

Remote Control. Scales of Mediated Intervention

June 29–30, 2017

International Conference

www.remote-control-conference.org

With Antoine Bousquet, Matthias Bruhn,
Kate Chandler, Nina Franz, Luci Eldridge,
Jennifer Gabrys, Carolin Höfler, Timothy Lenoir,
Matteo Pasquinelli, Moritz Queisner,
Isabell Schrickel, Lucy Suchman, Jutta Weber

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Antoine Bousquet, Senior Lecturer in International Relations, Birbeck University of London

„A Ghost in the War Machine: Human Autonomy within Contemporary Military Architectures of Control“

The dramatic advances in the technologies of remote control realised over the last few decades appear to have granted their human operators unprecedented powers to exercise their will over vast distances. In the military sphere, the emergence of “hunter-killer” drones in the context of the War on Terror has notably summoned visions of ubiquitous surveillance and global projections of precise lethality. Yet beyond any critical assessment of the fantasies of planetary control fuelled by the advent of such technologies, insufficient attention has been paid to the ways in which the human organism is being concurrently assimilated within sociotechnical architectures of control. Bound by ever tighter cybernetic feedback loops of command and control, the entanglement of man and machine is obliterating classical conceptions of human agency and responsibility in war. Through an examination of specific military assemblages of perception and remote targeting, this paper will underline the increasingly evanescent character of human autonomy in the operation of the contemporary war machine.

Antoine Bousquet is a Senior Lecturer in International Relations at Birkbeck, University of London. He is the author of „The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity“ (Columbia University Press, 2009), an enquiry into the influence of major scientific paradigms and key associated technologies on the theories and practices of warfare in the modern era. His research interests include the relationship of war and society, political violence, the history and philosophy of science and technology, and social and political theory. His work has been published in a range of peer-reviewed academic journals including International Affairs, the Cambridge Review of International Affairs, Thesis Eleven, Millennium: Journal of International Studies, and Cold War History. He is currently completing a monograph entitled ‚The Martial Gaze‘, an investigation into the transformations of vision and perception in warfare, as manifested in the colonisation of the electromagnetic spectrum, the development of cartography and geo-informatics, and the increasing role of camouflage and stealth technologies.

Matthias Bruhn, Professor of Science of Art and Media Theory, HfG Karlsruhe, Humboldt University of Berlin

„Artificial Proximity“

Scopic instruments suggest a certain ‘closeness’, in terms of a physical proximity, to their objects of observation, due to the magnification and containment of the visual field. The paper is (a) to give historical examples of technical devices and images utilizing this effect and (b) to discuss implications of limited sight in view of recent developments in computer-aided sports simulcast.

Matthias Bruhn is Deputy Professor for Art Research at HfG Karlsruhe for the winter semester 2016 and summer 2017. He is a permanent member of Humboldt University Berlin, where he is head of the research group “Das Technische Bild” at the Institute of Art and Visual History and a principal investigator at Cluster of Excellence: “Image Knowledge Gestaltung. An Interdisciplinary Laboratory”.

Katherine Chandler, Critical Theorist and Assistant Professor of Culture and Politics, Georgetown University

„Death by PowerPoint“

Recent studies tie drone technologies to the War on Terror, highlighting ethical, political and legal concerns raised by remote warfare. Yet, the figure of “the drone” may be misleading, obfuscating bureaucratic practices that organize killings carried out by unmanned aircraft; these implicate numerous governmental agencies, military industry and legal oversight. This analysis proposes drone warfare is as much a bureaucratic structure as it is a technology. To explore what is at stake in this argument, I ask how remote warfare can also be interrogated through PowerPoint, a format used to analyze, evaluate and brief officials on targeted killings. The account studies “The Drone Papers,” Pentagon documents leaked in 2015 by The Intercept, and closely reads three PowerPoint presentations that are among the source materials. I use Lisa Gitelman’s (2014) study of the potentially analogous Pentagon Papers to examine how PowerPoint frames accounts of „The Drone Papers“ and debates that ensue. Leaked electronic media differ from the paper copies that are the basis of the Pentagon Papers and I note the failure of the PowerPoint slides as evidence. What is significant about “The Drone Papers” I suggest though are how their form and content as PowerPoint slides are symptomatic of the bureaucracy of drone killing and the detached violence unmanned aircraft supposedly enact. The presentations organize and normalize

what is put forth as a continuous cycle linking information and killing, “Find, Fix, Finish, Evaluate, Analyze,” represented as the F3EA cycle by a familiar PowerPoint graphic. I consider what kinds of responses might be available to critics of remote warfare if one took seriously how these practices are implicated in banal, everyday media and the ways the remoteness of drones might be much more familiar than expected.

Katherine Chandler is a critical theorist and Assistant Professor of Culture and Politics in the Edmund A. Walsh School of Foreign Service at Georgetown University. Her teaching and research interests draw on science and technology studies, media theory, geography, political theory and art practice. Her current research, „Drone Flight and Failure: the United States’ Secret Trials, Experiments and Operations in Unmanning, 1936-1991,“ studies the pre-history of contemporary pilotless technologies to interrogate conditions that gave rise to their current use by the United States Military in the War on Terror. She asks how the socio-technical relations formed by drone aircraft map onto and transform the questions of who or what is human? who or what is machine? who or what is an enemy? The history of these socio-technical networks is one just as much of failure as it is of innovation. She argues for an account of unmanned systems that links visibility and invisibility, as well as security and failure. These relations are tied to how geopolitics has shifted in the 20th century. The challenges of working with classified and formerly classified materials have led to several concurrent projects in the visual arts, which explore how secrecy operates within the context of unmanning and with what consequences. Her artwork creates an “unarchive of the unmanned,” pointing to the limits of what a technology can see and the resulting politics. This project has resulted in artistic residencies at the Banff Centre for the Arts and Provisions: Art for Social Change at George Mason University, as well as number of exhibitions and critical texts about drones in contemporary art. As a core member of the CULP faculty, she teaches „Political Transfigurations: Technologies, Bodies and Violence, 1945 – present,“ „Media Infrastructures,“ and „Introduction to Culture and Politics.“

Luci Eldridge, Artist, Writer and Associate Leturer, Royal College of Art London

„Glimpsing Mars from the Centre of the Image: Terrain Models and Rover Driving“

This paper analyses the use of 3D imaging in Mars exploration and rover driving from an arts and humanities perspective. 3D images reconstruct both vision and landscape in order to help scientists and engineers get closer to a feeling of ‘being there’ on Mars. Data from NASA’s Curiosity rover will be the central focus; at human eye-level, the rover’s Navigation and Mast Cameras provide visions analogous with our own. 3D models are constructed from stereoscopic data, captured by the rover at a specific time; as such the models place Curiosity at the centre of the image whilst also highlighting the portions of the landscape as yet unseen by the camera’s lens. Driving rovers on Mars requires a certain level of understanding on how to read these models; engineers encounter this otherworldly terrain through active engagement with the image, through prolonged and intensified looking. ‘Glitch’ theory and Maurice Merleau-Ponty’s studies on perception are used to address primary research at the Jet Propulsion Laboratory (CA) to foreground the importance of embodied perception and the necessity to make Curiosity’s blind spots evident. This paper will argue that despite endeavouring to reconstruct a sense of ‘being there’ on Mars, the space of the 3D image can only ever allow us to ‘glimpse’ Mars; the glitch obscures a reconstruction of landscape that is very much framed by technology.

Luci Eldridge is an artist, writer and Associate Lecturer in Visual Culture at the University of the West of England, Bristol. Luci recently completed her PhD in the School of Humanities at the Royal College of Art; her thesis investigated immersive image forms used in the exploration of the planet Mars: these images were re-contextualised within an arts and humanities framework. She speaks frequently at conferences and has carried out research at NASA Ames, the Jet Propulsion Laboratory in California and the European Space Agency. Her fine art practice is concerned with the transition between the virtual and the tangible within printmaking to explore representations of places and spaces invisible to the human eye. Luci holds an MA in Printmaking from the Royal College of Art and a BA (Hons) in Fine Art from Loughborough University.

Nina Franz, PhD Candidate, Humboldt University of Berlin
and
Moritz Queisner, Research Associate and PhD Candidate, Image Knowledge Gestaltung, Humboldt University of Berlin

„Co-operative Killing. Controlling humans and machines in remote warfare“

Today’s remotely controlled military operations are defined as processes of “cooperation” between automated and partially autonomous technologies and the “human operator”. This puts the human capability of action and decision making into a precarious relationship with the efficiency of non-human systems. In contrast to positions that argue for the recognition of non-human actors, agency in these contexts is always already understood as human-technological co-agency within a given system, revealing the epistemological roots of “man-machine coupling” within the historical paradigm of cybernetics: The human actor is regarded as “element” or “component” of the operative system. Against the backdrop of the military understanding of operation the paper argues that the notion of “operative” and “operational” results in problematic misconception of human-machine relations. Based on a case study of the so-called Ground Control Station for unmanned aerial vehicles the paper investigates the practices of remote operation. The control interface of the GCS is thereby revealed to be a scene of constant re-definition of roles, of re-negotiation and contested responsibilities. The study is based on an exchange with drone operators that took place in February 2017 on Maxwell Air Force Base in Montgomery, Alabama.

Nina Franz is pursuing her PhD under the supervision of Prof. Dr. Iris Därmann and Prof. Dr. Thomas Macho. She is a member of the doctoral program of the Excellence Cluster Image Knowledge Gestaltung. From 2012 to 2015 she was a research assistant within the teaching and research area of »Cultural History and Theory of Aesthetics« at the Institute for Cultural History and Theory at HU Berlin and a member of the research group »Pictograms« at the Excellence Cluster Image Knowledge Gestaltung. Her research on military technologies, theories of the image and production of obedience is supported by a doctoral scholarship from the Gerda Henkel Foundation.

Moritz Queisner is a researcher with an academic background in Media Studies. He is a research associate at the Cluster of Excellence Image Knowledge Gestaltung. An Interdisciplinary Laboratory of Humboldt University Berlin. His work is can be found at www.moritzqueisner.de

Jennifer Gabrys, Reader in Sociology, Goldsmiths, University of London

„Instrumenting the Planet: Sensing and Actuating Remote Environments and Smart Cities“

The drive to instrument the planet, to make the earth programmable not primarily from outer space but from within the contours of earthly space, has translated into a situation where there are now more “things” connected to the Internet than there are people. Sensors are such connected and intelligent devices that typically translate chemical and mechanical stimuli such as light, temperature, gas concentration, speed, and vibration across analogue and digital sensors into electrical resistors, that in turn generate voltage signals and data. By sensing environmental conditions as well as detecting changes in environmental patterns, sensors are generating remote stores of data that, through algorithmic parsing and processing, are meant to activate responses, whether automated or human-based, so that a more seamless, intelligent, efficient, and potentially profitable set of processes may unfold, especially within the contours of the smart city. Yet what are the implications for wiring up environments in these ways, and how does the sensor-actuator logic implicit in these technologies not only program environments but also program the sorts of citizens and collectives that might concretize through these processes? I take up these questions through a discussion of material from Program Earth and the Citizen Sense research project to examine the distinct environments, exchanges, and individuals that take hold through these sensorized projects.

Jennifer Gabrys is Reader in Sociology at Goldsmiths, University of London, and Principal Investigator on the European Research Council funded project, Citizen Sense. She is the author of *Digital Rubbish: A Natural History of Electronics* (University of Michigan Press, 2011), and *Program Earth: Environmental Sensing Technology and the Making of a Computational Planet* (University of Minnesota Press, 2016), and co-editor of *Accumulation: The Material Politics of Plastic* (Routledge, 2013). Her work can be found at citizensense.net and jennifergabrys.net.

Carolin Höfler, Professor of Design Theory and Research, Cologne University of Applied Sciences

„The Void: Feedback Spaces and Scale Differences Between Vision and Haptics“

The lecture deals with physical-digital 3D-surroundings which are perceived, constructed, and steered with the aid of mobile Virtual-Reality-technologies. Dense entanglements of virtual realities, interactive real-time effects, and physical settings, as they are currently being tested in the leisure industry, in architecture, and forensics, promise to suspend the discrepancies between virtual and physical experience. In this regard, the built space, in which the VR-user is located, is reproduced as a digital action field being intensified by additional sensual information. Involved in these surroundings, visitors of theme parks are to delve into fictional worlds of imagination and space with all their senses and are to fully engage and actively launch themselves into the middle of action. In architecture, the close entanglement of built and technological surroundings is aimed at directly acting in/on space and at building correlations between digital drafts and material-analog structures. In forensics, however, the interplay of analog 1:1 model rooms and digital simulations is meant to serve as to reconstitute past crime scenes and progression of events. But what happens if sight and touch are separated and then connected again digitally? What if the physical space is extended by virtual environments while the user loses sight of the genuine tactile sense of space? Which classifications are being developed if the depicted space complies with the physically real spatial dimensions of it, but differs in its qualities? With regard to this, the lecture pursues the phenomenon of real-virtual 3D spaces in three areas: the problem of setting and dissolving limits between image, space, and body, the issue of how the user coordinates information between control and loss of control, and, resulting from this, the concept of real-time distributed control.

Dr. Carolin Höfler is Professor of Design Theory and Research at the TH Köln – University of Applied Sciences, Köln International School of Design. She studied art history, modern German literature and theater & film (M. A.) as well as architecture (TU Diploma) at universities in Cologne, Vienna, and Berlin. In her dissertation, which was completed at the Humboldt-Universität zu Berlin, she explored the history and theory of computational design in architecture (Form und Zeit. Computerbasiertes Entwerfen in der Architektur). From 2003 to 2013 she was a teacher and researcher at the Technische Universität Braunschweig, Institute of Media and Design (since 2009 Assistant Professor). Since 1998 she works on project-related topics in the team of »oza_studio for architecture and scenography« in Berlin. Her research interests include practices,

concepts and media in architecture and design; digital form; mediated matter; the media saturation of public space and informal urbanism. Last published: Carolin Höfler: »Body Voyage. Rekonstruktionen aus Schnittserien«, in: Sabine Ammon, Inge Hinterwaldner (Hg.): *Bildlichkeit im Zeitalter der Modellierung. Operative Artefakte in Entwurfsprozessen der Architektur und des Ingenieurwesens* (= eikones). München: Fink 2017, S. 219–254; Carolin Höfler: »Grow I Degrow. Materialwerdung zwischen Exzess und Kalkül«, in: Nikola Doll, Horst Bredekamp, Wolfgang Schäffner (Hg.): *+ultra. Wissen schafft Gestaltung, Ausst.-Kat.*, Berlin, Martin-Gropius-Bau. Leipzig: Seemann Henschel 2016, S. 191–199.

Timothy Lenoir, Distinguished Professor of Cinema and Digital Media, Professor of Science and Technology Studies, UC Davis

„Into Deep: The AI Explosion, Machine Learning and the Closeness of Remote Control“

This paper will discuss the recent massive takeoff of AI and the uptake of deep learning techniques in several areas. AI no longer represents just a stronghold of academic activity: roughly 1650 companies worldwide raised \$5B in startup funding in 2016, with Google leading all scientific publications in AI with 218 papers. The massive investment in AI has implications of singular proportions. I want to examine some key commercial developments and implementations of the new AI/Deep Learning techniques by companies such as Google, Amazon, and Microsoft as well as commercial/military developments of brain-machine interfaces, affective computing and neuromarketing making use of the new AI that point in the direction of unprecedented prospects of remote control.

Tim Lenoir has published several books and articles on the history of biomedical science from the nineteenth century to the present. His more recent work has focused on the introduction of computers into biomedical research from the early 1960s to the present, particularly the development of computer graphics, medical visualization technology, the development of virtual reality and its applications in surgery and other fields. Lenoir has also been engaged in constructing online digital libraries for a number of projects, including an archive on the history of Silicon Valley. Two recent projects include a web documentary project to document the history of bioinformatics, funded by the Bern Dibner and Alfred P. Sloan Foundations, and “How They Got Game,” a history of interactive simulation and video games. With economists Nathan Rosenberg, Henry Rowen, and Brent Goldfarb he has just completed a collaborative study for Stanford University on Stanford’s historical relationship to

Silicon Valley, Inventing the Entrepreneurial Region: Stanford and the Co-Evolution of Silicon Valley. In support of these projects, Lenoir has developed software tools for interactive web-based collaboration. In this connection he is currently engaged with colleagues at UC Santa Barbara in developing the NSF-supported Center for Nanotechnology in Society, where he contributes to the effort to document the history, societal, and ethical implications of bionanotechnology.

Matteo Pasquinelli, Professor in Media Theory, HfG Karlsruhe

„Neural networks as control paradigm: Frank Rosenblatt and the birth of learning machines“

The first operative neural network, the Perceptron conceived by Frank Rosenblatt in 1957 at Cornell Aeronautical Laboratory, was designed for pattern recognition of simple shapes such as letters, yet with the ambition to automate recognition of radar signals and voice messages. The paper illustrates the relation between neural networks and feedback loops in cybernetics, showing how neural networks basically apply a control feedback loop to each node of decision and computation of their structure. Neural networks theoretically describe a matrix of control of infinitesimal resolution (that is ‘intelligent’) compared to the cybernetic apparatuses of the same age. Nonetheless, due to the so-called ‘winter of Artificial Intelligence’ and skepticism around their performance, their paradigm would rise only in the late 1980s. Besides remote and automated control, neural network design aimed specifically to build machines capable of adaptive and self-learning control.

Matteo Pasquinelli (MA, Bologna; PhD, London) is Professor in Media Theory at the University of Arts and Design, Karlsruhe. He recently edited the anthology *Alleys of Your Mind: Augmented Intelligence and Its Traumas* (Mesa Press) among other books. His research focuses the intersection of cognitive sciences, knowledge economy and machine intelligence.

Isabell Schrickel, PhD Candidate, ICAM University of Lüneburg

„Climate Mediation – Shifting Scales of Atmospheric Intervention“

The escalating explicitness and inversion of the notion of environment is one of the most exciting cultural, technological and scientific endeavors in the 20th and 21st centuries. This inversion is also in many ways a pre-condition for the large-scale development of practices and technologies of remote control discussed during the workshop. The scientific exploration of the atmosphere made great contributions to this environmental inversion, at the latest with the discovery of a planetary scale anthropogenic climate change. However, attempts to investigate the history of this exploration from an interventionist perspective are still rare. I use the opportunity of the workshop to discuss both historical and contemporary targets of atmospheric intervention through the lens of remote control, because it allows us to embed some of the recent debates on climate change policies in a broader context of control thinking and to highlight some of the problems and asymmetries involved. I compare the more laboratory-inspired atmospheric experiments to control spatially distant atmospheric environments in the mid of the 20th century with the recent visions of climate or geo-engineering and the temporal scales and complexities involved. This comparison will hopefully contribute an analysis of the changing scope of atmospheric intervention and the shifting scales of remote control.

Isabell Schrickel is a PhD candidate at the Center for Global Sustainability and Cultural Transformation (Leuphana University / Arizona State University). She studied Media Theory, Art History and Journalism at Humboldt and Freie Universität Berlin and the University of Basel. In 2010 she received her master’s degree with a thesis on the media history of weather forecasting. From 2011-2013 she worked as a research associate at Technische Universität Berlin and in 2013 she began her thesis on the history of the International Institute for Applied Systems Analysis (IIASA) at MECS. She organized the MECS Annual Conference Dealing with Climate Change – Calculus & Catastrophe in the Age of Simulation in June 2015. She teaches at Humboldt and Leuphana University. From April to October 2017 she will be visiting fellow at the Harvard Department of the History of Science.

Lucy Suchman, Professor of Anthropology of Science and Technology, Lancaster University

„Situational Awareness and Meaningful Human Control“

This talk examines two tropes in contemporary discourses of war fighting – one longstanding, the other newly emerging – that are deeply implicated in configurations of remote control. ‘Situational awareness,’ established in US military doctrine as a prerequisite for lawful killing, requires an understanding of one’s circumstances that is adequate to the distinction between combatants and non-combatants, and the identification of what constitutes an imminent threat. Citing the ‘fog of war’ articulated by Prussian military analyst Carl von Clausewitz in 1832, situational awareness at once calls for clarity in moments of combat, and acknowledges its continued elusiveness. In the context of contemporary debates regarding the regulation of automated weapon systems, ‘meaningful human control’ has been recently introduced as a requirement by the NGO Article 36, and is now accepted by a wide range of actors internationally. Both of these tropes aspire to control over the actions of complex human-machine systems in the context of war fighting: In this talk I consider how they might be articulated and mobilised in the service of a less violent world.

Lucy Suchman’s research within the field of feminist science and technology studies focuses on technological imaginaries and material practices of technology design, particularly developments at the interface of bodies and machines. Her current research extends her longstanding critical engagement with the field of human-computer interaction to contemporary warfighting, including the figurations that inform immersive simulations, and problems of „situational awareness“ in remotely-controlled weapon systems.

Jutta Weber, Professor of Media Sociology, University of Paderborn

„Social Network Analysis in Data-Driven Warfare“

Social network analysis (SNA) – which builds i.a. on sociometrics, statistics and graph theory to study social structures – is increasingly used in the military discourses and practices of the 21st century. I will analyze specific enactments of SNA in contemporary US military used as a remote-controlled and performative methodology of computational targeting, ‘counterterrorism’ & ‘counterinsurgency’. SNA like any social technology formats its object of research; namely, social worlds comprised into nodes and ties. What forms of the social do these data intensive methods and social technologies co-constitute? How are military tracking and targeting methods formatting both their objects of investigation and military logics in general?

Jutta Weber is a STS scholar, philosopher of technology and professor for media studies at the University of Paderborn, Germany. Her research focuses on computational technoscience culture(s) asking how and for whom the non/human actors work. She has been visiting professor at several universities including Uppsala (Sweden), Vienna (Austria), Twente (Netherlands), TU Braunschweig and Freiburg (Germany). Recent publications include: *Feministische STS*. In: Susanne Bauer / Torsten Heinemann / Thomas Lemke (Hg.): *Science and Technology Studies – Klassische Positionen und aktuelle Perspektiven*. Berlin: suhrkamp 2017, 339-368; *Human-Machine Autonomies*. In: Nehal Bhuta et al. (Eds.): *Autonomous Weapon Systems*. Cambridge University Press 2016 (together with Lucy Suchman); *Keep Adding. Kill Lists, Drone Warfare and the Politics of Databases*. In: *Environment and Planning D. Society and Space*, February 2016 vol. 34 no. 1, 107-125; see also www.juttaweber.eu

Thursday, June 29

- 9.00-9.30** Registration and Coffee
- 9.30-10.00** Welcome and Introduction
Nina Franz, Kathrin Friedrich, Moritz Queisner
- Panel Chair** **Remote Sensing**
Kathrin Friedrich
- 10.00-11.00** **Keynote**
Jennifer Gabrys, Goldsmiths, University of London
"Instrumenting the Planet: Sensing and Actuating Remote Environments and Smart Cities"
- 11.00-11.30** **Coffee Break**
- 11.30-13.00** **Isabell Schrickel**, Leuphana University CCP I CGSC
"Climate Mediation – Shifting Scales of Atmospheric Intervention"
Luci Eldridge, Royal College of Art, London
"Glimpsing Mars from the Centre of the Image: Terrain Models and Rover Driving"
Carolin Höfler, Cologne University of Applied Sciences
"The Void: Feedback Spaces and Scale Differences Between Vision and Haptics"
- 13.00-14.00** **Lunch**
- Panel Chair** **Remote Targeting**
Moritz Queisner
- 14.00-15.00** **Keynote**
Jutta Weber, University of Paderborn
"Social Network Analysis in Data-Driven Warfare"
- 15.00-15.30** **Coffee Break**
- 15.30-17.30** **Lucy Suchman**, Lancaster University
"Situational Awareness and Meaningful Human Control"
Antoine Bousquet, Birbeck, University of London
"A Ghost in the War Machine: Human Autonomy within Contemporary Military Architectures of Control"
Kate Chandler, Georgetown University
"Death by PowerPoint"
Nina Franz / Moritz Queisner, Image Knowledge Gestaltung, Humboldt University of Berlin
"Co-operative Killing. Controlling humans and machines in remote warfare"
- 19.00** Conference Dinner
(for speakers)

Friday, June 30

- Panel Chair** **Remote Computation**
Nina Franz
- 10.00-11.00** **Keynote**
Timothy Lenoir, University of California, Davis
"Into Deep: The AI Explosion, Machine Learning and the Closeness of Remote Control"
- 11.00-11.30** Coffee Break
- 11.30-13.00** **Matthias Bruhn**, HfG Karlsruhe/Humboldt University of Berlin
"Artificial Proximity"
Matteo Pasquinelli, HfG Karlsruhe
"Neural networks as control paradigm: Frank Rosenblatt and the birth of learning machines"
Panel discussion with **Antoine Bousquet** and **Lucy Suchman**
- 13.00-14.30** Closing and Lunch

Conference chairs

Nina Franz, PhD-scholar of the Gerda Henkel Foundation
Kathrin Friedrich, Cluster of Excellence Image Knowledge Gestaltung, Humboldt University of Berlin
Moritz Queisner, Cluster of Excellence Image Knowledge Gestaltung, Humboldt University of Berlin
Lisa Weber, student associate, Cluster of Excellence Image Knowledge Gestaltung, Humboldt University of Berlin

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