

Workshop “Performativity and Scientific Practice”

Abstracts

Presentation 1 (25.10.12 / 9:00 – 9:50)

Hans Diebner

‘From chaos theory to performative science – A (self-)critical reflexion’

Abstract: Starting out from a concrete example in chaos theory the main methodical features of complex systems research and the accompanying paradigm shift from analyticity towards constructivism and performativity will be highlighted. Due to the availability of computers roughly from WW-II on the field of complex systems research gained its important status. The simulations of non-fully analytically manageable systems, however, came along with new epistemic problems. Practices from the humanities like hermeneutics and performativity became indispensable components of understanding and interpreting complex systems and their simulations. Art and science increasingly close ranks. Rigorous mathematical proofs have to be complemented with video proofs and evidence from other forms of sensorially presented data. In addition, serious research into complex systems necessitates the addition of value discussions to that which previously, in traditional science, dealt exclusively with facts. The new “supra-theoretical” status of complex systems research, however, tends to “scientificalise” the humanities. The talk concludes with some critical reflexions on the reifying impact complex systems research often exhibits.

Short Biography and Research Interests: Hans H. Diebner earned his diploma and doctoral degree in physics at the University of Tübingen with nonlinear systems modelling and molecular dynamics simulations of complex reaction systems, supervised by Prof. Otto E. Rössler. After a post-doc period at the Institute for Medical Biometry Tübingen, where he was engaged in epidemiological modelling of malaria infections, he followed a call in 1999 to the Center for Art and Media (ZKM), Karlsruhe, to establish the Institute for Basic Research. In 2006 he moved to Frankfurt to join the Institute for New Media (INM) in a freelance position. At the ZKM he outlined the concept of performative science that links science, particularly complex systems research, with artistic practices. He continues with performative science at the INM, shifting his focus toward phenomenological and ontological discourses with respect to performative science, recently.

Presentation 2 (25.10.12 / 09:50 - 10:40)

Katherine Vogt

'Sonification as an interdisciplinary working process'

Abstract: Sonification is the translation of information for auditory perception, excluding speech itself. It allows immersion into and often interaction with sound environments of data, which are perceptualized in an innovative and dynamic way. Sonification is still a rather young research field compared to visualization, and few conventions have been established. Therefore, experts in sound design are needed to translate, e.g., scientific data into sounds, enabling an enhanced understanding for the so-called domain scientists. This work process is inherently interdisciplinary and is ideally informed by the (partly hidden) metaphors of explorative research in the data domain.

Short Biography and Research Interests: Katharina Vogt (born 1979) studied environmental system sciences with major in physics at the University of Graz. In her Ph.D. she worked on sonification of model data from computational physics within the research project QCD-audio (www.qcd-audio.at) at the Institute for Electronic Music and Acoustics (IEM)/ University of Music and Performing Arts Graz, Austria. During this time she worked for 3 months as a guest researcher at CERN/ Switzerland. Currently she continues as PostDoc at the IEM, working on a systematic procedure to develop sonifications, as applied to data from climate research (<http://sysson.kug.ac.at>).

Presentation 3 (25.10.12 / 11:10 - 12:00)

John Matthias

'The sound of small brain circuits: The Fragmented Orchestra, Plasticity and Cortical Songs'

Abstract: The level of synchronization in distributed systems is often controlled by the strength of interaction between the individual elements. If the elements are neurons in small brain circuits, the characteristic event is the 'firing time' of a particular neuron. I have been collaboratively developing software musical instruments, installations and music, with Jane Grant, Nick Ryan and Kin which utilize the triggering of sonic events, including grains of live sampled audio and musical instructions, when any one of a network of artificial spiking neurons 'fires'. The synchrony or decoupling of these characteristic events is partially controlled by modifications in the strength of the connections between the artificial neurons under the influence of spike timing dependent plasticity, which adapts the strengths of neuronal connections according to the relative firing times of connected neurons. In this talk, I will focus on the development of some of these performative instruments and works from an artistic and musical perspective and introduce some of the artistic projects which have used adaptations of the instrument, including 'The Fragmented Orchestra', 'Plasticity' and 'Cortical Songs'. I will also introduce a (very) new project which I am developing with Nick Ryan, 'Cortical Songs 2' which takes from a starting point some interesting new work surrounding the subject of excitability in the auditory system, possible gating within part of the basal ganglia in the brain and the perception of auditory phantoms or 'tinnitus'

Short Biography and Research Interests: John Matthias is a musician, composer and physicist. In 2008, he won the PRS Foundation New Music Award (the musical equivalent of 'The Turner Prize') with Jane Grant and Nick Ryan for the development of a huge sonic installation entitled The Fragmented Orchestra which also won an Honourary Mention at the Prix Ars Electronica 2009. He has released three albums, Smalltown, Shining (2001) on the Accidental label, Stories from the Watercooler (2008) on the Ninja Tune/Counter label and Cortical Songs (2008/2009) (with Nick Ryan), a work for string orchestra and solo violin on the Nonclassical record label, which was listed by Time Out (Chicago) in the top-ten classical albums of 2009. He has worked with many recording artists including Radiohead (The Bends) and Coldcut and has performed extensively including at the Wordless Music Series and the Ecstatic Music Festival in New York, The Pompidou Centre in Paris and at the Union Chapel in London. More recently, he has collaborated with artist, Stanley Donwood in San Francisco and The Rambert Dance Company in London with Nick Ryan. He is Associate Professor in Sonic Arts and co-director of the art + sound research group at the University of Plymouth and is currently developing new instruments and compositional processes relating to sonic events and spiking neurons. These initiatives include orchestral composition, distributed systems and the development of a new Neuronal Music Technology and will form the basis of many new works and artistic collaborations. He has a degree in Theoretical Physics and a Ph.D in Physics from Exeter University, UK.

Presentation 4 (25.10.12 / 12:00 – 12:50)

Frieder Nake

'Theorem (written) & Installation (interactive) What do these forms mean to me?'

Abstract: A theorem is a sort of text. It is about truth in mathematics. It is, perhaps, the strictest form of text. Even though the author is free in the way he formulates a theorem, his readers, if they are familiar with the field of research, expect a certain style. What characterizes the written form of a theorem? There is little performativity in a theorem. An installation is a work waiting for a visitor and ready to perform in reaction to his action. We expect it in a museum. It is completely unfinished, in a way it is not unless a visitor is present with her body gestures. They make the visitor look silly, and the work to become one of art. What characterizes the interactive form of a museum piece? There is little truth in an installation. The talk is about the contradiction of these two.

Short Biography and Research Interests: Frieder Nake is a professor of interactive computer graphics at the University of Bremen. He also teaches Digital Media at University of the Arts, Bremen. A mathematician by his degrees, he was one of the first to use a computer for artistic purposes in the visual arts. He has held positions in Stuttgart, Toronto, Vancouver, Oslo, Aarhus, Vienna, Boulder (CO), Shanghai, Basel. His current research interests focus on semiotics, digital art and digital media. In 1974 he published „Ästhetik als Informationsverarbeitung“. Soon to be published is „Computers and Signs. Prolegomena to a Semiotic Foundation of Computing“ (with P.B. Andersen).

Presentation 5 (26.10.12 / 9:00 – 9:50)

Julian Klein and Thomas Jacobsen

'Brain Check - a theatre experiment on the pleasure of anger conducted by the interdisciplinary research group Aesthetic Modulation of Affective Valence (AMAV) of the Cluster of Excellence Languages of Emotion, Free University Berlin'

Abstract: Occasionally, the experience of alleged "negative" emotions can be very rewarding. We gladly listen to sad music, we enjoy scary movies, we step in ghost trains, and we are fascinated by disgusting art installations - for example. Can also anger be joyful? Investigating this question, the interdisciplinary research group "aesthetic modulation of affective valence" of the cluster of excellence "Languages of Emotions" at Free University Berlin conducted a double-blind theatre experiment with anger induction. The documentation and results will be presented in this talk.

Short Biography and Research Interests: Julian Klein is director of the Institute for Artistic Research Berlin, and teaches directing, performance art and interdisciplinary project development at the University of Music and Performing Arts Frankfurt am Main and the University of Arts Berlin. He studied composition, music theory, mathematics and physics and worked during his studies as directing assistant, stage composer and theatre director. In 1997, he became founding member and artistic director of the interdisciplinary performance art group "a rose is". From 2003 he was member of the Young Academy at the Berlin-Brandenburg Academy of Sciences and Humanities and the German National Academy of Natural Scientists Leopoldina. The focus of his research includes neuroaesthetics, artistic experience, emotionology, sonification and human taxomania. Currently he is visiting researcher at Institute for Neuro- and Behavioural Biology of the Free University Berlin (Cluster of Excellence „Languages of Emotion“). Julian Klein is member of the Editorial Board of the Journal for Artistic Research. <http://www.artistic-research.de> <http://www.roseis.de> <http://www.julianklein.de>

Presentation 6 (26.10.12 / 09:50 - 10:40)

Ariel Lindner

'Reconstructing population characteristics from individuals'

Abstract: Much of our understanding of the mechanisms underlying living systems is based on studies of large populations, leading to a common assumption that the characteristics of each individual follows that of the overall crowd. However, even in the simplest systems as bacteria, large variability amongst single cells of identical genomes sharing the very same environment is widely spread. Through examples from the microbial world on one hand and open citizen science on the other, notions of variability amongst individuals, leading to collective creativity will be demonstrated. Further, implications on how to learn/teaching/research will be discussed. In addition, a series of installations in collaboration with Sabai Ramedhan-Levi, artist and architect, will be presented. "Measure for Measure" is an artistic and scientific venture aiming at exploring measures used by individuals in their perception of the world. The project surveys subjective measures through encounters with the 1m1g1min trio across countries and cultures.

Short Biography and Research Interests: Ariel Lindner is an INSERM senior researcher and vice-director of the Centre for Research and Interdisciplinarity ('CRI'; www.cri-paris.org). He graduated from the Hebrew University (Jerusalem, Israel) "Amirim" interdisciplinary program and received his M.Sc. and Ph.D. from the Weizmann Institute of Science (Rehovot, Israel). His research interests evolve around understanding of variability amongst clonal individuals using systems and synthetic biology approaches. In 2005 he co-created the CRI, a convivial meeting point between a research lab and interdisciplinary learning through research undergraduate, MSc, PhD, teachers and young researcher international programs. The CRI experience is propagating towards a global community of 'edulabs' across the world (eg, China, Indonesia). In 2011 he joined Sabai Ramedhan-Levi, architect and artist, to form the 1m1g1min trio. Together, they experiment at the interface between arts and sciences, thriving at works that can be considered independently as artistic and scientific by the respective communities.

Presentation 7 (26.10.12 / 11:10 - 12:00)

Ursula Damm

'I am a wild type'

Abstract: Environmental issues have been an integral part of my artistic work for a long time. My artworks are a response to what I feel to be the limitations of our high-tech daily lives. The resulting installations establish their own ethical and aesthetic systems of value. This highlights aspects that the scientific world pays little attention to. Artistic methods instead integrate practices for acquiring knowledge, which as a whole attach greater importance to the human's sensory faculties and integrate instinctive behaviour in a working or modelling process of raising awareness. My presentation gives an overview of my artworks in the context of science and arts, followed by an interdisciplinary project on synthetic biology done by my students for the iGEM Competition 2010 at MIT/Boston.

Short Biography and Research Interests: Ursula Damm has become known for her installations dealing with geometry and its social impact on public space. Since 1995 these installations became interactive, mediating between architectural aspects and the behaviour of passers-by on public places (www.inoutside.de). Aside she developed numerous installations on the relationship of nature, science and civilization like Venus I-IV (part of the collection of the Ludwig-Museum Koblenz) or double helix swing (honorary mention ars electronica 2006). Ursula Damm has had solo exhibitions at the Goethe House in New York, at Neuer Aachener Kunstverein, Aachen and at the Kunstsammlung NRW Düsseldorf, K20, Germany (at the fountain wall). Currently she works on an interactive installation and setting for a public place at the Metro-Station Schadowstrasse in Düsseldorf/Germany. Since 2008 she holds the chair of Media Environments (Media Arts&Design) at the Media Faculty of the Bauhaus-University Weimar.

Presentation 8 (26.10.12 / 12:00 – 12:50)

Anna Dumitriu

'Confronting the Bacterial Sublime: Participatory Art Practice, Bioart and Microbiology'

Abstract: From a quilt made of actual MRSA bacteria, to a dress stained purple and white with pigmented bacteria killed in the process of sending and receiving communication (quorum sensing) signals, Anna Dumitriu's bioart work is a journey into the hidden world of the microbes with which we co-exist. Her methods combine art/science collaboration in lab settings with DIYbio approaches in her kitchen and range from the techniques of the early microbiologists to contemporary approaches to whole genome sequencing and bioinformatics. Dumitriu will discuss her transdisciplinary approach, the ethical issues her work touches on, the reactions of her collaborators, and her performative participatory practice.

Short Biography and Research interests: Anna Dumitriu's work blurs the boundaries between art and science with a strong interest in the ethical issues raised by emerging technologies. Her installations, interventions and performances use a range of digital, biological and traditional media including live bacteria, robotics, interactive media, and textiles. Her work has a strong international exhibition profile and is held in several major public collections, including the Science Museum in London. Dumitriu is known for her work as founder and director of "The Institute of Unnecessary Research", a group of artists and scientists whose work crosses disciplinary boundaries and critiques contemporary research practice. She is currently working on a Wellcome Trust funded art project entitled "Communicating Bacteria", collaborating as a Visiting Research Fellow: Artist in Residence with the Adaptive Systems Research Group at The University of Hertfordshire (focussing on social robotics) and (Leverhulme Trust 2011) Artist in Residence on the UK Clinical Research Consortium Project "Modernising Medical Microbiology". Her major international project "Trust me I'm an artist, towards an ethics of art/science collaboration" (in collaboration with the Waag Society in Amsterdam and The University of Leiden) investigates the novel ethical problems that arise when artists create artwork in laboratory settings. She is also a contributing editor to Leonardo Electronic Almanac.