

PROGRAMME: MORE THAN PRETTY PICTURES, <http://aias.au.dk/events/more-than-pretty-pictures>

Monday 13 April: James Elkins Masterclass 11-17; *How to Plan your Poster* workshop 10-13; *Sense and Sensibility* workshop 14-17; Lunch 13-14.

TUESDAY 14 APRIL	WEDNESDAY 15 APRIL	THURSDAY 16 APRIL
<p>9-10: Registration and coffee</p> <p>10-10.15: Welcome (AIAS Director: Morten Kyndrup; conference organizers Rikke Schmidt Kjærgaard & Lotte Philipsen)</p> <p>10.15-11.45: KEYNOTE LECTURE: <u>JAMES ELKINS: <i>Current Conceptualizations of Visualization</i></u> (chair: Lotte Philipsen)</p> <p>11.45-13: Lunch</p> <p>13-14.30: Paper session: Ways to Visualize (chair: Amy Iler)</p> <ul style="list-style-type: none"> • <u>Nina Samuel: <i>Images as Tools: Digital Microscopy between Data, Imagination and the Psychology of Perception</i></u> • <u>Ditte Høyer Engholm: <i>Visual review of the bacterium Streptococcus pneumonia</i></u> • <u>Anna Emilie Skulberg: <i>The Illustris Visualizations: Simulating the Cosmos</i></u> <p>14.30-15: Coffee break</p> <p>15-17: Paper session: The Power of Art (chair: Djuke Veldhuis)</p> <ul style="list-style-type: none"> • <u>Paul CaraDonna et al: <i>Transformation, abstraction, and reassembly of information: an art science exchange informs perceptions of nature</i></u> • <u>Fiona Davies: <i>An Ethnographic approach to Arts/Science</i></u> • <u>Thomas Bjørnsten & Jan L. Stephensen: <i>Making sense of environmental data through trees, flowers, and pigs' lungs</i></u> • <u>Mette Høst: <i>Art and Physics</i></u> <p>17-20: Reception at conference venue</p>	<p>9-10.30: KEYNOTE LECTURE: <u>KELLY KRAUSE: <i>Communicating science: aesthetic choices in publishing</i></u> (chair: Rikke Schmidt Kjærgaard)</p> <p>10.30-11: Coffee break</p> <p>11-12.30: Paper session: Grasping Data (chair: Lotte Philipsen)</p> <ul style="list-style-type: none"> • <u>Theis V. Madsen: <i>Mapping an Archive on the Move</i></u> • <u>Tessa Berg, Simon Bell, Steve Morse: <i>Rich Pictures – Understanding Collaborative Communication through Educative Interpretation</i></u> • <u>Jesper Mosegaard: <i>Challenge your visualization software – creatively and technically</i></u> <p>12.30-13.30: Lunch</p> <p>13.30-15: Paper session: Trust in Data (chair: Theis V. Madsen)</p> <ul style="list-style-type: none"> • <u>Daniela van Geenen: <i>Never trust a data visualization. Exploring and positioning an instrument to visually analyze network data</i></u> • <u>Moa Goysdotter & Jenny Grönberg-Hernández: <i>Visualizing Big Data amounts: The Case of Google Flu Trends (GFT)</i></u> • <u>Mads Ronald Dahl and Eivind Ortind Simonsen: <i>When Data Representation Compromise Data Security</i></u> <p>15-15.30: Coffee break</p> <p>15.30-17: KEYNOTE LECTURE: <u>MARTIN KRZYWINSKI: <i>The Quality of Quantity</i></u> (chair: Rikke Schmidt Kjærgaard)</p> <p>Night off. Suggestion: ARoS, Aarhus Art Museum, is open until 10pm.</p>	<p>9-10.30: KEYNOTE LECTURE: <u>DOMINIC MCIVER LOPES: <i>Expert Vision: Aesthetic and Epistemic</i></u> (chair: Lotte Philipsen)</p> <p>10.30-11: Coffee break</p> <p>11-12: Paper session: The Power of Aesthetics (chair: Jan L. Stephensen)</p> <ul style="list-style-type: none"> • <u>Harshavardhan Bhat & Aparna Banerjee: <i>Embedded Choices : Science, Aesthetics and the 'image'</i></u> • <u>Lotte Philipsen: <i>Imagery or Agency? Bio-art, bio-aesthetics, bio-activism</i></u> <p>12-13: Lunch</p> <p>13-14.30: Paper session: Artistic Representation (chair: Djuke Veldhuis)</p> <ul style="list-style-type: none"> • <u>Paul Goodfellow: <i>Living in a Data World and the Role of Art as Meta-data</i></u> • <u>Anette Vandsø: <i>Data Aesthetics in Contemporary Sound Art</i></u> • <u>Morten Søndergaard: <i>Investigating the inter-relationship of Media Art and the Data Archive in artistic data-visualizations</i></u> <p>14.30-15: Coffee break</p> <p>15-15.30: Final remarks</p> <p>17.15: Walk-and-talk from conference venue through the forest to conference dinner (2.7 km.). 17.45: Car transport for non-walkers from conference venue to conference dinner.</p> <p>18.00 – 23.00 Conference dinner at Sjette Frederiks Kro</p>

KEYNOTE LECTURES:

JAMES ELKINS

TUESDAY 14 APRIL 10.15-11.45

Elkins (US) is a professor of Art History, Theory, and Criticism at the School of the Art Institute of Chicago. He has written extensively on visual cultures in art history and in science. His books include *Visual Practices Across the University* (2007), *What is an Image?* (2008), and *Visual Literacy* (2008).

CURRENT CONCEPTUALIZATIONS OF VISUALIZATION

This lecture is intended to critique the concept of visualization by comparing what counts as visualization in a number of fields (physics, chemistry, neurobiology, sociology, economics, art history, mathematics, literary criticism, philosophy). The principal concern of the lecture is the rise of big-data visualization and the euphoria about the potential visualization of all non-visual data, as exemplified in the popularity of “info-graphics.” Among the topics discussed in the lecture are: pictorialization of non-visual phenomena; visualization in the military and in medicine; what is visualization in art?; and in general: What counts as a visualization?

KELLY KRAUSE

WEDNESDAY 15 APRIL 9-10.30

Kelly Krause (UK) is Creative Director for the international weekly journal *Nature*, where she leads a world-class team of illustrators, designers and picture researchers. Before joining *Nature* she was Art Director for the journal *Science* in Washington, DC. She has a degree in Design for Development, a discipline that examines how design can be used for social good.

COMMUNICATING SCIENCE: AESTHETIC CHOICES IN PUBLISHING

Kelly Krause, Creative director at *Nature*, takes you behind the scenes of the world of scientific publishing. She will present a framework for communicating science through visualisation in a publishing context, with plenty of case studies, tips and tricks.

Martin Krzywinski (CA) is a scientist and bioinformatics at the Genome Science Centre in Vancouver. He works on problems in data visualization applied to cancer research and genome analysis.

THE QUALITY OF QUANTITY

“The great tragedy of science—the slaying of a beautiful hypothesis by an ugly fact.” wrote Huxley, in a statement that is as much about how science works as about the irrepressible optimism required to practice it. But even greater is the tragedy of obfuscating facts with impenetrable figures and demoting their natural beauty by florid visuals. The issue isn’t one of pure aesthetics—lack of clarity, precision and conciseness in science communication slows our efforts to move forward. In the field of disease research, this has fateful impact on lives.

We want to get the visuals right—or at least, better—not just for the sake of communication but also to stir emotion and curiosity. Art gives us access to the quality of quantity by exposing the beauty and depth of highly technical knowledge, normally only accessible to specialists[1]. Milestones in scientific discovery may be inevitable but our personal reaction to the world they describe is not. Art allows us to find ourselves in the science.

Using examples from my work and science-related art projects, I will make the case for a greater role of art in science, as a form of communication, education and inspiration and starting interesting conversations.

[1] Euler’s identity $e^{i\pi} = -1$ is either beautiful or gibberish, depending on your education.

Dominic McIver Lopes (CA) is a professor at the Department of Philosophy at University of British Columbia in Vancouver. He has done extensive research in aesthetics, picture theory, visuality and art. He has authored *Beyond Art* (2014), *A Philosophy of Computer Art* (2009), *Sight and Sensibility: Evaluating Pictures* (2005), and *Understanding Pictures* (1996).

EXPERT VISION: AESTHETIC AND EPISTEMIC

Images yield experiences that lead to knowledge and also to beauty. As long as we focus on experiences of pictures, we will find only a weak correspondence between their epistemic and aesthetic dimensions. To make a case for a more interesting correspondence, we must switch from experience to expertise. Competence that assures reliable success in making or using informative images implicates aesthetic expertise. I say something about how images can be informative and about aesthetic expertise, using examples from science and infographics.

PAPER ABSTRACTS (chronologically ordered):

NINA SAMUEL

Art & science historian and curator. Currently Postdoctoral Researcher at *Zentrum für Literatur- und Kulturforschung*, Berlin. Research focuses on visual epistemologies of the sciences; drawing as epistemic process; chaos & image theory; visual practices in biology, surgery, medicine & war. samuel@zfl-berlin.org

IMAGES AS TOOLS: DIGITAL MICROSCOPY BETWEEN DATA, IMAGINATION AND THE PSYCHOLOGY OF PERCEPTION

Contemporary visual epistemic practices in the biological sciences raise new questions of how to transform aniconic data measurements into images, and how the process of an imaging technique may change the material it is 'depicting.' This talk investigates digitally generated microscopic imagery, which is used by medical scientists and biologists alike. The core argument is developed around the analysis of two recent methods, developed between 2003 and 2006, indicating a major media shift: localization microscopy and photo-induced cell death. Both methods deploy different constellations of intended and unintended interactions between visual appearance and underlying biological materiality. To characterize these new ways of interaction, the talk introduces a new notion of 'operational images' and 'operational agency.' Despite all their novelty, operational images are still subject to traditional conventions of seeing and depicting. To enable the migration between different cultures of seeing, scientific images become an aesthetic and epistemic battleground between data, imagination, and the psychology of perception. Grappling with theoretical considerations by Gaston Bachelard, Ian Hacking, and Sybille Krämer, the talk attempts to give a new answer to one of the key questions of visualization: as to whether images have the capacity to intrinsically change the depicted subject matter itself.

DITTE HØYER ENGHOLM

PhD student, Institute of Molecular Biology and Genetics; and Visualization Lab at Aarhus University. dhe@mbg.au.dk

VISUAL REVIEW OF THE BACTERIUM STREPTOCOCCUS PNEUMONIA

Inspired by the molecular artist and structural biologist David Goodsell (The Scripps Research Institute, La Jolla, California), our aim is to draw a 2,000,000x magnification of the bacterium *Streptococcus pneumoniae*. According to the WHO this bacterium is the fourth most prevalent cause of deadly infections in humans worldwide.

We will make the magnification and the representation of the most important molecules as realistic as possible. Our aim is to make a visual review (in the form of a water colour drawing) of the bacterium showing how the bacterium is composed and how it works.

As preparation for the final drawing of the bacterium, we will decide on narratives. Each component of every narrative in the cell will be represented and we will find the crystal structure and localization of each, in order to represent it as realistic as possible. When all components are found, we will investigate density of each component, and make the entire drawing. Finally, we will have to decide the colouring of each component, in order to communicate the narratives most effectively.

ANNA EMILIE SKULBERG

Anna Emilie Skulberg (B.A., art history) interned at the Niels Bohr Institute, writing an introduction to the interchange between art and science. She is a graduate student at Modern Culture, University of Copenhagen, specializing in aesthetic approaches to scientific visualization. skx196@alumni.ku.dk

THE ILLUSTRIS VISUALIZATIONS: SIMULATING THE COSMOS

Illustris is a set of cosmological hydrodynamical simulations, showcasing a model of the universe from shortly after the Big Bang to the present. The simulations were completed in 2013 using over 8,000 compute cores. Illustris illuminates everything from dark matter to the formation of galaxies. It bridges theoretical physics and observation as well as the studies of various phenomena in the universe. One of the breakthroughs in Illustris is the integration of elliptical and spiral galaxies in the same simulation. Moreover, the visualizations based on the simulations traverse dichotomies within aesthetics. Edmund Burke (1729-97), for instance, argued that the feelings connected to the sublime and the beautiful were opposites. Illustris can be said to evoke both. The compelling visualizations have been widely spread throughout the media, from Nature to The New York Times. The effectiveness of the communication makes the visual aspects of Illustris an interesting subject of study, transcending well beyond the field of astrophysics. By analyzing the visualizations as they appear in these diverse contexts, I investigate the dynamics between the Illustris visualizations seen as 'pretty pictures', but also as tools for scientific advancement and communication.

PAUL J. CARADONNA, MARK E.K. DORF, IAN BILICK, AND NICKOLAS M. WASER

Paul Caradonna: The Rocky Mountain Biological Laboratory, Crested Butte, CO, USA, The Department of Ecology & Evolutionary Biology, University of Arizona, Tucson, AZ, USA and The Arctic Research Centre, Aarhus University, Aarhus, Denmark. Mark Dorf: The Rocky Mountain Biological Laboratory, Crested Butte, CO, USA. Ian Billick: The Rocky Mountain Biological Laboratory, Crested Butte, CO, USA. Nick Waser: The Rocky Mountain Biological Laboratory, Crested Butte, CO, USA. pcaradonna@gmail.com

TRANSFORMATION, ABSTRACTION, AND REASSEMBLY OF INFORMATION: AN ART-SCIENCE EXCHANGE INFORMS PERCEPTIONS OF NATURE

Humans transform, filter, break down and reassemble endless amounts of information as we strive to make sense of the world we live in. For an ecologist, this process may produce a graphical figure summarizing a targeted property of an ecosystem; for an artist observing the same ecosystem, this may result in an abstract painting that depicts qualities of light and color. Although the gap between the arts and the sciences is often assumed to be large, intellectual exchange between these two perspectives has historical roots and can be credited for many intellectual advancements.

Motivated by the promise of this bidirectional sharing, we have brought together artists and ecologists to observe nature at a remote research station in the Rocky Mountains of Colorado, USA. In this presentation, we discuss the first two years of The Art-Science Exchange Project, which aims to provide insight into our surrounding world and to challenge our assumptions about data, communication, and our understanding of nature. We illustrate these ideas through scientific and artistic representations of data from a mountain ecosystem. We discuss how the processes of transformation, abstraction, and reassembly are an important part of how we interpret information, make generalizations, and hesitate to accept contradictions.

FIONA DAVIES

Fiona Davies is a visual artist working in an arts/science collaboration in an investigation into medicalised death. She has a B.Sc. B.A, MFA and is starting a PhD. She had exhibited nationally and internationally often in non art spaces. fhdavies@bigpond.net.au

AN ETNOGRAPHIC APPROACH TO ARTS/SCIENCE

An artistic authorship strategy that appears to dominate current arts/science practice is the methodology where the artist finds, selects or makes an artefact of science, either in the laboratory, from a real or online scientific archive, or in the collection of a science museum, and then re-locates it to an art exhibi-

tion. Moving the artefact to an art space or art museum excises it from its original context and locates it within the discourse of art, not the discourse of science and not the discourse of any co-authored space.

Using the parallels offered by debates around ethnographic museum practices of collection and interpretation, the artist can be seen simply as a collector acquiring artefacts from 'other' sites or discourses with different languages, cultures and contexts. The artefact in this process is then interpreted by its location in a privileged art space as being within the discourse of art removed of its original context. These colonial type practices are increasingly unacceptable but not extinguished within the ethnographic museum arena .

Changing ethnographic methodologies could be utilised by artists to move beyond the apparently underlying premise of this practice being one of inclusion/exclusion with each context seen as a separate or isolated event or site.

THOMAS BJØRNSTEN & JAN LØHMANN STEPHENSEN

Thomas Bjørnsten: postdoc at Aarhus University, currently working with the three-year research project "Making sense of data". Jan Løhmann Stephensen: postdoc at AU IDEAS Pilot Centre "The Democratic Public Sphere", Aarhus University. Editor of Conjunctions: Transdisciplinary Journal of Cultural Participation. aesttbk@dac.au.dk aekjls@dac.au.dk

MAKING SENSE OF ENVIRONMENTAL DATA THROUGH TREES, FLOWERS AND PIG'S LUNGS

This paper's crucial question will be whether artistic strategies can in fact help us fathom and address complicated issues of climate change and pollution, including the data flows and processes that are implicated in these, by making them more tangible, clearer and even politically workable.

Francis Whitehead's "The Environmental Sentinel" (2014-16) is an installation of apple service-berry trees that – by making use of Chicago's lake effect – will allow the public to visually track annual changes in when the trees blossom, hence constituting a "climactic centennial for the city [...] that will bring trail users face-to-face with the effects of climate change". These trees function both as sensors that monitor and as public screens that document or display climate change, typically, but barely, grasped through complicated climate models that rely on and represent huge amounts of data. The artist duo Yo-HA! take a comparable approach with their "Coal Fired Computers" (2010), which addresses the overwhelming "information circulating the world in wires, compressed into databases" which *fuels* ecological, economic and social crises. Combining physical installations and gathered data, YoHa! offer an alternative visual, even haptic, representation of otherwise hidden information about the dire environmental and medical effects of everyday data usage.

METTE HØST

Mette Høst specializes in visualizing scientific research results in collaboration with scientists; since 2004 as Artist in residence at the Niels Bohr Institute and DTU; Department of physics . Additionally, she has exhibited and lectured widely including at the ESF-LiU Conference: Images and Visualisation: Imaging Technology, Truth and Trust (2011), and Ovengade lectures "Ar and science, a third culture?" (2014). visualartandscience@gmail.com

ART AND PHYSICS

This lecture focuses on the experiences of visualizing and questioning the ways of expressing the 'invisible' as an artist in residence at the Niels Bohr Institute. The artist 'sees' around the object, collecting and comparing ideas from different time and fields, thinking sideways, conscious of the lateral field surrounding the object or issue of attention. Navigates/operates between fields and models from many schemes of things and makes new combinations and syntheses between them. Coming from point zero of not knowing but wanting to know, with the realization that the most objective we can ever be is to realize that we will always be subjective in the way we see and describe things dependent on the frames we see it in. The first and main work is thinking, imagining and creating pictures in our minds and to thereafter communicate what we see to others. If we stay humble to the fact that we create these pictures

we can be open to new ways of understanding the phenomenon we explore beyond measuring and seeing it directly with our eyes.

THEIS VALLØ MADSEN

MA in Art History and PhD Candidate at Aarhus University and KUNSTEN Museum of Modern Art in Denmark on the basis of Mogens Otto Nielsen's mail art archive. Theismadsen@gmail.com

MAPPING AN ARCHIVE ON THE MOVE

In "Mapping the Archive", a small group of museums, designers and a PhD student try to find new ways to visualize and connect digital museum collections. The project is based on a problem caused by an archive in the basement of a Danish museum. The archive's 10.000 pieces were once exchanged in an – in principle – non-hierarchical and decentralized network of art, artists, information, and odd objects. This entangled archive forced us to rethink how to catalogue, organize, and digitalize. No visual database and visualization tool seemed to fit the archive, so we had to make a suitable digital map + database from scratch.

In this paper, I will present two prototypes. First, a small, experimental visual database resembling an intoxicated spider's web. Secondly, Kollision's prototype from "Mapping the Archive" allowing museum users to browse collections in a pool of shuffling, vibrating microbes with information. Both prototypes are based on the idea of artworks and information as a network of criss-crossing, associative, overlapping, and unstable threads and knots. Some threads are stronger than others, and some are fixed, but others change over time and according to use.

TESSA BERG, SIMON BELL AND STEVE MORSE

Dr Tessa Berg is an Information Systems lecturer at Heriot-Watt University in Edinburgh, Scotland. She has a background in computing systems with research interests in participatory methodologies for system design. This paper provides an overview of a major forthcoming publication by the authors.

2015. Bell, S. Berg, T. and Morse, S. Rich Pictures: encouraging resilient communities. Taylor Francis, London. Tb79@hw.ac.uk

RICH PICTURES – UNDERSTANDING COLLABORATIVE COMMUNICATION THROUGH EDUCATIVE INTERPRETATION

Our world is growing smaller and the need for communication grows acute. Pictures and symbols cross all barriers. Symbols have evolved over time to offer universal directions, information and meaning. Symbols are not a replacement language but instead they supplement existing language conveying meaning more readily and concisely.

In this paper we discuss the Rich Picture (RP), showing how powerful the tool is when exploring differing world views of a complex situation. The RP is a physical picture drawn by a variety of hands which encourages discussion and debate for groups. RPs consist of a set of entities we call icons. Icons can represent objects or processes such as action of emotion. The RP expresses, via a symbolic language, and aids group understanding by initiating problem investigation in a permissive environment. RPs have, to date, been seen as an enquiry tool in system design and their real usefulness expires after completion. Issues are with RP interpretation. We offer a new way of understanding the RP; Educative Interpretation (EI). We suggest; through the use of EI, people gain greater meaning from the RP. We argue the knowledge value of examining the RP through the lens of EI.

JESPER MOSEGAARD

Jesper Mosegaard is head of the Computer Graphics Lab at the Alexandra Institute, Denmark. He leads a team of highly skilled experts, and does application oriented research, software development and consultancy with companies, universities and public institutions. jesper.mosegaard@alexandra.dk

CHALLENGE YOUR VISUALIZATION SOFTWARE – CREATIVELY AND TECHNICALLY

In every data visualization or data based interactive experience there are inherent choices in data processing and visual design. Often, data is collected and processed by a scientist or engineer – and visual design and artistic content is realized in commercial software packages by graphics artists. As computer scientist we exist in-between these two extremes, often represented by a piece of finished software. I will give an overview of the current challenges and opportunities in developing your own tools for visualization and interactive experiences. I will guide the audience through a number of cases where the choices of who produces data, software and visual design becomes defining for the actual outcome and results. I will draw on three categories of projects; surgical simulation, 3D widgets in web browsers, and a plug-in for a commercial software package.

DANIELA VAN GEENEN

Daniela is researcher and teacher at Utrecht Data School (UDS), an initiative at Utrecht University. She studies New Media and Digital Culture (MA). Daniela's research interest concerns the impact of algorithms on and the role of images in knowledge production. d.vangeenen@uu.nl

NEVER TRUST A DATA VISUALIZATION. EXPLORING AND POSITIONING AN INSTRUMENT TO VISUALLY ANALYZE NETWORK DATA

Visualization software Gephi is used in digital humanities research to render network data from online and social media into images. Based on its quality of an easy-to-use tool we experiment with Gephi during technical trainings at UDS. We support students in becoming data literate conducting data research commissioned by external partners. The question rises, however, whether Gephi, a computational tool that is subject to technological black-boxing, could be considered as suitable scientific instrument for analyzing data.

In fact, Gephi maps data into powerful 'techno-images', aesthetically appealing simulations that hold the risk of getting immersed by their connotations of accuracy, objectivity and absolute truth. Our working practice therefore involves ethical questions and the endeavor to stimulate an awareness of technology as active *mediator* that translates and shapes research material by means of algorithmic interpretations, graphical language, and the researcher's scientific comportment.

I argue that software such as Gephi is an adequate scientific instrument when it is used responsibly. This requires methodological transparency, a critical and exploratory attitude, as well as pragmatic choices respecting data and viewer. Such accountably scientific comportment contributes to humanist research practice in which images are not just objects of critical inquiry, but become tools and visual evidence.

MOA GOYSDOTTER & JENNY GRÖNBERG-HERNÁNDEZ

Moa Goysdotter: Senior lecturer/Researcher in Digital Culture/Visual studies, Department of Cultural Sciences, Division of Art History and Visual Studies, Lund University, Lund, Sweden. Jenny Grönberg-Hernández: Patient safety Specialist at Astra Zeneca, Mölndal, Sweden. moa.goysdotter@kultur.lu.se jenny@cleancutbiopharm.nu

VISUALIZING BIG DATA AMOUNTS: THE CASE OF GOOGLE FLU TRENDS (GFT)

In our presentation we will ask the question whether the common critique of research relying on Big Data can be applied to the visual levels of data presentation as well. Does the visual presentations mirror

the fallacies of Big Data derivation, or does it somehow disguise it in aesthetic form producing certain "Big Data fallacy concealers"?

We will use the case of the much debated Google Flu Trends (GFT) and from this specific example extend the discussion to embrace scientific visualizations of big data in general, and attempts to clarify the methodology in visual form.

One of the huge problems of visualizing Big Data is a disguise of potential source criticism and methodological questioning. Is there perhaps another way to better, or more scientifically, represent Big Data that takes the whole process of the Big Data algorithm method into account? Is there an inherent need within the handling of Big Data to visualize the method behind the analysis, which is often extremely complex, and not only the data? Is this possible?

MADS RONALD DAHL & EIVIND ORTIND SIMONSEN

Center for Health Sciences Education (CESU), Faculty of Health, Aarhus University. MD@MEDU.AU.DK

WHEN DATA REPRESENTATION COMPROMISE DATA SECURITY

The workflow of transforming data into informative representations makes extensive usage of computers and software. Scientists have a conventional tradition for producing publications that include tables and graphs as data representations. These representations can be used for multiple purposes such as publications in journals, teaching and conference material. But when created, stored and distributed in a digital form there is a risk of compromising data security. Data beyond the once used specifically to create the representation can be included as Object Linking and Embedding (OLE-objects). The OLE-object may "hide" data, in some cases sensitive data, such as data from research or health care information that was in the original data complex. This issue is known and documented but why is it then still a problem leading to data being exposed on the internet over many years? A new legislation proposed in 2012 by the European Commission on protection of personal data will be implemented from 2015. The new law will impose sanction options ranging from a warning to a fine up to 100.000.000 EUR. We argue that this new law will lead to especially the software companies having more interest in understanding and solving this type of data security issues.

HARSHAVARDHAN BHAT AND APARNA BANERJEE

Harshavardhan Bhat is an Independent Researcher currently based out of Bangalore, India. Aparna Banerjee heads the Science and Society Programme at the National Centre for Biological Sciences (TIFR) in Bangalore, India.
harsh.s.bhat@gmail.com aparnab74@gmail.com

EMBEDDED CHOICES: SCIENCE, AESTHETICS AND THE 'IMAGE'

We speculate that there is a 'political' moment in the projection, medium and complex adaptation in the communication of science and this project is an exploration in unpacking that very phenomena. What happens when 'images' from science are distributed, reproduced and absorbed by the popular media? Does it still mean the same thing? What does it become? We'd like to argue that there is an intricate, perhaps unconscious yet important connection between the choices made in the aesthetic platform of dissemination and the metaphors, narratives and ideas that particular information participates in the making of. We are seeking to understand how knowledge practice and perceived boundaries form an epistemic contour. To what extent do scientists experiment with aesthetic representations of science and what are the means by which (if any) does one explore alternative paradigms? The politics of aesthetic representation we argue, is not free from its subjective disciplines and artistic anti-objectivity. Initiated through a process of interviews with leading scientists and analysis, we seek to question and study the source, the device and the aesthetic choices in communication and it's possible political fates.

LOTTE PHILIPSEN

Lotte Philipsen holds a PhD-degree in Art History from Aarhus University. She is currently a fellow at Aarhus Institute of Advanced Studies. Her research focuses on the use of new technology and science in contemporary art. lottephilipsen@aias.au.dk

IMAGERY AND AGENCY: BIO-ART BETWEEN AESTHETICS AND AESTHETICIZATION

The term 'bio-art' covers a very heterogeneous variety of practices: From the creation of tiny so-called 'nano-sculptures' displayed in online images (Cris Orfescu), to the breeding of albino goldfish exhibited in the art gallery (Revital Cohen & Tuur van Balen), and to art activist development of 'erase and obfuscate your DNA traces'-kits for private citizens (Heather Dewey-Hagborg), just to mention a few.

This paper presents and analyses different kinds of bio-art practices. The paper claims that different kinds of bio-art demonstrate different kinds of aesthetic agency; that is, their strategies of data representation not only result in different images – they also have radically different aesthetic implications. Especially, the paper scrutinizes the difference between on the one hand bio-aesthetics and on the other hand aestheticization of bio-science: Bio-aesthetics describes how aesthetic experience may arise from encountering works or phenomena that use or refer to bio-science, whereas aestheticization of bio-science describes how bio-scientific data representations are often provided with an extra representational layer in order to make them look pretty.

PAUL GOODFELLOW

I am an artist and academic at Northumbria University, Newcastle, with a background in art and data visualisation. My interests include the application of systems and models within art, and how data, space and time are represented in Art. Paul.goodfellow@northumbria.ac.uk

LIVING IN A DATA WORLD AND THE ROLE OF ART AS METADATA

Systems and models increasingly structure and define every aspect of society from social interactions, to understanding the economy and environment. Where once it was left to subject professionals to interpret and explain the data generated there has been a move to share the data to be interrogated by anyone.

This can be understood in two ways. Firstly, in deterministic terms, technical advances have allowed and encouraged a broader access to data. Secondly, there has been a justification in philosophical terms to disengage the data from the original author's intention, as described by Roland Barthes. This paper discusses the potential problems arising from an un-curated access to data, before developing an argument for the role of art in dealing with data. The paper discusses the heritage Systems Science and Conceptual Art share in Cybernetics, and why art has struggled to deal with data in a meaningful way, due in part to a disengagement with Aesthetics and a reliance on material novelty and cultural parody.

The paper concludes by addressing the issues of authorship and aesthetics in data visualization directly and proposes a role for art as a vehicle for metadata that mediates our relationship to an increasingly data driven world.

ANETTE VANDSØ

As a post doc fellow at Aarhus University Vandsø is investigating the role of "media" (in the broadest sense) in sound art. She is also founder of the *Nordic Network of Sound Art Research*. vandsøe@dac.au.dk

DATA AESTHETICS IN CONTEMPORARY SOUND ART

The development of 'sound' as an aesthetic medium in its own right is intimately linked to the technological development of sound reproducing technologies. In the particular the tape recorder was a game changer as it allowed composers to collect and reproduce sonic data from the world without filtering

them through the symbolic system of language or musical notation. The theoretical descriptions of this practice will however typically focus on the abstract sound objects, or on the phenomenological exploration of the sense modality of listening or on the sociality of world sounds, and fail to address this technological process of collecting data.

This presentation will look at data aesthetic in sound art, with an offset in artistic-scientific practices, where the world is not 'told' or seen from a human focalizer, but instead treated as an amassment of data to be collected and interpreted by the non-human technology. I will suggest a post-human approach that does not forefront the subject-object-correlation, but instead sees sound art as an investigation a 'vibrant matter' (Bennet) as a substance in its 'intra-active becoming' (Barad). I will also suggest that such an approach is perhaps neglected, but not alien to the history of sound art. For instance John Cage already in the 1950s suggested that technology would allow us to understand the world not as objects, but as vibrations.

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INVESTIGATING THE INTER-RELATIONSHIP OF MEDIA ART AND THE DATA ARCHIVE IN ARTISTIC DATA-VISUALIZATIONS

Investigating the inter-relationship of Media Art and the Data Archive in the data-visualizations of Man Ray, Lev Manovich and Thorbjørn Lausten. This paper investigates the relationship of media art and the data archive. I propose that a complex situation of representation emerges between art and archive, which are operating in matrices of creativity rather than in semantic connections. From being a medium of memory (Benjamin), the data archive is framing complex mediacy of real-world and data representations. I argue that this transformation is particularly visible in media art practices dealing with aesthetics of mediacy and working with archives of (big) data. Thus, from the media art practices that may be found in the (very different iterations/applications of) data-visualizations of Man Ray, Lev Manovich and Thorbjørn Lausten this paper will argue that, what may be termed as, a creative 'matrix thinking' emerges.