on by FITC, and people were asked to submit questions, the top ten of which would be answered via the video (it’s nice to see “Where can I meet hot single robots who aren’t just creepy people pretending to be robots on the internet?” made the cut).

But it wasn’t just any video, it was an experimental video created by two artists-in-residence at Golan’s lab, James George and Jonathan Minard. The pair are exploring experimental 3D cinema and for the IAmA they shot the interview in a style they’re calling “re-photography.” This technique uses a stationary depth sensor, like a Kinect, paired with a digital SLR so that “otherwise frozen moments in time may be visualized from new points of view.” So even though the camera was only filming from one place, they were able to “imagine” Levin from various angles by integrating colour video with depth data using software created in openFrameworks, resulting in a “dynamic sculptural relief.”

From the Vimeo page:

*In a process of “virtual cinematography,” James and Jonathan rephotographed Golan’s 3D likeness—selecting new angles, dollying, and zooming—to compose new perspectives on the data as if playing a video game. Fixed camerawork is thus transformed into a malleable and negotiable post-process, in which shots can be carefully recomposed to highlight and inflect different latent meanings.*
In *Clouds*, an upcoming documentary exploring the beauty of code, the talking heads on screen appear to be floating in thin air. Images of prominent hackers and artists, shot using a Microsoft Kinect sensor attached to a digital SLR, appear as points suspended in space that emerge, dissolve and reappear.

The exclusive clip above, which was shot at the Eyeo Festival this week in Minneapolis and features artists Casey Reas, Shantell Martin and Theodore Watson, demonstrates the filmmakers’ innovative technique.

The look of *Clouds* was designed to match the subject matter.

“It’s like painting an ice sculpture,” said media artist James George, who is creating the film with Jonathan Minard, a fellow at Carnegie-Mellon’s Studio for Creative Inquiry. “You have a sculpture — the volume data — and we use the SLR to color the data. The combination of the two creates the effect.”

https://www.wired.com/2012/06/clouds-code-kineck/
A screenshot of the RGBD Toolkit, showing writer Regine Debatty, shows the filmmaking process in action.

It’s yet another innovative use of Microsoft’s motion-sensing input device, which was designed for use with Xbox 360 games but has been hacked since its 2010 release for all sorts of creative uses, turning the $150 peripheral into everything from a 3-D video capture tool to a MIDI controller.

For *Clouds*, Minard and George designed a specialized mount to attach the Kinect to the DSLR, then produced the holder using a 3-D printer. The film is being rendered using RGBD Toolkit, an open source editing suite developed by the pair with the help of experimental photographer Alexander Porter. (You can download the code for RGBD Toolkit on GitHub.)

Carnegie-Mellon professor Golan Levin, credited as the executive producer of *Clouds*, helped inspire the project when he hosted an event centered on Kinect hacking. The gathering drew “some of the most talented, creative 3-D visualization artists and creative coders in the world,” said Minard, who filmed some of the participants.

The finished film is expected to be released later this year. See another clip from *Clouds* below.
Cyborg Cabaret brings robots out of sci-fi world

Variety show explores delicate relationship between humans and robots

“We talk about the sci-fi notions of robots in society, but, you know, it's already happening. You just may not see it.”

Dan Wilcox, a Master of Fine Arts student and co-curator and co-host of last Friday’s Cyborg Cabaret, hoped to expose the crowd at the New Hazlett Theater to the growing relationship between humans and robots in society.

“It’s really surprising, the breadth and depth of the type of robots that are not science fiction but that are real life and are actually existing,” Wilcox said. “And we only see a little of that. Most people in general might not be aware that there are so many crazy things going on.”

Cyborg Cabaret: Passion, Terror, & Interdependence was a variety show featuring acts ranging from dancing robotic arms to a cyborg burlesque show. Performers included Golan Levin, director of the STUDIO for Creative Inquiry, senior art major Julia Cahill, and Master of Fine Arts student Riley Harmon, among others.

The show was hosted by Wilcox, his co-curator Heather Knight (a Ph.D. student in robotics), and Data the Robot, a social robot created by Knight that has performed in many onstage productions. Data charmed the audience by telling jokes, introducing an act, and asking questions like, “Do you ever think about what it all means? This life — you know, when the power button is in the ‘on’ position?”

Many of the acts in the cabaret were underwhelming or confusing, inciting awkward laughter or applause from audience members. The cabaret as a whole had a distinctly eerie vibe, perhaps due to the natural fear that society has toward the role of robots in the future.

Perhaps the most entertaining act was Wilcox’s own “Robot Rumble.” The rumble featured Master of Fine Arts students Jonathan Armistead, Carl Bajandas, Craig Fahner, Steve Gurysh, and Luke Loeffler wearing cardboard costumes of famous robots, including the Honda ASIMO, the Carnegie Mellon Crusher, and Google’s self-driving car. The robots engaged in a WWE-style fight until everyone on stage, including Wilcox, had been taken down.

Wilcox’s “Robot Rumble” was a follow-up to his piece at the first- and second-year Master of Fine Arts student showcase at Bakery Square last month. His inspiration for this project was the increasing development of human-like robots, and he hoped to entertain audience members while simultaneously exposing them to robotic technologies they may not have previously known about.

“The real point of the whole thing is exposure,” he said. “It’s like tricking people into learning about these things and being interested in them.”

Another act, Harmon’s “Disintegration (after myself),” was a multimedia piece that examined “the delicate relationship between people and their technological prosthetics,” according to the program. The piece centered on a video of Harmon in various locations — on a subway, in a convenience store, at the grocery store — and bystanders’ reactions to his fake prosthetic arm malfunctioning. As the video ended, Harmon’s arm sparked and fell off. The act was coherent and accessible, while still sending an important message about societal notions of technological prosthetics.
Cyborg Cabaret was made possible by funding from the 2011 Carnegie Mellon School of Art Interdisciplinary Award. Wilcox and Knight proposed the idea in April of last year and have been collaborating with community members and planning the event since. The pair worked not only with those participating in the acts, but also with community organizations like Assemble, Hack Pittsburgh, VIA, and the STUDIO for Creative Inquiry.

“It was more about us getting people from outside of CMU and from different disciplines ... and getting their acts in there,” Wilcox said. “The whole thing was a collaboration.”

Wilcox is unsure if Cyborg Cabaret will become an annual event, since he will be working on his thesis next year. Regardless of whether the event returns again next spring, it succeeded in bringing to light questions about robotic technology in society and inviting its audience to explore and understand the world’s increasing dependence on technology.

As Wilcox put it, “It’s interesting but also a little scary, if we want that or not.... We should at least think about it a little bit.”
Ontologia dei media
arte e tecnologia • filosofia • nuovi media

I nuovi media, dai cellulari all'iPad, non solo agiscono modificando i nostri modi di vivere, ma operano più in profondità e riescono ad alterare il senso stesso della vita e della morte. A questa azione più sotterranea dei media il libro rivolge la sua attenzione cercando, anche con le indicazioni provenienti dagli artisti, di rivelarla e comprenderci. Le immagini tecnologiche, Internet, la scrittura elettronica, il telefonino, il touchscreen, la digitalizzazione del mondo che è in atto, svelano così un lato oscuro che era necessario illuminare.

In copertina: Milla Jovovich in Resident Evil: Extinction
(Russell Mulcahy 2007)
Illegal printing of reality

Paweł Kamiński 11/24/2012

Let's not ask what people would do if they could copy almost every item - because the answer is obvious. Let's ask what would companies do to produce these items so far?

Dad. What did they do to him?

When they finished, he looked like he was struggling with the whole rugby team. They pulled him through the door and let the reporters peer before throwing him into the car. The spokesman kept telling me that the organized criminal operation led by my Dad was responsible for the loss of 20 million in illegal goods. And my dad, a desperate villain, was reluctant to be arrested.

I watched it all on my phone, sitting in a large room demolished. I wondered how anyone could look at our dreadful, dirty apartment and confuse them with the headquarters of the organized criminal group. Of course, they took the printer and showed it to the writers like a trophy. The little altar she stood in the kitchenette seemed terribly empty.

When I woke up - I took over the apartment and saved my poor squeaking canary, I put a blender there. It was made from printed parts - it will last a month before I have to print new bearings and other moving parts. In those days I could undress and then assemble everything that could be printed.

The above quotation comes from the story of “Printcrime,” published in 2006 by Cory Doctorow, a Canadian science fiction writer, journalist, blogger, and popularizer of the idea of free culture. Doctorow presents in his anti-plat form - a vision of society where 3D printers have become so commonplace and easy to use that anyone can afford them. At the same time - for the same reason - the printer was banned. And people using them and offering their products to others are being prosecuted and fined for infringing patents and intellectual property rights. The story can be read entirely on Doctorow’s site, in several popular formats - available under Creative Commons license.

You were in jail for ten years, Dad, ten years, are you going to risk the next ten to print more blenders, pharmaceuticals, laptops and designer hats?"

Today, six years after the premiere of the story, the vision is closer to realization than it might seem. No one is going to close people in prisons, but access to 3D printers is getting easier. Available for 30 years - since the 1980s, powdered resin has been printing laser models and prototypes. However, it has only recently begun to reach the collective consciousness - more and more people are aware of how much potential exists in such devices.

To be creative you do not need manual skills - just prepared on the computer model. A creative person will be tempted to do his or her own, a practical person can look for a ready-made network that meets his requirements. Regardless of origin, the printer will do it in as much copy as we need. And this can be not only the most popular plastic or plaster - it can be printed from titanium, bone or ... chocolate.

The principle of operation of printers is simple. A program called Slicer takes a computer 3D model of the item and divides it into thin layers. The printer implements them one by one, modeling the shape. The easiest way to understand...
print a whistle in 20 minutes.

See how we printed a real whistle on the printer. It's possible!

On the Internet, a quote is quoted as saying by one of Google's chiefs, which slightly overstates the power of 3D printers: "Think of it as China on your desk." But for a good reason Time Magazine has awarded the 3D MakerBot Replicator 2 a title of one of the most important technological innovations of the year.

The theory sounds nice, but in practice one can get the impression that 3D printers are still out of the reach of ordinary mortals. Just look at the mentioned Replicator 2, which costs $2,499, and the set allows you to fold the Ultimaker printer - 1194 euros. There are cheaper models - costing less than $1000. However, many of them have to be submitted by themselves, because they are based on open-available solutions for everyone. This is how Fab @ Home or RepRap works. Still, it is still fun for the passionate.

However, to start creating your own items you do not have to buy the printer right away. Just go to one of the special internet sites. Sculpteo, Shapeways, Poncho and i.materialise are just a few examples of sites that offer the ability to send them a 3D design and material selection, and instead return a finished product. Some also allow creators to sell their items through the site.

Each of these pages, however, requires knowledge of the program's handling to create a three-dimensional model, but this barrier is slowly falling. 3D printing companies are constantly working to make the creation of their own items simpler and easier for the average user. Some offer to redraw 2D projects to 3D, others publish guides to popular programs or own programs. On the Cubify website we will find applications that allow you to design a few simple items: figurines, rings, bracelets or bracelets. This is not much, but for starters - to awaken awareness and creativity - enough.

There are also external ideas that allow you to design your own item even a preschooler. Two MIT students have prepared the Minecraft.print () project. This is a script that allows you to print your projects from the popular Minecraft building game. Maybe this is not the most convenient method of creating objects, because everything needs to be built with small cubes, but the game is much easier to use than any 3D modeling program.
If someone wants to go higher - the network can easily find guides to move the 3D models from Minecraft to the popular Blender. Then you just have to correct it and you can order your item at one of the sites listed above.

Popularizing 3D printing can lead to a complete change in internet commerce - as Lukasz Partyka writes in the text on Next.gazeta.pl:

An online merchant will not send physical items to the customer, only virtual. A real e-seller will only have to offer projects. In addition, such modular, from which you can put together a dream truck in selected colors and for example with a photo of favorite passenger's belly. The manufacturer in this chain will not, or rather will, be at the end. The manufacturer will be the consumer.

On this site, you can order your own robots - they are made up of parts selected from the catalog, painted at your discretion. Everyone can be different - the end with identical toys.

However, it must be remembered that moving any sphere to the web means that it is very easy to lose control over it. It is not necessary to recall how the transition to the digital age influenced the distribution of music or books. Each digitized content is easy to copy, duplicate, or rewrite - the same applies to 3D printing. Already on the network you can find ready-made projects, just go to Thingiverse even where the creators share their free. The popular torrent service, The Pirate Bay, also has a special category of Physibles for 3D objects projects. Ironically, one of the most popular projects in her is Guy Fawkes' mask, an Anonymous symbol - fighting among others. With corporations. Whenever the mask is bought in the store, money goes to Time Warner.

It is no wonder that companies producing simple to forge items are beginning to fear their fate and will certainly try to fight legally with the authors of their copy products. The escalators will come in handy when they come in handy for fast and easy scanning of items and making copies - revolutionizing print, photocopiers or CD recorders. Only larger, because they will copy almost any physical object. We do not realize, but the vision of “Printcrime” begins to take shape.

Who is afraid?

Wired magazine described the history of Thomas Valentyego that inspired figures to play a strategic Warhammer 40k decided to prepare their own. The twin-engine combat missions and tanks have been placed on the Thingiverse so anyone can download them. But it did not take long for the Games Workshop lawyers to request removal of projects. They referred to the Digital Millennium Copyright Act, a law prohibiting the creation and dissemination of technologies that could help in violating copyrights.
In the discussion that triggered the event, there is a voice saying that 3D printers are easier than people copying music - objects protect patent law, not copyright. It's shorter and often includes only finished items - so printing parts should not be punishable. They must, however, be careful about copying art objects or design objects. So there should be no problem with hobbyists printing their Warhammer figurines - as long as the plastic soldiers are not modeled on the original appearance of the Space Marines. About this Workshop Games accused Valenty. In fact, the product's strength lies in its design - in fact, the figurine is a bit of plastic worth the dollar - at home it is printed for a few hours. The store costs a dozen, if not several dozen dollars.

A similar fate was encountered by Todd Blatt, who prepared the design of the "cube" - an object from space - similar to that of the movie "Super 8". In 18 hours after shipping the model to Shapeways, he received a letter from Paramount Records demanding a discontinuation and abandonment of production and sales. He paused and removed the project before someone ordered it. As he explains: it was a normal fan activity and did not want legal trouble. On his blog links to a company that sells official and licensed (!) Cubes. More like this:

Such exaggerated corporate care for your rights can be astonishing and irritating. Researcher Golan Levin and his student Shawn Sims decided to make a small provocation - starting with the preparation of several elements that would allow his son to link the sets of blocks of different companies. Finished in March, the Free

http://next.gazeta.pl/internet/1,104665,12917569,Nielegalne_drukowanie_rzeczywistosci.html
Blocks that combine various licensed construction kits - Lego with Fischertechnik, Duplo, Krinkles,

![Image of Universal Construction Kit blocks]

Fot. Media.fffl.at/free-universal-construction-kit

Scientists have used special tools to make copies of blocks up to 3 microns. Knowing what the corporate response might be, they used only the toys whose patents expired years ago, and were planning to release the project anonymously just in case. It turned out, however, that Lego did not intend to make them difficult until the creators did not infringe the mark - that is, they can print the blocks, but do not put the words "Lego" on them. Similarly, Hasbro and other construction companies have retained similarity. Levin and Sims have not received any writings, but lawyers are advised to stick to simple structural elements similar to each other, avoiding decorative elements.

However, producing toys is just one less dangerous side of the coin. In August of this year, a group of people calling themselves Defense Distributed launched a project called "Wiki Weapon Project." They aim to design a .22 caliber plastic gun. It does not have to be a reusable weapon - it's important to fire once, which can be crucial.

The group needed $20,000 to rent a printer and reward the developer for a suitably durable gun - though they claimed they had received the first gunners' schemes anyway. They tried to collect this money through the crowdfounding platform Indiegogo, but their campaign was blocked for breaking the rules - it is not allowed to finance the production of weapons there. Wilson did not give up and continued to collect money through PayPal - he got 11,000 that allowed him to start the project. As he says - he wants to let people make a weapon that they could still have. Until they sell it, everything is fine.

It may be suspected that if the phenomenon starts to intensify, proposals will come up for new laws that will try to regulate what people are allowed to print. A few days ago, Myhrvold got a patent for a technical solution to check whether the projects sent to the printer are not protected by law and whether the printing company has permission to create such objects. Security software is to be installed in printers so they do not become copiers of items. DRM for physical objects will become a reality.

And as in the fight against the spread of digital copies of games or music, there will be ways to circumvent these difficulties, crackers in that specialization, and organizations that fight against breaking laws and imposing fines on citizens at all costs. Will 3D printing fall into the same trap as the digital distribution of culture, or will it be possible to come up with a smarter solution by then?

And there is another trap that lawyers and patrons can fall into. You can prohibit the sale of printers, but we are talking about devices that can print objects. Some - such as RepRap or RapCraft mentioned - can print their own parts - the latter as much as 70%. Researchers are working to not only complement and repair them, but to make them self-replicating.

“Lana, I'm going to print more printers.” There are so many more printers, one for each one, it's worth the time in prison.
'Point cloud portraits' bring ghostly 3D images to movies

Carnegie Mellon University's Studio for Creative Inquiry creates distinctive 3D video effect by hacking together the depth camera of the Kinect gaming console with video from digital SLRs.

In yet another example of the amazing things possible with the Kinect gaming console, filmmakers have combined the depth camera of Kinect with a digital SLR to create a haunting new look in video.

Fellows at Carnegie Mellon University's Studio for Creative Inquiry this week posted video, spotted by The Verge, from a filmmaking workshop which shows some of the potential of this type of 3D imagery.

The sensor in the Kinect console controller scans objects in front of it and determines their distance, allowing it to recognize gestures for playing video games. Fellows James George and Jonathan Minard from Carnegie Mellon wrote software that combines the color video from the camera and the depth data from the Kinect's sensor into what they call a "dynamic sculptural relief," and the resulting stills, "point cloud portraits."

Their videos show a set of lines over the object to make it appear three-dimensional. The images are blurry, or "abstract," and only appear to detect light on some objects since the backgrounds behind people in the movies are dark.

Related stories

Microsoft's Kinect: A robot's low-cost, secret weapon

Where to find 3D movies to watch at home

But the "volumetric" video has a distinct look, which its makers hope can be used in making films. They released an open-source workflow application called RGDB Toolkit.

"I perceive a continuum between abstraction and integration. I see a place all along there with lots of really interesting places to go. I think abstraction has ways to communicate with us that go beyond language and talk to us in a low perceptual level," said Golan Levin from the Studio for Creative Inquiry.
A DOUBLE-EXHIBITION OF INTERACTIVE, COMPUTATIONAL, AND DIGITALLY FABRICATED ARTS

http://studioforcreativeinquiry.org/events/final-show

5:00PM-7:30PM THURSDAY, 3 May 2012
At the STUDIO for Creative Inquiry
CMU College of Fine Arts, CFA-111
Free to the public / Refreshments will be served.
Here’s a map — http://bit.ly/muefa

“Join the students in Prof. Golan Levin’s “Interactive Art and Computational Design” class and the students in Prof. Ali Momeni’s “Digital Fabrication for the Arts” for their final show this Thursday, May 3 in the STUDIO for Creative Inquiry!

“Golan Levin’s course in Interactive Art and Computational Design is an advanced studio course in arts-computing and new media practice. Topics surveyed include: experimental interface design, information visualization, game design, computational form-generation, image processing and vision-based interactions, augmented reality, dynamic typography, mechatronic and device art, physical computing and more (I’d be lining up for the “and more” part, as I don’t know what that might be short of quantum teleportation to Mars!). Teaching Assistants: Dan Wilcox & Patrick Gage Kelley.

“Ali Momeni’s course in Digital Fabrication for the Arts introduces students to the tools, work-flow, aesthetics and communities surrounding computer-aided fabrication and its creative applications within art practice. The CAD/CAM process is particularly well-suited for certain tasks, including the creation of multiples, for fabrication of functional/kinetic components, iterative prototyping of complex structures, scalable design, construction of large structures from repeated simple components, and other ingenious digital-physical work-flows.”
Here in moody, contemplative, deep-souled Belgrade, I’ve found the opportunity to ponder the “Responses to the Essay on the New Aesthetic,” commissioned and disseminated by Creators Project.

So, in this dense, meandering, yet-entirely-necessary effort, I’d like to respond to “The Problem with Perpetual Newness,” the piece by Marius Watz.

So, first, let’s consider the areas where I disagree with Marius. There aren’t any. I agree with everything he says. Especially the title.

The “New Aesthetic” has a perpetual-newness issue, a problem it inherits from its cranky Boomer uncle, “New Media.” Oli Lialina recently quipped that the New Aesthetic is New Media without the “Media.” This perceptive remark of hers cheers me up. It’s true, and it’s good news.

Why? Because that emphasis on “media” made the “perpetual novelty” problem inevitable. The “newness” of New Media came when media art was dragged through the keyhole of analog to digital. Artists didn’t own, create, distribute or share those means of artistic production. New Media artists grabbed at high-tech objects and services never intended for artists. With every major upgrade, a new spin of the wheel for Sisyphus.

Tech-art creatives remain the born slaves of Moore’s Law. The gizmos are still in rapid transition. But the gizmo-centric are less cruelly preoccupied with the learning curves.

The emphasis is sliding from the power of the chipset to the power of interface design; from the chip-fab to the atelier.

New Media art had a classic form: the culture-hack. You attacked some technical phenomenon too difficult to master fully. You found some way to turn it against its distant masters. You made that a culture-jam intervention.

I’ve seen this transpire for a generation now. It’s not that I ever tire of take-it-to-the-Man cyberpunk nose-thumbing — heavens no. I would never allege that the worldview of Boomers is becoming sententious.

However, I admire Marius for the fact that he eschews this approach, and builds code rather than appropriating and detourning “media.”

Marius is into coding “generative art.” Generative art is particularly “eruptive,” in the New Aesthetic eruptive sense. It looks “eruptive” because, although it isn’t new, the world has never yet come to terms with art generated by algorithms. We lack a sensibility that is cozy and urbane about that. So we have pretend that it’s amazingly new, all the time.

This response is pig-headed of us. Generative art has many analog precursors, as Marius himself has pointed out, in illuminating detail, on several occasions. Generative software code is code, and a printout sheet of it looks pretty intimidating to the non-coder. But it really is art code. It is not hidden from view by patents, trade secrets and commercial manufacturers. By the standards of New Media art, it’s compact, purpose-built, open to inspection, and, with sufficient investment of effort, comprehensible.

Generative art is simple in principle. Many methods will generate an abstract pattern striking the human sensormum as “art.” High-tech is by no means required. Artists in Paleolithic caves used to creep around with torches, hunting for patterns of shadow cast by suggestive lumps of rock. When they spotted one shaped like a bison, they’d paint a bison over it. Simple as that.

Cave artists were excellent artists, but they weren’t easel painters in the white-cube gallery scene. They were “letting the cave tell them what to paint.” These artists were, also, very likely, inspired by sacred ritual while high on drugs and tribal drumbeats. Cave art areas were frottage installations that centered on experience design.

So these artists were probably rather like Marius Watz laying down psychedelic digital video at a techno rave. I don’t pretend that the means are identical, but the payoff for the viewers is, let’s face it, likely pretty similar.
Human aesthetic experience has deep continuities. The curse of the “perpetually new” is perpetual, because we can't see art that we can't perceive as art. Art that can't fit within the art paradigms of its period gets sidelined and forgotten. It often is rediscovered later, too; thus the perpetuity.

It's not bad that bad art gets forgotten. That's a mercy that keeps us sane. It's bad when a promising art-form can't build a trajectory, and can't map its explorations.

Let me put a human face on this problem: Desmond Paul Henry.

http://www.wired.com/beyond_the_beyond/2011/12/desmond-paul-henry-generative-artist/

The world was unkind to Desmond Paul Henry; he was “before his time.” There's something evocative and moving about the fate of this gifted man and his strange, analog, drawing-machine.

The facts of his biography indicate that Henry was a talented man battling stiff disadvantages.

It must have required tremendous intellect for a British poor boy in a war-torn society to become a master of medieval philosophy. Along with that achievement, Professor Henry found a personal creative outlet; an art that had no public. He made art from surplus military machinery — he repurposed killer aircraft, for you New Aesthetic drone fans.

People like him haunt the tech-art scene like Gothic render-ghosts. Again and again, they've hoped for public understanding, and found none. Often small groups were intensely interested, but there were never enough. Appreciative publics just did not congeal for them.

I would not claim that Desmond Paul Henry is a major artist — although he is, clearly, a precursor to a great deal of contemporary art work.

I do claim that tech art needs a broader aesthetic with a wider participation, not because it “deserves it;” but to crack the “newness” problem. Mankind will never lack for crackpots, but some are insightful polymaths with a great deal to offer us. The artist-engineers are always around but, like Desmond Paul Henry, they suffer structural impediments. In today's network society, many of those strictures, the barriers to entry, the boundaries to knowledge, just don't apply.

This isn't Oz. It's just the art world's version of phenomena already familiar to music, publishing, banking, politics, guerrilla warfare and so on. This doesn't make tech-art better, but at least it gives us a chance to talk more honestly and comprehensibly about what's bad about it — why it's a perpetually-new freak-show instead of a sensibility.

So let's consider “bad tech-art.” What does it look like? Well, it is, commonly, some poorly-designed, haywire, deeply private, almost chaotic device and/or installation — accompanied by a long, vague exegesis about its huge significance. This artwork barely functions, communicates badly to people, is opaque to interpretation, breaks down frequently, and is generally accompanied by a tortured justification direct from the artist himself.

That is the melancholy spectacle of an art-hacker isolated by his hardware. He has never been able to mentally place his artwork within a context of similar creative activity. He or she is a one-person artistic Long-Tail.

His artwork has failed to get social traction, because, although it's plenty weird, this creative is poorly-socialized. He's a pioneer, not a native. He's a Robinson Crusoe in goatskins, and despite the fact that his IQ is high enough to boil lead, he's easily classifiable as a weirdly ingenious derelict marooned on some tiny island.

That island that consist of his hard-won private expertise in, for instance, building drawing-machines out of British ex-military gunsights. This hacker-artist-crackpot-inventor is hang-up on the bit-twiddling hack minutiae — most of which he had to invent, all by himself, in a splendid isolation.

He had no ready way to learn, for instance, that he isn’t “new,” because Jean Tinguely did “kinetic art” and “metamechanics” in the mid-20th century. He didn’t Google Jean Tinguely. He didn't drop by the Jean Tinguely Tumblr. Congenial Swiss fans of Jean Tinguely on the network did not get him up to speed. Not being a digital native, he was entirely busy with the Crusoe crescent wrench, and never developed such healthy modern habits. He lacked tech-art snobbery. He never got critical mass.

Now, this bad tech-artist knows that his homemade device doesn't work very well. In fact, he'll make a fetish of that defect, leaving it snarled in frazzled wire so that it looks more Bohemian, somehow. However, since he lacks an aesthetic to give his efforts some rigor and context, he retreats into bad metaphysics. He'll rename his installation as the “Cosmic Mental Synchronizer” — some far-fetched breach of taste along that line.
I see quite a lot of this. The weirdness there is not the problem. As a science fiction writer, I have the warmest regard for brain-scrabling visionary interventions. Truly, I love them and I always will. I'm very forgiving in that regard.

However, I like to see weirdness done by people who participate in weirdness voluntarily and with some brio, rather than being forced to that peculiar state through a dismal lack of alternatives. Tech-art does not have to be perpetually new and freaky, constantly trotting itself out with a high-tech sense-of-wonder. Thinking that every work of tech-art ought to act all sci-fi is like thinking that every painter ought to be Frank Frazetta.

Bear with me now — but it may be, that after a long generation of “New Media,” “computer art,” “digital art,” “device art,” “net.art,” “code art,” and similar always-new pseudonyms, we've found a better perspective. We've paid a bill in blood and struggle, and a generational shift has occurred. It's like watching a generation slog it out in the muddy barbed wire, and then seeing a drone appear overhead.

The foot-soldier may not be entirely happy about drones. That's sensible. Drones are not an unalloyed blessing. But they do alter the strategy.

There will be more drones coming. There's never just one drone. Ask anybody around drones nowadays. There's lots of them now, all kinds of drones with all kinds of sponsors, and they won't go away. The barbed-wire and bayonet era of net-art is over. It is one with Ypres and Verdun now, and its trenches will fill in with grass. It will never return.

Let's get back to Marius, who complains that it's taken the straights forever to catch on about such things. Personally, I am at ease with lag-times in adaptation, although I can understand the irritation. If you're an avant-type and your work mainstreams, that's not any panacea. The solo shows and coffee-table books, they're just another set of problems.

The gleeful prospect here is actually “getting” some new problems, rather than those boring, outmoded, vapid, perpetual-novelties problems. When conditions change within society — and they indeed have — you have refreshed reasons to work.

So, what other wise things is Marius Watz saying, in the other window open on my overloaded screen here? Let me see — “don't hide out in the humanities.” I frankly can't see “hiding” as an option for anybody these days. The drones are overhead in thick flocks now, and the humanities are infested with “digital humanities.”

I can't doubt that a “new aesthetic” is one right and proper field of study for the “digital humanities.” I have profound sympathy for the digital humanities. I just hope they don't ping James Bridle all at once, because digital-humanities scholars have James and his best pals outnumbered a thousand-to-one.

If “digital humanities” scholars wanted to be of real service to the creative scene right now, they'd go datamine the incredible heaps of obscurity generated by thirty crabbled, mud-slogging years of “New Media.” They don't much want to venture in the weed-grown trenches there, because they know that New Media always looked snarled, bohemian, bonkers and declasse. But, professor, enough time has passed now that you can put on the asbestos gloves and go curated that wreckage. Have at it.

If you want to make me personally happy — (I know this ranks high on your Software-Studies Google-Calendar To-Do List) — go tackle the half-forgotten history of “augmented reality.” I've had a good look at that stuff. It's horrifying. Seven burnt Heinrich Schliemann layers of Ancient Troy couldn't be any scarier.

Marius gets in a good dig at the “technically illiterate.” He means compared to himself. We're mighty low on that quality, these days, because even obscure Tuareg desert marauders in Timbuktu have mobiles now. That's how they swapped hot news about the drones when they were employed by Qadafi.

We're past the darkness-of-illiteracy issue, and we're sinking deep into a more Gothic form of darkness, the “dead-media black hole.” That's a world that junks GeoCities as a biz-model embarrassment, and leaves James Bridle wringing his hands for his lost youth, as street-artists cut moony 8bit stencils.

The “perpetual novelty” is a general societal curse — it’ll take out Nokia, Kodak, Sony and RIM, not just some artsy geeks. The woes of Marius Watz are a weather-vane in the planetary storm there.

Marius says some other interesting things with which I must concur. For instance, that “manifestos are not New Aesthetic.” This may sound paradoxical, considering the verbiage I'm churning out here, but it's true.

Personally, I happen to be quite the manifesto devotee, but that's just habit, it's the way I was raised. Manifestos are relics of an analog print culture. The New Aesthetic did not, and it could not, arise within that world.
Artists did not write “manifestos” before print appeared. Brainy artists before Gutenberg would take on students in the atelier, or hold a symposium at the duke's court, or circulate half-secret artists’ notebooks, or carry on circles of epistolary correspondence.

Manifestos are a method to “manifest” persuasive ideas. The New Aesthetic has different manifestations. To think that the New Aesthetic is about “manifestos” is like thinking that Twitter is about carrier pigeons.

The New Aesthetic crowd are exceedingly literary, mind you. They are so tremendously well-read that they cite Rilke in public in Texas. James Bridie is a publisher. His London scene is way into freaky post-print interventions, such as “Newspaper Club” and “Little Printer.” It's not that they despise print, or have never heard of print. The truth is that print-centric “manifestos” are irrelevant, like fax machines.

Yes, manifestos are not New Aesthetic. Other things are. Open-APIs are New Aesthetic. Instructables are New Aesthetic. Embedded videos are New Aesthetic. Massive flash-crowds of easily-bored dilettantes are very New Aesthetic. That is contemporary “network realism,” and we have to deal with what's real.

Look at the screen here. When I post long essays of this kind, they appear within my blog like big lumps of putty. They're archaic and strange. It's obvious.

Why did I write my first New Aesthetic essay? I don't write essays for their own sweet sake, I'm not Michel de Montaigne. I wrote that text because an interested party in London lamented that no one had written a report about the New Aesthetic panel in Austin. If the network wasn't yelling for some reportage, I wouldn't have placed an essay here.

With all that said — and that was a lot to say, considering Marius's brief, pithy, and to-the-point remarks — I must turn to another area where, in my opinion, a great deal of work is required. The task at hand is acculturating “generative art.” Folding it in, civilizing it, making it part of the way that we perceive the world nowadays.

That will not happen in a week. That will be a tough, long-term effort. Generative art isn't new, but it is very resistant to facile recuperation.

I was first attracted to “generative art,” years ago, specifically because it was apparently so de-culturalized. It just doesn’t “look human.” The alienness of generative art much impressed me. Especially, the alienness of a set of fabricated objects at a Marius Watz show in Berlin.

Those knickknacks were impressively weird — genuinely strange. When you set up an autonomous, algorithmic process to generate “art” — the output of that process seems bleached of all human intent.

It does not sit there beseeching a Walter Benjamin aura. It does not curry favor from the viewer, make arch allusions to previous works, convey class cachet, play to national sentiment — none of that stereotypical art-world activity. It's art, but it generally looks as sterile and emotionally remote as the patterns on a kaleidoscope.

For New Aesthetic fans, I would particularly recommend the work of Marius as “artist in residence” at MakerBot. In this compelling and very contemporary incident, Marius dropped by the crowdsourced plastic-oozers, input some of his algorithms, and output some severely weird solid lumps of whateverness.

A new aesthetics has to learn to judge that. There's a whole panoply of core New Aesthetic issues involved here. The Makerbot crowd, the open-sourced code, the transitions from digital to material, the densely networked relations between tech startups and artists — issues in big heaps.

I challenge any serious-minded New Aesthetician to make an aesthetic decision here: tell us whether Marius Watz “did a good job” as Makerbot Artist in Residence. He is Marius Watz, a professional artist; they're Makerbot, they are real as an anvil. So answer one simple question: was that good art?

On what parameters do you dare to base that decision? Don't just snap off some snarky tweet about it: engage your brain before hitting the RETURN key. Think about what's at stake here. Back up your point of view on that subject: convince people, don't just network at them.

If you don't like crude, low-barrier-to-entry Makerbot products, then you can cruise by the posh, upscale website of “Freedom of Creation.” Check out the generated lamps. If you're a New Aesthetic design-critic, you need to tell us whether those are, or are not, good lamps.

Are these scarcely-precedented, fabricated oddities, also lamps that cultured and contemporary people would properly choose to have in their homes and offices? That
judgement should be centered in your values. Don’t tell me that they sell pretty well, and
drew nice crowds at the Milan Furniture Fair. They do, and that’s not the point.

If you can’t make aesthetic judgements about these creations, then you’re still a drive-by
rube checking-out the Tumblr. You can’t grow teeth until you chew these things over for
yourself.

So: who is best fit to make magisterial judgments about the worth, and the proper role, of
generative art? Well, generative artists are clearly leading the parade there, galling as
that may be to us critics. No doubt we critics should have been consulted first. The great
John Ruskin used to complain about that issue, at great textual length. He’s dead of

So, what does Marius Watz, who isn’t dead, think about what is happening? Well, here I
must cite a different essay of his, which has some forgettable title, and will be known
henceforth as “Algorithmic Thought Police.”

In this stern and value-centric essay, Marius scolds the mental laziness among his fellow
art-coders. What particularly galls Marius is that they’re skating along, getting boffo
effects from the startled public, by making too-lavish use of overworked, corny
algorithms. Stuff like close-circle-packing, L-systems, and Voronoi, that sort of thing.

Basically, Marius is promoting a work ethic, in which generative artists should
concentrate on developing improved algorithms. It is beneath them to concentrate on
clever ways to reap cheap rewards for little or no creative effort. He’s willing to allow
engineers to use the algorithms, because, you know, they’re engineers and they have to;
but lazy architects get an especial elbow-prod.

This seems to be a practice borrowed from open-source software, or maybe even from
the scientific method, which is keen on rewarding priority discovery, rather than the
technological and commercial exploitation of these discoveries.

This moral essay claims aesthetic priority for code developers over code packagers. The
coders are the artists, while the packagers are, well, you know, mere architects and such.
When you think about that from a conventional analog-art world perspective, that is
remarkably strange. It’s a new and different way to think and feel about creativity.

This is as if the cinema world were to de-value their much-trumpeted stars, and make
stars of FX guys. Or, in the gaming world, it’s like that historic incident when Warner
the film company, who had just acquired Atari, dismissed Atari’s best game design talent as
mere “towel designers.” That led to a fatal rebellion and the swift destruction of Atari the
company. These seemingly arcane decisions are not without real-world consequence.

So who's got the aura? Where did the aura go? A perennial theme in these essays.

I’ve seen rather a lot of generative art. For instance, I generated the generative
introduction to the generative book, “Written Images.” This tome contained work by
Marius Watz, Golan Levin, Casey Reas, Robert Hodgin, Lia, Steph Thirion, Mehmet Akten,
Marcus Wendt, Ariel Malka, Brendan Oliver, Leander Herzog, Takahiro Yamaguchi, plus
the proverbial “and many others.”

Clearly I wouldn’t name-check these artists here if aura had no meaning within
software-art. If it didn’t, then these worthies, who you ought to go Google Image-Search
right away, would be mere Warner Brothers towel-functionaries.

They aren’t, though. They matter. I’d love to boast even more about this generative-art
book. I can’t do that properly, because I scarcely know how. Why? Because every issue of
“Written Images” was generated by a unique process.

Even my introduction is generated, so that the text of that particular essay varies widely
with each and every copy of the book.

Are you a New Aesthetic book reviewer? You’re very into glitch-texts, machine-
translation, ultra-cunning spam, Markov generators, autocorrect fails, and Siri’s most
hilarious verbal gaffes — that sort of thing? Well, then you need to man-up, and invent
some way to explain to us why “Written Images” issue #123 is a superior instantiation of
the concept, as compared to, say, “Written Images” #321.

Either that, or you must convincingly explain to us that “they’re really all the same” —
even though each issue looks entirely different, as a book. Different pictures, different
text, different page order, an algorithmically different everything.

Try not to search Wikipedia for a quick answer to this severe problem. I’d urge you, once
again, to think before typing. Why? So that you can exercise your own human faculty to
perceive the world that you live in. If you live entirely by “collective intelligence,” you
will stunt your own! You’ll be wandering into those “shallows” and those “you-equal-
gadget” areas that those cranky network prophets are warning you about!
I have shown people “generative art” on many occasions. Fabbed chairs resembling sea urchins, wallpaper that never repeats itself, shoes made of ooze, the whole caboodle.

Commonly, the first reaction of the naïve viewer — (I don’t mean that he’s naïve in a conventional way, he’s merely new-aesthetically naïve) — is an instinctive Walter Benjamin aura-hunt. “It’s random,” they will say, or, alternatively, “the machine did it.” People lack a proper mental category in which to assign the productions of algorithms. It’s a tech-art freak-show.

But those two responses are not true. Real randomness, meaning rigorous, mathematical, complexity-theory randomness, makes no sense to the human sensorium. The machine “sees it,” we don’t and can’t. Randomness appears to human beings as a snow-crash; it’s white noise, it’s hiss. Generative algorithms are not “random.” They have a much-pondered structure. They’re a set of commands deliberately assembled and planned to provoke variety.

You might claim, as Casey Reas recently stated, that Processing is not intended as “software,” but as a method for exploring visual ideas. If that’s the case (and Reas should know, because he built it) then what you are really looking for within generative art is “process.” The appreciation of generative art requires an aesthetics of process. An aesthetics of watching code in execution.

“Seeing like machines,” in New Aesthetic magic shorthand, but isn’t this a rather harsh demand? Maybe it’s the responsibility of the artist to make process lucid to the human sensorium. Otherwise, a machine is one’s best audience, which seems a steep price for indulging in hiss and snow.

You can judge generation by the clarity and elegance of its “processuality.” While this in indeed a “new aesthetic,” its not entirely alien to earlier forms of aesthetics. It’s an aesthetic of visual ideas algorithmically explored. That’s at least somewhat like the appreciation of dance fans for ballet. Or, to be less upscale and elegant, it’s something like the fondness of boxing fans for the “sweet science” of watching guys clobber each other. Aesthetics are never value-free.

Failing this awareness, this engagement, you can just say “the machine did it.” In which case, you’re ripping the epaulet off the coat of Marius Watz, and giving it to Super Mario.

I keep harping on this issue, because it seems to me so entirely central. This badly-outdated Turing metaphysics harms the prospects of contemporary artists. Worse yet, that point-of-view is blinding; it prevents us from seeing what’s happening. There’s generated imagery all over the place. It’s in IKEA and Walmart; it’s in music videos, on pillowcases, on lingerie.

Since I’m a novelist, I will offer a metaphoric parable at this point. We’re like doctors with enfeebled artists on our hands. The patient is not newborn. In fact, like all forms of art, he’s pretty goddamned old if you look at his DNA. Yet he can barely stand on his own feet, and he keeps obsessively repeating the same tics and twitches.

Sometimes, the artist drags in a new fetish-object, ditching his tattered wool blanket to grasp at a fresh rubber pacifier. He’s perpetually “new,” and he looks and acts newborn, since he’s stuck at the infantile level of finger-painting. He has never achieved virtuosity. He has no way to know that he’s achieved that.

We might conclude that the poor guy’s true problem is that he’s possessed. His soul has been captured by an evil Super Mario. As a proper artist, he should never have trifled with “thinking machines”; the evil Super Mario does all the heavy lifting in his line of work, and that’s why he’s stunted by comparison. His value-ad there is merely peripheral. He’s a towel designer.

But if we conclude that, we are witch doctors. Our diagnosis is based on superstition. The guy is not accursed. He’s an artist in a state of clinical depression because he never gets sustained attention.

Giving him more attention will not make him all better. Attention’s never a panacea for artists; fame just accentuates their inherent eccentricities.

“Generative art” is not the be-all and end-all of art, or design, or engineering, or coding, or architecture. It’s an approach, a technique, and a mode of perception.

We don’t know what it’s good for, because we are unwilling, or maybe unable, to meet it on its own terms. If we could get our heads around generative art, then it would probably rather promptly join our panoply of other, better-understood means of production. There would be stuff that generation was great for, and other stuff that generation should better leave alone.

But to make that judgement requires a new aesthetic. We’re not gonna get one, until we realize that we need one. If we need one, then we’ll have to build one. If we don’t build
one, we’ll be forced to pretend, again and again, that it’s some big surprise.

Let’s wrap this up with a final flurry of picking on poor Marius, because, frankly, he’s got it coming. Marius Watz is a major generative apologist and the maestro of the “Generator.X” workshop. So, even though he doffs his hat to pro mathematicians when it comes to his algorithms, he’s a maven there.

What aesthetic values does Marius Watz follow in his own deployment of generative technique?

Well, if you encounter a Marius Watz intervention, it’s going to look like this: “Visual hedonism, the neon organic, beyond the limits of traditional production,” plus “computational creativity as the truly alien.” That’s what Marius says it’s about. (Unless he’s changed his mind, which would be his prerogative.)

In other words, there’s gonna be lots of it, like, screensaver truckloads of visual produce. It’s going to be rather garish and visually confrontational. It’s gonna come gushing headlong out of processors, instead of assembly lines or atelier easels. Finally, it’s gonna look like it was done by something other than a mere human being.

And it’s perpetually new, too. Because it’s “computational creativity” with some whippin’ fresh algorithms, instead of being a highly personal, entirely human creativity.

And I’d be okay with that assessment, if Marius Watz creativity looked truly and completely alien, all the time. “Truly alien creativity” would look alien always, first and foremost and forever, as it had come first from Mars, then Pluto and then maybe Saturn.

But that’s not, in fact, what it looks like. Even your Mom ought to be able to tell that a Marius Watz artwork looks very Marius Watz. All you have to do is meander by the Marius Watz Flickr set, and check out the instantiations of Processing by various Processing people.

Even when they’re using the very same library toolkits, and elbow-banging each other about their stale algorithms, their actual artworks don’t look remotely similar. Not at all. You’d have to be blind to mistake the typical Marius Watz snarl of colored ribbons for a Casey Reas sternly-disciplined grayscale musing.

These artists share the same means of production, but their artistic choices — the tonality, direction, contrast, textures, tones, strokes, lines, shadings, all that typical art-school, drawing-class stuff — that is radically distinct, and extremely individual. Yet nobody talks about that. It’s a little weird.

It goes deeper. What Marius does with his chosen algorithms: the surplusage of frenetic visuals, the garish, glitchy freakiness, the blatant show-offiness of the new means of production, the Super Mario mask where you’re getting all cozy with computers by pretending they’re alien — that is exactly what the New Aesthetic Tumblr does.

Everybody involved in the New Aesthetic tumblr is into that approach to their subject matter. All day, all the time. They have the same value system, because they really are colleagues within a contemporary movement.

It’s just a movement that doesn’t move around much, yet. Because it touches Super Mario, instead of gripping the little 8bit bastard and beating him silly like the egg-sucking dog that he is.

So, that is my partial response to the very interesting and helpful Creators Project “Responses.” I hope to do rather more, later. Because: is Professor Sterling through venting his feelings on these issues? No he isn’t. Not even. I haven’t half begun to address the issues that demand attention.

Here in Belgrade, we live in a city that has been burned to the ground nineteen times. Life’s a bit repetitious and perennially-new here in the Balkans, to tell you the truth. Nevertheless, this season, Beograd is seething with tech-art conferences. And what’s more, the streets and storefronts are cluttered with Nova Estetika. Not because they follow developments in London, but because machine-imagery is just plain there. They’ve even got 8bit political graffitti.

Mind you, Belgrade isn’t one of these “creative class” cities that so pride themselves on their alleged “innovation,” while the lives of the millions drift straight toward hell. This city isn’t some Cutting-Edge Hardwareville. This isn’t London, Berlin, Amsterdam, Milan, Tokyo, Sao Paolo, San Francisco, New York, Los Angeles or Austin — this is Belgrade. What a fantastic spectacle.
A study on the interaction of analog sensibility expression in the interactive media arts: Focusing on “Eyecode”, “Opto-Isolator” (2007), one of the interactive media works done by Golan Levin

Jin Lee, Seungyon-Seny Lee
Graduate School of Arts & Design, SangMyung University

ABSTRACT

Objective: The aim of this study is to analyze how digital programs convey analog emotion to and interact with audience through interactive media art. Background: Interactive media art is a multidisciplinary media art completed with a real-time audience interaction based on digital computer systems. Method: This study describes the meaning and role of eyes in a linguistical view, and it analyzes "Eyecode", "Opto-Isolator"(2007) by Golan Levin, one of the representative media artists of the 21st century by looking at how this art piece interacts with audience as a communication between humans and machines. Results: We unconsciously express emotions to other people through our eyes. These artworks is psychologically interacts with audience by using eye language. This kind of interaction is interpreted meaningfully by many philosophical theories such as the phenomenology of perception and artistic concept of spiel. Conclusion: Art surpasses blindly being seen and accomplishes the interaction of both being seen and seeing with audience through the optical computer system of interactive media art. Application: The results of analysis might help to Interactive Media Art for expression emotions.

Keywords: Interactive media art, Analog, Digital, Emotion, Phenomenology of perception, Spiel

1. Introduction


여기서 말하는 물리적인 상호작용은 사전적의 미의 인터랙티브를 말한다. 그리고 정신적인 상호작용은 연여와 예술과의 관계에서 설명할 수 있는 관객의 작품에 대한 사유를 통하여 표현되는 인지적 연여로 정의한다. 물리적인 상호작용에 의해 작가는 관객과 소통하는 행위로 관객은 작가의 세계관이나 현실 인식, 작품의 주제, 심리적 추이를 파악할 수 있는 것이다.

인터랙티브 미디어 아트는 실시간으로 동시에 관객의 직접적인 참여를 적극적으로 유도한다.

본 연구의 목적은 복잡한 디지털 프로그램으로 된 인터랙티브 미디어 아트를 통해 아날로그적인 감성을 관객과 어떻게 상호작용을 하고 있는가에 대한 것이다. 21세기 대표적인 미디어 아티스트로 손꼽히는 골란 레빈(Golan Levin)의 작품 중 “Eyecode”와 “Opto-Isolator”(2007)를 분석하고, 이 작품이 인간과 기계의 관계에서 관객들과 어떤 상호작용이 일어나고 있는지를 분석한다.
2. Method

Figure 1. “Eyecode”, 2007

Figure 2. “Opto-Isolator”, 2007

글란 랜빈의 오폰소스 프레임을 통해 작품 “Eyecode”와 “Opto-Isolator”의 작품 분석을 통해 철학적으로 상호소통의 이론 의미를 가지는 저를 분석한다.

3. Results

언어는 사전적 의미로 생각이나 느낌을 나타내거나 전달하기 위해 사용하는 소리, 문자, 몸짓 등의 수단이다. 인간은 생각 속에서 언어를 통해 또는 생각을 발전시킬 수 있다. 사유는 전적으로 언어에 규정 당하고 있고 오직 언어를 통해서만 가능하다고Nike는 말한다. 사유사물들은 능동적으로 이해하는 즉, 사유하기 위해서는 언어의 도움을 받아야만 한다.

인간은 다른 생명체와 달리 삶을 살아가는 봉으로서 존재하고 사유할 수 있다. 모리스 메 נוספות(Maurice Merleau-Ponty)는 지각 현상학을 통해 이전의 관념론적 철학과 달리 지각된 세계의 현상에 주목하고, 지각은 순수하게 지각만이 아니라 감각기관들의 상호 작용으로 설명되기 때문에 지각된 사물에서 지각적인 것은 물론 철학적 이거나 총체적인 것을 경험하게 된다. 그러므로 지각은 정신적인 존재가 아니라 몸과 대상과의 상호작용이라고 주장했다. 즉, 보는 행위와 사유하는 행위는 따로 분리된 행동이 아닌 것이다.

사용한 것을 나타내는 도구 중에 가장 많이 사용하는 것은 하나가 눈이다. 눈이라는 것은 무의식적으로 담백이거나 응시 행위로 감성 표현을 하고 다른 사람들과도 많은 정보를 주고받는다.

글란 랜빈은 인터랙티브 미디어 아트로 활발하게 활동하고 있는 미디어 아티스트이다. 언어학적 측면에서 중요성을 가지고 있는 눈을 통해 기계와 어린 소통하는지를 연구했다. 그는 예술작품이 우리가 자리를 바라보고 있던 것을 반영하여 여행가, 또 여행가 반응을 맡아 그 사실을 받아들일가, 자신도 관객에게 시각을 보낼 수 있으면 여행가, 라는 질문에서 시작되었다.

"Eyecode"는 설치된 디스플레이를 바라보고 있는 관객의 눈을 쥐어잡는 카메라 시스템이 스마트폰을 타자를 치는 농의 모습을 엮는 작품이다. 관객이 이 작품을 바라보고 있는 예술작품의 시점을 느낄 수 있고 내가 바라보고 있는 작품의 시점을 생각할 수 있다.

"Opto-Isolator"는 검은색 로봇 얼굴에 있는 눈이 사람의 눈을 차단되거나 결정 코멘트 비전 인터페이스를 통해 감지한다. 이 시선 추적 인터페이스는 관객이 눈의 반감이거나 1초 후에 반감이 있는 행위를 하고, 시선을 움직일 때마다 그 눈이 사람의 시선에 따라 옮겨진다.

높이는 작품을 감상하거나 창작 활동을 설명하는 미학의 전문가이다. 한스 게오르크 가다머(Hans Georg Gadamer)는 높이는 예술작품 자체의 존재로 보았다. 이런 높이의 존재방식은 자극에 현에 있다. 높이는 자발성의 개념을 가리키며, 높이 자체 존재의 역동성을 가지고 있고, 또한 현실을 능가하는 그 무엇에 대한 자극표현이기 때문이다. 높이의 이런 성격은 바로 예술을 구성하는 요소가 된다. 작품으로 완성된 높이는 하나의 의미로 가득 찬 천체의 형성체가 되는데 이것은 전환된 높이는 높이행위와 분리된 것처럼 나타난다. 예술작품을 하고 있는 창작자와 감상자인 매개존재를 통해 높이는 예술작품으로써의 가치를 가지
고 존재한다.
여기서 나타나는 눈은 캐릭터가 하기 위해 상
대방을 놀라게 기나 오랫동안 응시하는 행위는
눈을 용이한 아날로그적 눈이기도 동봉되고 있
다. 이것은 사용자로 하여금 기계라는 인식보다
또 다른 인간이라고 인식하게 된다. 그를 통해
사용자는 기계와 무언의 상호소통을 하고 있는
것이다.

4. Conclusion

인간의 눈은 컴퓨터과학 분야에서 환베푸하게 다뤄
지고 있는 이슈 중 하나이다. 골반 해인의 두 작품은
눈이라는 단순한 인식적 도구로써 기계와 상호작
용하는 것을 보여주었다. 그리고 더 나아가 관객과
아날로그 감성 표현의 속면에서 예술작품으로서의
큰 의미를 가지고 있다.

인터넷의 미디어 아트는 시각 능력을 통해
영상 정보를 받아들인 컴퓨터가 주변 환경에
경 속성에 대한 이미지를 분석해서 유용한 정보
를 생성하는 기술인 컴퓨터 시각 시스템을 이용
해 인간과 기계를 감성적으로 소통할 수 있는
매개체를 만들어주고 있다. 이를 통해 예술은 관객
을 향한 일방적인 보임을 벗어나 보임과 보임의 상
호작용을 하여 예술작품의 주체로서 자유로운 감
성 표현을 할 수 있다.

References

Lev Manovich, the Language of the New Media, MIT Press, 2001, p. 70-71

M. Merleau-Ponty, L, Phenomenology of perception, 1945.

Suk, Chon, A study on the Expansion of Creation Activity y New Media Art

Junsang Park, Le rapport du Langage et de L’art -a partir de Nietzsche-, 2007

Joowan Kim, Spiel and artworks by H.G. Gadamer, 1990

Golan Levin, www.flong.com

Author listings

Jin Lee: hveontom@naver.com

Highest degree: B.A, Department of Music composition, Catholic
University of Daegu

Position title: Student, Graduate School of Arts & Design, SangMyung
University, Seoul

Areas of interest: Music Technology

Seungyon-Seny Lee: senylec01@gmail.com

Highest degree: D.M.A., Center for Computer Research and Music and
Acoustics, Stanford Univ.

Position title: Professor, Graduate School of Arts & Design, SangMyung
University, Seoul

Areas of interest: Intermedia Lab.