

The Frankenstein GRID: A Summary

By Charlotte Thun-Hohenstein

The Frankenstein GRID took place over the course of six evenings, 8-10pm, from June 4th through June 10th, 2018. The original mission of the project was to “provoke reflection about the relationship of science and nature, and the ethical boundaries between the two.” Moreover, we wanted to foster as much collaboration as possible among student groups on campus and create a social experience for viewers. Ultimately, we hoped to promote the following attitude in honor of the two hundredth anniversary of Mary Shelley’s *Frankenstein*: “not to decry science’s progress or to claim some innate evil in technology, but to hazard the potential alienation of these pursuits from human relationships.” [GRID grant application] We were thrilled with the final outcome of the installation, which, indeed, exceeded our expectations. This summary will detail what we consider the various successes of the installation, noting the logistical adaptations that occurred along the way in order to deliver this result. Photos are attached below.

Experience

GRID took the form of both a sculpture and a weeklong festival that showcased a host of different artists every evening, totalling nearly individuals altogether. The structure itself was a twenty-foot high lattice of green laser beams, perpendicular to the ground like a wall. The beams were made visible by a smoke machine, and the framework also featured a falling curtain of water, onto which we projected video footage. Four outdoor speakers were set up among the trees to create a surround sound environment for audience members. We were honored with video and audio contributions, as well as live performances, not only from Stanford’s own MFAs and PhD students from the Center for Computer Research in Music and Acoustics (CCRMA), but professional artists operating internationally. A list of participants is included below. I highlight here the work of Greg Niemeyer (professor of art practice at UC Berkeley), and Oron Catts (Director of SymbiotA, the Centre of Excellence in Biological Arts at the University of Western Australia, which is also organizing a conference on *Frankenstein* in Oct., 2018). Dr. Catts supplied a video from ongoing research into the first ever cross-kingdom cell fusion.

Each evening featured different works according to a program of broad themes exploring the relationship between science and art (e.g. ‘Self’, ‘Extent’, ‘Forms’, etc.). Artists contributed ready-made works as well as provided new pieces especially for the event. Audience members were encouraged to bring picnic blankets and recline for the evening, which many did. We also provided some extra blankets and chairs. The quality of the light changed over the course of the evening, as the sun was still setting at 8pm; by 9pm the structure was fully glaring in the dark. We estimate from ticket reservations that over two hundred people visited over the course of the program.

Collaboration

In addition to the fantastic array of artists mentioned above, GRID received official support from the Department of Theater and Performance Studies (TAPS) and CCRMA. The former allowed us to use their 'shop' for construction as well as borrow certain materials. The latter lent us high quality outdoor speaker which were also critical for the experience. We also benefitted greatly from the technical guidance of the Stanford Optical Society (Stephen Hamann was a consultant on the lasers from the outset), and the newly formed ArtX student group. ArtX was founded in the Winter of this past year, and quickly proved a source of creative and logistical support. They also facilitated the appearance of a 'baby-GRID' (10 x 10 ft) at the inaugural gala for Stanford's MINT Magazine. We are also indebted to many individuals, including undergraduate computer programmers and electrical engineers, who put in dozens of hours to wire and program the lasers in the final run-up. Throughout all of this, I cannot emphasize enough the dedication of GRID's technical director, Daniel Cadigan (Staff Carpenter, TAPS), who oversaw the process.

Publicity

The truncated format allowed us to concentrate publicity efforts in the run-up. A full website was built to accompany the installation with information about the project and its collaborators (still running: www.frankensteingrid.com). Facebook and Eventbrite pages maintained ongoing event notices and updates, and allowed us to gauge turnout as well as build buzz. We were very fortunate to receive a writeup in Stanford's SCOPE blog by Holly MacCormick:

<https://scopeblog.stanford.edu/2018/06/08/laser-art-installation-commemorates-frankenstein/>

Construction

We were very grateful to be able to construct GRID at an outdoor location with permission from Campus Planning and Security Services. In collaboration with these offices, we identified a clearing among the trees on the corner of Lomita Drive and Campus Drive, opposite the Anderson Collection, that afforded easy access to visitors while creating a somewhat remote atmosphere. The structure was designed and tested off-site in stages over the months of Winter and Spring quarters, and fully assembled on site in the week before our opening evening.

Several logistical hurdles presented themselves that were surmounted. The original proposal had suggested a series of daily shows for an entire month through January, 2018. We decided to push the entire show back to the end of the Spring quarter in order to do due diligence with campus security measures; the more reliable weather was an added benefit though of secondary concern. We quickly surmised that the original 30 ft height was unnecessary, and settled for 20 ft height (and maintained the 30 ft width), which created a better effect with the dimensions of the trees as well as eased practical demands. Moreover, we adapted the original plan of daily

showings for an entire month to a contained series of evenings. We entertained the idea of biweekly showings over the course of a month, but eventually settled on the continual weeklong format. This proved very valuable for several reasons: the shorter duration gave us more preparation time; it lessened the liability of students climbing on the structure (a main concern for security which we also addressed through other measures); and publicity could be more focused in the spirit of a festival. During our off-site test runs, we realized that our original idea of projecting video onto mist (the laser particulates) worked poorly outdoors, hence the incorporation of a water screen. The water screen entailed a great deal of new technological challenges (managing water pressure through 20 ft high pipes, achieving a certain resolution of image, etc.), and during some of the public showings required on-site maintenance. However, the water turned into a special feature of GRID that engendered fondness in many viewers. The lasers required extensive re-wiring and re-coding once attached to the final framework during the final week of preparations, which necessitated the delay of our opening night from a Thursday to the following Monday. The final postponement proved a worthwhile decision. 'Baby-GRID' was showcased at the MINT gala that weekend, and the extra time spent perfecting the technology was well-worth the ability to deliver our full vision. GRID was deconstructed fully immediately after its final show on Sunday, June 10th. We did spend more than our received funds, but the budget, thankfully, anticipated the majority of expenses accurately.

Feedback

We received wonderful feedback from audience members and artistic contributors alike. The atmosphere created by the laser structure, surround sound, and water screen realized our core vision, and creative collaborations developed far beyond our original plan. We would like to develop the project further when an appropriate opportunity presents itself. *Frankenstein's* themes will certainly remain pressing for foreseeable future. We thank the Stanford Medicine and Muse Frankenstein@200 Initiative again for their great generosity in supporting this project.

Contributors

ARTX is a student club recently borne of a group of students with the purpose of cultivating and sustaining a community for those interested in bridging their interests in both the arts and the sciences, creating art with tech, in an effort to bridge the 'techie-fuzzie divide' which currently defines Stanford's student culture. ArtX, by name, is constructed with reference to the mathematical notion that the exponent is more powerful than the base. In this case, 'X' can be any variable, for example, virtual reality, sound, light, structural engineering, artificial intelligence, or bioluminescence, to name a few. Intersectionality is the core constituent of our student organization and is thus represented by our exponentiation and intercrossing with the 'X'.

DR. ONN BRANDMAN grew up in the Bay Area and has been playing music since he was a 13. He is an assistant professor of Biochemistry at Stanford University. In his job, Onn tries to explain properties of cells that seem magical because we don't understand them. In his music, he tries to create magical experiences that are free from any explanation.

DR. ORON CATTS is the Director of SymbioticA, the Centre of Excellence in Biological Arts at the University of Western Australia, which he co-founded in 2000. SymbioticA has won numerous awards under Dr. Catts' leadership, including the Prix Ars Electronica Golden Nica (2007), the WA Premier Science Award (2008), and was recognized as a Centre for Excellence in 2008. As artist, researcher, and curator, he has continued to define innovation in the biological since his pioneering 'Tissue Culture and Art Project' (1996). He is interested in our ever-evolving perceptions of life and seeks to foster new cultural articulations of this concept. He has held research and teaching positions at Harvard Medical School, Stanford University (Art, Art History), and the Royal College of Arts, London. He has been recognized as one of Thames & Hudson's "60 Innovators Shaping Our Creative Future" and Icon Magazine's (UK) top 20 designers "making the future."

CERE DAVIS grew up in west coast of the US fascinated with physics and real-world manifestations of dynamic imbalance. After researching volcanic lighting in Alaska and wintering over at South Pole, Antarctica she moved to the Bay Area of California in 2013. Inspired by her creative surroundings, she began using her creative energy and professional background in physics & engineering to explore her passion for creating improbable embodiments through fusing the worlds of sculpture, science and technology. Her works aim to inspire conversations which illuminate the magic and wonder of the physical world. She utilizes materials common to our everyday experience as a way of revealing what is hidden in plain sight and uses her exhibits, lectures and exploratory research to connect seemingly disparate fields of study. In doing so, she aims to broaden our normative utilitarian view of nature through re-framing phenomenon common to our everyday experience. Her work is best described as a form of neonaturalism, whereby inherent material properties are re-contextualized to reveal their natural response to surroundings. She aims to inspire creative learning through her interactive exhibits and offer a refreshing counterbalance to our increasingly isolating and sterile urban environments. Cere has been awarded the People's Choice award in 2015 for Oakland Aeolian Day for her acousto-kinetic sculpture and in 2018 by the Awesome Foundation for her opto-kinetic sculpture, Liquid Loom. She produces, collaborates and participates in projects ranging from dance performance, science exhibits and art festivals. Her works have shown in galleries, science festivals, conferences and public outreach events throughout the USA and internationally. She a science educator, artistic director at Counter Culture Labs and science-artist at Chabot Space & Science Center, where she collaborates with scientists and artists to inspire scientific curiosity and participation through interactive art and critical making.

DR. JOSEPH A. DEGIORGIS received an undergraduate degree in Oceanography from the Florida Institute of Technology and a PhD in Cell and Molecular Biology from Brown University. During his undergraduate career, he worked as an intern at the Harbor Branch Oceanographic Institute raising unicellular algae for aquaculture and designing an emergency rebreathing device for the Johnson Sealink Manned Submersible. Joe was a SCUBA diver for the Marine Biological Laboratory (MBL) in Woods Hole, MA, he worked on squid neurons and the process of axonal transport at Harvard Medical School, and worked as a neuroscientist on Alzheimer's disease at the National Institutes of Health. Currently, Joe is a Professor of Biology at Providence College and maintains a summer laboratory at the MBL where he is undertaking a project to photograph all of the species found in the waters surrounding Cape Cod and the Islands as well as in Narragansett Bay. Twice a year, Joe leads expeditions to remote regions of the world to photograph marine life. Both the expeditions and the Cape Cod imaging project are open to others including artists, scientists, naturalists, and anyone else who is interested. In addition, Joe teaches artists how to take images with microscopes at the School of Visual Arts in Manhattan. joe@joedegiorgis.com.

The ENVIRONMENTAL PERFORMANCE AGENCY (EPA) is an artist collective founded in 2017 and named in response to the proposed defunding of the U.S. Environmental Protection Agency. Appropriating the acronym EPA, the collective's primary goal is to shift thinking around the terms environment, performance, and agency – using artistic, social, and embodied / kinesthetic practices to advocate for the agency of all living performers co-creating our environment, specifically through the lens of spontaneous urban plants, native or migrant. The Department of Weedy Affairs (DWA), a branch of the EPA, launched in Washington DC in May 2018 as part of the exhibition EPA meets EPA at Transformer Gallery.
<http://www.environmentalperformanceagency.com/>

DR. MICHAL GAVISH is a multi-media artist, currently based in Washington DC. She received her MFA from the San Francisco Art Institute in 2008. Previously, she had earned a PhD in Physical Chemistry, which influenced her art and science projects. Gavish is a staff writer for SciArt, and wrote also for SF Artnews and for Intellect UK magazine. She recently gave talks at the National Academy of Science DASER and at LASER Leonardo events. She exhibits her art extensively including recent solo shows in New York, the Hungarian Jewish Museum, Yerba Buena Center for the arts, Spinnerei, Leipzig to name a few. www.michalgavish.com

AMBER IMRIE-SITUNAYAKE was born and raised off-the-grid in the Ozark Mountains of Northwest Arkansas. She was home schooled throughout her childhood and first attended public school consistently at the age of twelve. She only attended school for three years before testing out. Less than a year later, she moved out on her own at age sixteen. In 2009, Imrie-Situnayake returned to higher education to pursue a bachelor's degree in visual arts. In 2013, Amber received an BA in studio art from the University of California, Berkeley and was awarded Excellence in Sculpture of her class. Following graduation, she founded Venison

Magazine, an online contemporary art magazine which she continues to run today. Amber has exhibited in galleries across the United States notably at Paseo Interactive Art Festival in Taos, NM in 2015 and a solo exhibition at Napa Valley Museum in 2016. Imrie-Situnayake was awarded the Cadogan award and scholarship in 2017 to foster further exploration of her artistic potential in hybrid practice. She was a finalist for both the Summer SOMA residency and the Headlands Graduate Fellowship Award. Amber is a graduating MFA candidate from Stanford University and excited to announce she's recently accepted a 4-year studio residency from Palo Alto's Cubberley Art Studio Program.

DR. FRANÇOIS-JOSEPH LAPOINTE is an arts scientist from Montréal (Canada) with a PhD in evolutionary biology (1992) and a PhD in dance and performance studies (2012). As a scientist, he has published 120 papers ranging from molecular systematics and population genetics to metagenomics. As an artist, he applies biotechnology as a means of dance composition, and has created the field of choreogenetics. For his most recent project, he is currently sequencing his microbiome (and that of his wife) to produce microbiome selfies. His work as a bioartist has been exhibited in Canada, France, Germany, Denmark, Australia and the USA.

NOLAN LEM is an artist and researcher whose work reflects a broad range of influences and mediums. His work examines issues related to emergent dynamics, machine learning and perception, and the synchronization of auditory phenomena. He has premiered his work and research at a number of spaces both in the US and abroad including the Hayden Planetarium at the Natural History Museum (Manhattan, NYC), Pioneer Works (Brooklyn, NYC), L'HOSTE Art Contemporain (Arles, France), and the Museum of Modern Art Buenos Aires among others. He has held residencies at IRCAM, MassMoCA, Cité Internationale des Arts, and Pioneer Works. He holds degrees in saxophone performance, Electrical Engineering, and received his MFA at Columbia University where he studied at the Computer Music Center. Nolan is currently a PhD candidate at Stanford University where he studies at the Center for Computer Research in Music and Acoustics.

LISA MA sees the subtle creations of new subcultures resulted from the geopolitics of the global production as the imaginative underbelly of tomorrow's material culture. For the city of Ghent, Lisa created a culture of consuming the invasive species that 'The Vegetarian Capital of Europe', would otherwise pay to poison. Belgium spent nearly a million Euros for the humane killing of invasive geese in 2013. Lisa brought together a community that included the mayoral office, scientists, chefs, ecologists, urban planners and the Belgian National Station Canvas TV, to explore the clash of values between the killing of animals for our environment and the killing of animals for our foods. By combining fringe communities, ethnographic research and speculative design, Lisa Ma socializes activism through unusual platforms of engagement. These social events are perceived as activism but function as services, gatherings, transient communities that deeply resonate with the global technological community. Lisa holds a MA in Design Interactions at Royal

College of Art in London and BA from Central Saint Martins. She worked as a designer/strategist with Pentagram and Deutsche Telekom's Creation Centre before making collaboration projects with TED Global in Edinburgh, Kanvas TV in Belgium and Broadway with Arts Council.

GREG NIEMEYER is Associate Professor of Art Practice at UC Berkeley. He received his MFA from Stanford University before founding the Stanford University Digital Art Center in 1997. At Berkeley, he is involved in developing the Center for New Media, which focuses on the critical analysis of the impact of new media on human experiences. His creative work focuses on the mediation between humans as individuals and humans as a collective through technological means, and emphasizes playful responses to technology. His most recognized projects are Gravity (Cooper Union, NYC, 1997), PING (SFMOMA, 2001), Oxygen Flute (SJMA, 2002), ar (Pacific Film Archive, 2003), Ping 2.0 (Paris, La Villette Numerique, 2004), Organum Playtest (2005), Good Morning Flowers (SFIFF 2006, Townhouse Gallery, Cairo, Egypt, 2006), blackloud.org, sevenairs.org, and polartide.org.

NATANI NOTAH is an interdisciplinary artist, poet, and graphic designer. She is an enrolled member of the Navajo Nation (Diné) and is also of Lakota and Cherokee descent. In 2014 she graduated from Cornell University with a BFA in Fine Art and a minor in Feminist, Gender, and Sexuality Studies. She is the recipient of numerous awards and her work has been widely shown. Notah currently lives and works in the San Francisco Bay Area. You can find her online at www.nataninotah.com.

PERDITA PHILLIPS is an Australian artist most interested in the permeable boundaries between human and more-than-human lives. Her work revolves around ecological issues and social change. Working inside and outside gallery spaces, process and the creation of experiential events for audiences are strong elements in a wide-ranging and experimental conceptual practice. Walking, listening, mapping and exchange are used to traverse and integrate art, ecology and the concerns of nonhuman worlds. Whilst materially diverse, underlying themes of attention to ecosystem processes and a commitment to a resensitisation to the physical environment, are apparent. Phillips completed a MA at Goldsmiths College (University of London, 1999) and has exhibited in Australia, USA, UK, Germany, Portugal and Canada. Phillip's practice-based PhD was entitled fieldwork/fieldwalking: art, science and sauntering in the walkingcountry (2006, Edith Cowan University, Australia). She has undertaken two Australia Council-funded residencies at SymbioticA (Perth, Australia) about/with bowerbirds and thrombolites.

YULIA PINKUSEVICH is an interdisciplinary visual artist born in Kharkov, Ukraine. She holds a Masters of Fine Arts from Stanford University and Bachelors of Fine Arts from Rutgers University, Mason Gross School of the Arts, graduating both universities with highest honors. Yulia has exhibited nationally and internationally including site-specific projects executed in Paris, France and Buenos Aires, Argentina. Yulia's work is represented by Kent Fine Art in New York City, she has

been awarded residency grants from Autodesk Pier 9, Facebook HQ, Recology (San Francisco Dump), Cite des Arts International (Paris), Headlands Center for the Arts, Redux in Charleston, South Carolina, Goldwell Open Air Museum Las Vegas and The Wurlitzer Foundation in Taos. She was also the recipient of The San Francisco Foundations 2011 Phelan, Murphy & Cadogan Fellowship in the Fine Arts as well as Stanford University SiCA's Spark and ASSU Grants. Yulia is currently Assistant Professor of studio art at Mills College. She lives and works in Oakland, California.

DR. JILL SCOTT is lecturer, professor and context provider with many years experience the unique field of Art and Science research. Currently, she co-directs the LASER Salon in Zurich for Leonardo Society USA. She is professor emerita at the Institute for Cultural Studies in the Arts, at the Zurich University of the Arts (ZhdK) in Zürich and founded their Artists-in-Labs Program in 2000. She was the Vice Director of the Z-Node program- Planetary Collegium with 16 PhD graduates in clusters of art and science at the University of Plymouth, UK (2000 to 2016). Her own artwork spans 38 years of production about the human body, behaviour and body politics, but in the last 10 years she has focused on creative media art experiments about neuroscience, ecology and sensory perception resulting in a series called Neuromedia. This current research is based on making interpretative interactive constructions of sculptural models with interactive film segments based on actual scientific research and imbedded with cultural metaphors. www.jillscott.orgwww.imls.uzh.ch/en/research/Stoeckli.html

STEPHANIE SHERRIFF is an interdisciplinary sculptor, performer, and media artist. Her artwork is experiential in nature and consists of sculptural, time-based installations and performances that are often living, changing, and sometimes dying. In her process, she observes, collects, deconstructs, and recomposes plants, light, sound, video, and scents in order to create abstracted, ephemeral forms and sensory experiences. She received her BA in Studio Art from San Francisco State University in 2014 and has been actively performing and exhibiting work in the Bay Area since 2008.

RSITTOY is a multimedia artist who was born in New York, NY. She studied English at Boston University and holds an MFA in Design + Technology from the San Francisco Art Institute, where she was the recipient of the San Francisco Art Institute MFA Fellowship from 2005 to 2007. Her videos and installations explore the search for self and identity, influenced by media, technology, and the (in)accuracy of memory. Her work has been shown in Atlanta, Baltimore, New York City, Los Angeles, Phoenix, Bulgaria, Hungary, Greece, Russia, and throughout the Bay Area. She has lectured throughout Northern California and was awarded a residency at the Philadelphia Art Hotel in 2009. She received an Individual Artist Grant from the City of Oakland Cultural Funding Program for 2012-2013 and again for the years 2015-2016. She lives and works in Oakland, California. www.rsittoy.com

ANDREW WATTS' works, from chamber and symphonic to multimedia and electro-acoustic, are actively performed throughout the US and Europe. His compositions have been premiered at world-renowned venues such as Ravinia, the MFA Boston,

Jordan Hall, and the Holywell Music Room. In the past few years Mr. Watts has written for top musicians and ensembles including Distractfold, RAGE Thormbones, Splinter Reeds, Quince, Line Upon Line, Tony Arnold, Séverine Ballon, and LAPQ. In 2017-2018 he will be writing a new vocal ensemble piece for Ekmeles and a large chamber piece for Proton Bern. He is currently a doctoral candidate at Stanford studying with Brian Ferneyhough and working towards a D.M.A. in Composition. Mr. Watts received his master's with distinction from Oxford and his bachelor's with academic honors from the New England Conservatory. He has been a featured composer at Delian Academy (Greece), the Young Composers Meeting (Netherlands), Cheltenham Music Festival (England), the 48th International Summer Course for New Music at Darmstadt (Germany), the Composit Festival (Italy), the Biennial Ostrava Days Institute (Czech Republic), the highSCORE Festival (Italy), the Wellesley Composers Conference (USA), the Etchings Festival (France), Fresh Inc. Festival (USA), New Music on the Point (USA), and the Atlantic Music Festival (USA).



