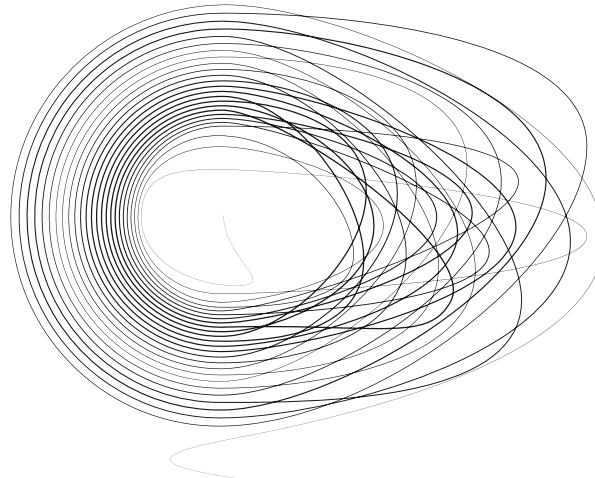# KNOWLEDGE DESIGN

GRAPHIC DESIGN IN SCIENCE COMMUNICATION

International Conference
Forum Scientiarum
April 06–08, 2016

Abstracts Session One
Rhetoric and Design

Chair: Markus Gottschling

Prof. Dr. Richard Buchanan
Rhetoric and the Dimensions of Human Interaction: The Expanding Art of Rhetoric in New Design Practices

Wed, 10.30 am

There are two broad lines of inquiry in the exploration of the rhetoric of graphic design. The first line of inquiry is the use of classic rhetorical concepts to understand the persuasive force of graphic design in diverse areas of human experience. In this conference, for example, the focus is on the role of graphic design in scientific communication. There are diverse branches of this line of inquiry, shaped by the rhetorical theory that may be employed by those who study graphic design and by the nature of the subject matter of science. An example is the use of semiotics, sometimes guided by the work of Group μ and their study of figures and tropes. Others include the study of argumentation and style through the concepts of logos, ethos, and pathos and their expression in the display of scientific information to move, please and teach. Often these studies explore new perspectives on the relationship of designer, intended audience, and subject matter. They extend our understanding both of rhetoric and of graphic design.

The second line of inquiry begins with invention and the philosophy of information, communication and experience. It is less concerned with the conventional boundaries of professional practice as understood in the established profession of graphic design and more concerned with the extension of rhetorical thinking into new areas of design practice, shaped by new problems of communication, new technologies, and new kinds of audiences. This paper will explore the second line of inquiry, probing the dimensions of human interaction in new design practices. It will identify four dimensions of interaction that are the foundation of the changing field of design, where the boundaries of kinds of design, including graphic design, are blurred and transformed into new forms and purposes of communication — in this case, in the area of scientific communication.

Bio: Richard Buchanan, PhD, is a professor of design, management, and information systems at the Weather-

head School of Management at Case Western Reserve University. He received his AB and PhD from a prestigious interdisciplinary program at the University of Chicago: the Committee on the Analysis of Ideas and the Study of Methods ("I & M"). Before joining the Weatherhead faculty in 2008, he served as head of the school of design and then as director of doctoral studies in design at Carnegie Mellon University.

Dr. Buchanan is well-known for extending the application of design into new areas of theory and practice, writing and teaching as well as practicing the concepts and methods of interaction design. He argues that interaction design does not stop at the flatland of the computer screen, but extends into the personal and social life of human beings and into the emerging area of service design, as well as into organizational and management design.

Buchanan is a widely published author and frequent speaker. His books include Discovering Design: Explorations in Design Studies, The Idea of Design, and Pluralism in Theory and Practice. He is coeditor of Design Issues, the international journal of design history, theory, and criticism; and has served for two terms as President of the Design Research Society. In 2009, Buchanan received an honorary doctorate from the Faculté de l'aménagement (Environmental Design Faculty) at the University of Montréal.

Bárbara Emanuel
Finding Rhetoric in Graphic Design

Wed, 11.15 am

Starting with the premise that there is no pure information in human communication and, therefore, no neutrality in graphic design, we can explore possibilities of visual rhetoric in this field. Here, we focus on four areas where the presence of rhetoric is traditionally less clear than it is in areas such as advertising and poster design: 1) information design, 2) cartography, 3) typography and 4) news design. Analysis of selected pieces demonstrate how design decisions can influence the transmission of messages. The aim of this work is to point out the importance of including the shaping of meaning in the creative process, and to provide initial tools for it.

Bio: Bárbara Emanuel is Master of Arts in Integrated Design (Hochschule Anhalt, Germany), with bachelor degrees in Design (ESDI/UERJ, Brazil) and a Communications (Eco/UFRJ, Brazil). Currently, she is a PhD student in ESDI/UERJ, researching the field of visual rhetoric and interaction. She is a professor at Cederj/UFRJ, teaching visual communication design, and has been a partner at the design firm Bigodes for the past five years, after working for several companies such as design firms and publishing houses.

PD Dr. Olaf Kramer

Form Follows Function. Knowledge Design between Rhetoric and Aesthetics

Wed, 12.00 pm

German Bauhaus is connected with the idea of functional design which has strongly influenced industrial design ever since and became a dominant concept in design theory. Yet, the idea of functional design can be traced back to ancient architecture (Vitruvius) and has roots in ancient rhetorical theories. Especially Cicero and Quintilian construed a close connection between functional communication and the aesthetic quality of a text, that can broaden our understanding of functional communication.

In the domain of knowledge communication functionality is often considered as a principle that is focused on the objective representation of information. Functionality is frequently understood as a demand to minimize aesthetic effects. Yet, effective knowledge communication should not be framed as the objective presentation of facts, as the attitudes addresses hold towards information influence the cognitive processing in a fundamental way. Functional graphic design, therefore, has to be discussed not only in respect to content but also from an aesthetic perspective. Infographics for example are not only an example of highly functional communication in the sense that they improve the flow of information through reduction, structuring and visual evidence. They also add a specific aesthetic quality to communication that has a wide range of rhetorical effects. As I will try to show the use of infographics, for example, might be a method to reassure the audience and to convey the message that everything is understood and under control be it a biological or chemical process, a natural disaster or a nuclear meltdown.

Bio: PD Dr. Olaf Kramer is faculty member at the Tübingen Rhetoric Department and Head of the Presentation Research Center at Tuebingen University. His most important areas of research comprise literary aesthetics around 1800, communicative competence and continuing education, political communication and strategic positioning, as well as rhetoric education and virtual reality. Latest publications and books: Goethe und die Rhetorik. Berlin 2010; zs. mit Joachim Knape (Hrsg.): Rhetorik und Sprachkunst bei Thomas Bernhard. Würzburg 2011; zs. mit Joachim Knape und Thomas Schirren (Hrsg): Rhetorik. Bildung – Ausbildung – Weiterbildung. Berlin 2012; zs. mit Joachim Knape, Karl-Joseph Kuschel und Dietmar Till

(Hrsg.): Walter Jens. Redner – Schriftsteller – Übersetzer. Tübingen 2014; (Hrsg.): Jugend präsentiert kompakt. 2nd edition, Heidelberg 2016.

Dr. Thomas Susanka
Designing Evidence

Wed, 2.15 pm

From a rhetorical perspective, graphic design can help to structure and hierarchize information and arguments, possibly making them clear, vivid and accessible by promising fluent understanding. Consequently, as graphic design offers an attractive semiotic surface, it can help motivating addressees to engage with difficult subjects and to make the necessary cognitive effort in understanding challenging topics – and hence build knowledge. It is in this sense that elements of graphic design are widely used to convey the message that even complicated science can be easily understood. While this motivating aspect is promising, especially when science is communicated to a non-expert public, the message of promised fluency and accessibility might also trigger a fallacious impression of having acquired knowledge in the addressee. The rhetorical concept of evidentia helps to highlight both opportunities and risks of graphic design in science communication.

Bio: Dr. Thomas Susanka is member of the Presentation Research Center, Tübingen. M.A. in American Studies and Rhetoric (University of Tübingen). Dissertation on "The Rhetoric of Photography – James Nachtwey's War Photography" (in German). Areas of Research: Visual rhetoric, esp. rhetoric of the image, authenticity, ambiguity, rhetoric of science, rhetoric and cognitive psychology.

Prof. Dr. Joachim Knape
Persuasion by Design? Design Theory Between Aesthetics and Rhetoric.

Wed, 3.00 pm

Modern rhetorical theory has committed to a postulate of extension: Beyond verbal language, new fields of communication have been opened up for rhetorical research. In the light of this development, this paper continues the Buchanan-Krippendorff-controversy of 1985. How can we today, after 30 years of debate, conceptualize the theory of a rhetoric of design.

Bio: Joachim Knape (born 1950), professor of Rhetoric, Institute for General Rhetoric at the University of Tübingen. Studies in German philology, political science, philosophy and theology in Göttingen, Regensburg and Bamberg. Habilitation in Bamberg in German philology of the middle ages and early modern times with published work on humanism in the renaissance: "Poetry, Justice and Freedom. Studies on the life and work of Sebastian Brant 1457-1521." Appointment as professor of rhetoric in Tübingen in 1991. Research focuses: history of rhetoric, theory of rhetoric, rhetorical semiotics, media rhetoric, textual rhetoric, rhetoric of images, poetics and aesthetics, renaissance studies, German language and literature. Latest publications and books: Poetics and Rhetorics in Early Modern Germany. In: M. Reinhart (Hrsg.): The Camden House History of German Literature. Volume 4. Early Modern German Literature 1350- 1700. Rochester, NY, 2007, S. 247-280; U. Fix, A. Gardt, J. Knape (Hrsg.): Rhetorik und Stilistik/Rhetoric and Stylistics. Ein internationales Handbuch historischer und systematischer Forschung. An international Handbook of historical and systematic research. 1. und 2. Halbband/Volume 1 and 2. Berlin, New York 2008 (= HSK Handbücher zur Sprach- und Kommunikationswissenschaft 31.1 und 2); Modern Rhetoric in Culture, Arts, and Media. 13 Essays. Berlin, New York 2012.

Abstracts Session Two

Creating Evidence:
Visualization in Scientific Discourse

Chair: Friederike Gräßer, Dr. Thomas Susanka

PD. Dr. Zsuzsanna Kondor
The Nature of Representation – Cognitive Theories and Brain Imaging

Wed, 4.15 pm

Ian Hacking suggests considering humans as homo depictor – beings that have a special inclination towards representing the world. In my talk I will focus on the interplay of representational means and scientific theory making, in particular regarding cognition, and will suggest that cognitive capacities, representational means, and theories of the world are deeply intertwined. In my argument I will rely on theoretical considerations which underscore the importance of having a definite body, and, in accordance with this body, having bodily skills which make possible a vivid interaction with the world. Since representational concepts are based on bodily experiences and pave the way towards new epistemic access to the world, they have an effect on further thought processes.

Bio: Zsuzsanna Kondor is senior research fellow at the Institute of Philosophy, Hungarian Academy of Sciences, Research Centre for the Humanities. She received her MA in philosophy and history from Eötvös University, Budapest (1990), and her PhD in philosophy from the Hungarian Academy of Sciences (1999). She obtained her Habilitation in 2008. Her initial areas of interest were history of 20th century philosophy and philosophy of communication; later she focused on images regarding their representational and cognitive aspects. Recently she is interested in cognitive theories and philosophy of science.

Timothy Samara
Dualities of Visualization: Form as Function, Form as Narrative

Wed, 5.00 pm

Communication designers have long recognized that visual form acts simultaneously on information in two ways—denotatively, or functionally, and connotatively, or narratively—with profound implications for its recipients. Mr. Samara will first describe best practices, fostered within design education and industry, as important considerations for clear data visualization (function): strategies for choosing typographic style and structure; depiction, graphical gestures, and color; and composition, or

spatial arrangement. Samara will then explore how such decisions unavoidably affect viewer interpretation—attesting to credibility, implying causality, and ultimately delivering conceptual and contextual information (narrative): to focus and enrich understanding; and, more importantly, to influence viewers' emotional and intellectual engagement—by extension, the conclusions they may draw from their understanding. By deconstructing and reconstructing examples of scientific data presentation, Samara will demonstrate the functional and narrative potential of theoretical visual concepts in practical application.

Bio: Timothy Samara is a graphic designer based in New York City. His 25-year career has so far focused on visual brand identity and communication design. Since 2000, he has split his time between professional practice and academia, defining a highly-respected reputation as an instructor at Parsons: The New School for Design, Purchase College, The University of the Arts, New York University, and the School of Visual Arts. He has written eight books on design to date (all from Rockport Publishers), which have been translated into ten languages and are used as reference by students and practitioners around the world.

Molly Hartzog, Prof. Dr. Carolyn R. Miller
On the Origin of Evolutionary Tree Diagrams: The Role of Visualizations in Scientific Thinking about the Natural World

Wed, 5.45 pm

The "tree of life" has been an enduring, central image to biological thought over the past 150 years. This presentation explores the rhetorical role this image has played in the development of evolutionary thinking. What conceptual work and what communicative work has it enabled? How have the elements of the tree-form changed over time and what does it mean for biology? We examine the pre-Darwinian history of tree images, the role that "tree-thinking" played in Darwin's thought, and the major forms of post-Darwinian tree-like representations. Through tracing this history, we see a transformation from tables and diagrams serving primarily as information storage and retrieval, to abstract diagrams used primarily as theoretical illustration. In short, the evolution of evolutionary tree diagrams illustrates the emergence of evolutionary theory, as these tables and diagrams shaped and constrained scientific thinking about the natural world.

Bio: Molly Hartzog is a PhD candidate in Communication, Rhetoric, and Digital Media at North Carolina State University, where she is also an NSF-IGERT fellow in Genetic Engineering and Society. Her dissertation focuses on the role of genome sequence databases in rhetorical invention in genetic engineering.

Carolyn R. Miller is SAS Institute Distinguished Professor of Rhetoric and Technical Communication, Emerita, at North Carolina State University, where she taught from 1973 to 2015. She was named a Fellow of the Rhetoric Society of America in 2010 and Fellow of the Association of Teachers of Technical Writing in 1995. Her research interests include genre studies, digital rhetoric, rhetorical theory, and rhetoric of science and technology.

Simone Heekeren
Visual Amplifiers of Evidence
Graphic Design as a Semiotic Resource in
Science Communication

Thu, 9.00 am

The topic of this presentation is the role of visual design in multimodal popular science texts. Using the example of neuroscience communication, focus will be placed on images originating in scientific research contexts and appearing in neurocientific publications before their inclusion into popular scientific texts — that is, images with an intertextual 'background'. Being de- and recontextualized for the use in popular science texts, these images are subject to editing procedures, which will be examined against the background of Ludwig Jäger's theory of Transcription (Transkription) (Jäger 2008) and the social semiotic concept of a Grammar of Visual Design (Kress/van Leeuwen 1996). I hypothesize that various transcriptive processes contribute to a semantic and functional shift in which scientific and epistemic images relinquish their original status in favor of different, genre specific semantics and functions. One of these functions is to serve as non-specific amplifiers of evidence for popular science texts.

Bio: Simone Heekeren studied Lingusitics, Psychology and New German Literature at RWTH Aachen from which she holds a M.A. degree. Since 2012, she is an academic researcher at the Institute for Language and Communication Studies at RWTH Aachen, where she works on her dissertation project about multimodal texts in science communication.

Prof. Dr. Jürgen Spitzmüller

(De)signing Authority: The Indexical Dimension of Scientific Graphic Design

Thu, 9.45 am

Graphics in scientific communication are not just a means to elegantly convey, condense or systematize 'facts'. As any form of communication, they are bound to, or enregistered in, the discursive context of previous uses. Graphics, thus, do not only visualize information (in an iconic or symbolic way), they also contextualize (i.e., index) the practices, communities and genres of particular fields and thereby serve as effective emblems of scholarly identity.

My paper will elaborate on this indexical or emblematic dimension of scientific graphic design. Drawing on sociolinguistic theory of social positioning and identification, I will argue how graphic design is a disciplinary practice in the double sense of the word.

Bio: Jürgen Spitzmüller holds the chair of Applied Linguistics at the University of Vienna, Department of Linguistics. His main research interests are located in the fields of language ideology, visual/scriptal communication and media discourse. His latest publications cover a monograph presenting a sociolinguistic theory of graphic variation (Graphische Variation als soziale Praxis. Eine soziolinguistische Theorie skripturaler 'Sichtbarkeit'. Berlin and Boston 2013) and a textbook introducing to linguistic discourse analysis (Diskurslinguistik. Eine Einführung in Theorien und Methoden der transtextuellen Sprachanalyse. Berlin and Boston 2011), recent papers primarily cover discourse theory and multimodal scriptality.

Prof. Dr. Hartmut Stöckl

Multimodality in a Diachronic Light. Tracking Changes in the Text-Image-Relations of Popular Science Writing

Thu, 11 am

The rise of multimodal linguistics has especially promoted work on the linkage between language and image. Little is known, however, about the historical development of such text-image-relations.

Using the MIT Technology Re¬view as an exemplary popular science medium, I intend to sketch out both the relative stability and major changes in text-image-relations across time. The historical development primarily shows in changing repertoires of genres and multimodal rhetorical clusters but also in their structural diversification. Situated in the sociolinguistic paradigm of mediatisation,

the exploratory study also reflects on factors impacting on multimodal structures, such as media technology, institutional practices and economic contexts. One of the most obvious effects of mediatisation on science journalism would seem to be the increase and diversification of visuals.

Bio: Hartmut Stöckl is full professor of English and Applied Linguistics at Salzburg University, Austria. His main research areas are in semiotics, text linguistics/stylistics, pragmatics and multimodal communication. A recurrent theme surfacing in most of his work is a concern with a pluralistic theory of the multimodal text and effective analytical methods for uncovering its structures and styles. He is particularly interested in the linkage of language and image in modern media, typography and an aesthetic appreciation of advertising. His latest (co-)edited volumes are: Bildlinguistik (2011, Erich Schmidt), Medientheorien und Multimodalität (2011, Herbert von Halem), and Werbung – Keine Kunst!? (2012, Winter). He is currently editing the handbook Language in Multimodal Contexts (2016, de Gruyter) in the 21-volume series Sprachwissen.

Prof. Dr. Stefan Hauser, Prof. Dr. Martin Luginbühl, Jana Pflaeging
How to Picture an Argument: New Visual Approaches to the Description of Argumentative Competence in Conversation Analysis

Thu, 11.45 am

This contribution focuses on the endeavour to visualise linguistic theories and empirical findings of linguistic analysis that are typically encoded verbally in relatively logocentric academic texts. Elaborate infographics, that have been designed for the SNF-funded research project Argumentative Competence at School Level: Contexts, Requirements, Processes of Acquisition, shall serve to illustrate this approach. Dealing with conversational negotiations at school level, the graphics integrate the argumentative functions of students' utterances, the perspectivization of aspects introduced, as well as communicative patterns of establishing reference to previous turns. The visualisations seem to meet the requirements of sequentiality, temporality, and interactivity as basic analytic dimensions in conversation analysis. By providing new visual approaches to language data – approaches that often cannot be achieved by means of traditional written tran-

scripts –, we hope to contribute to a visual turn that has fundamentally changed science communication and, has long been overdue in the humanities.

Bio (presenter): Since 2014, Jana Pflaeging is a binational PhD student at the Universities of Halle-Wittenberg (Germany) und Salzburg (Austria). Since 2011 she works in the field of visualizing linguistic theories. From 2005 to 2014, she studied English and American Studies, Art, Pedagocial Psychologie und Pedagogy at the University Halle-Wittenberg and the Burg Giebichenstein Hochschule für Kunst und Design Halle.

Alexandra Hamann, Marc Schleunitz, Prof. Dr. Reinhold Leinfelder, Jens Kirstein
Communicating Science Through Comics

Thu, 2.00 pm

The combination of text and image give comics a huge capacity of presenting complex information in an appealing way without having to simplify the content. Using narratives and personification can open new horizons in the process of thinking.
In our presentation we will show three examples of scientific comic books that have been published by Alexandra Hamann and Reinhold Leinfelder together with different co-publishers and partners. The first is a comic-adaption of the German Advisory Council on Global Change (WBGU) flagship report »World in Transition – A Social Contract for Sustainability« on climate change. »The Great Transformation« is a comic anthology to contextualise and connect objects of the permanent exhibition of Deutsches Museum Munich with the special exhibition „Welcome to the Anthropocene", entitled »The Anthropocene Milestones«. The third example is a sneak preview of our latest work »The Anthropocene Kitchen" where we examine the kitchen as a site of energy, resource, cultural and societal exchange and interaction with the Earth System.

Bio (presenters): Alexandra Hamann coordinates the production of the comic publication »The Anthropocene Kitchen« and is responsible for creating the storyboards. Since 2001, she has headed a communication agency specialising in educational media and science communication. She has published and authored science-based, non-fiction comics, such as »The great transformation. Climate – Can we beat the heat?« and the comic anthology »Anthropocene – 30 milestones in a new age on Earth«.

Marc Schleunitz is a biologist and political scientist. His interests are the connections between the utilisation and diverse transformations of the environment by people, their ecological consequences and the underlying economic processes. Marc Schleunitz is a Research Associate in the base project »The Anthropocene Kitchen«. His research work at the Interdisciplinary Laboratory at the Humboldt University focuses on global food supply and the accompanying material flows and use of resources.

Abstracts Session Three

From Speech to Presentation: Rhetoric in the Visual Domain

Chair: Prof. Dr. Dietmar Till

Fabienne Kilchör, Prof. Dr Arne Scheuermann
The Visual Rhetoric of Presentation Slides in the Archaeological Sciences

Thu, 2.30 pm

Archaeological knowledge is based on finds and findings – ceramic shards, burial objects, wall remnants and writing tablets etc. At excavations, the controlled destruction of the findings is documented scientifically and brought into a new form by means of descriptions, photographs, and drawings of finds, ceramics, plans and profiles. The excavation documentation then undergoes a further "translation" through the transfer of its knowledge into the specialist community.

Using selected archaeology presentation slides, we offer a visual analysis of practical, aesthetic and symbolic functions: information architecture, communication forms, information density, design grids, typography, narrative elements and visual vocabulary. This analysis itself utilises methods of information design and makes visible the fundamental, rhetorically effective conflicts of objectives that amateur graphic design can cause in the knowledge transfer process. We offer an alternative concept with a new archaeological data visualisation intended to minimise such conflicts. Using an analysis tool with epistemic character, complex issues and large masses of data are here conveyed in a compact, vivid manner.

Bio: Dipl.-Des. HES Fabienne Kilchör (*1982) has been the Head of Studies of CAS Data Visualisation at the Bern University of Arts BUA since 2016. Her dissertation at the Graduate School of Arts Bern (GSA) is on methods of information design for communicating the findings of archaeological documentation. Since 2007 she has been active as an independent communication designer (with Emphase in Lausanne). She has been involved in various research projects in the fields of communication design and knowledge visualisation. She has participated in specialist conferences and publications, e.g. on graphic reading, "Text als Bild" (2016) and information design, "Visualizing Excavations Records by Means of Information Design" (2014); her current research topics include visual text analysis, graphic reading, sign systems, information design and typography.

Prof. Dr Arne Scheuermann (*1973) is a Professor in Design Theory who has been Head of the Research Area of Communication Design at the Bern University of the Arts (BUA) since 2005. His doctorate was on film as rhetorical design ("Zur Theorie des Filmemachens", 2009). He has been involved in various research projects in the areas of design and rhetoric and in health care communication design. From 2016 to 2019 he will be head of the SNSF Sinergia joint research project "Swiss Graphic Design and Typography Revisited". Since 2014 he has been the President of the Swiss Design Network of the Swiss design research institutes (SDN). He has organised specialist conferences and publications, and was the joint editor of Design als Rhetorik with Gesche Joost (2008) and the Handbuch Medienrhetorik with Francesca Vidal (2016). His current work is focussed on the history of graphic design and the visual rhetoric of counterterrorism, LEGO.

Prof. Dr. Hans-Jürgen Bucher

Visualizing Knowledge: A Plea for a Multimodal Rhetoric in Science Communication

Thu, 3.15 pm

Integrating digital presentations like PowerPoint into science communication, has transformed the classical lecture into a multimodal discourse, which combines several semiotic sign systems like pictures, graphics, text, spoken language, design, gestures, acts of pointing etc. This multimodal orchestration of science communication on the one hand expands the speaker's potentials for transferring knowledge and enables more interactive learning processes. On the other hand this mediatization confronts the recipient with two problems simultaneously: First, the problem of selection: What are the relevant units of the communication? Second, the problem of meaning-making: How do these communicative units cohere and what do they mean? Data of an eye tracking study with about 60 scientific lectures in different disciplines will be used to demonstrate the strategies for solving these types of problems. As a consequence I will plead for expanding a rhetoric of speech into a multimodal rhetoric of science communication.

Bio: Hans-Jürgen Bucher, born 1953, is professor for Media Studies at the University of Trier. He studied German Studies and Sports Science at the University of Tübingen. He wrote his dissertation in 1986 about press communication from a linguistic perspective. Afterwards, he worked as a newspaper and radio journalist. After teaching and research activities at the universities of Tübingen, Augsburg and Leipzig, he become professor for Media

Studies at the University of Trier in 1997. In 2007, he co-founded the DGPuK-Fachgruppe „Mediensprache – Mediendiskurse" and was its speaker.

Main research: Empirial reception research (inkl. Eyetracking), qualitative media analysis, internet und journalism, multimodality, science communication, political communication. Diverse empirical research project supportet by DFG, Volkswagenstiftung, BMBF.

Prof. Dr. Jaap de Jong
Look and behold! Visual Props in TED Talks

Thu, 4.30 pm

TED Talks can be seen as a modern form of popularization of science. In these popular talks scientists and other professionals endeavor to communicate their findings to a non-expert audience, using well prepared visualizations. These visualizations may perform rhetorical functions like informing, entertaining, adding impact and persuading, and not in the last place: making the audience remember (information retention).

I will first present an analysis of the use of these techniques in the 16 most popular TED talks, especially in the light of the multimedia learning theory of Mayer (2005, 2009) and on the retention function. The main focus will be on the rhetorical technique of the visual properties. I will discuss examples from TED talks and political rhetoric: which functions do these props perform, under what conditions, and moreover: what are the risks of these theatrical tools of visualization?

Bio: Prof. Dr. Jaap de Jong is professor of Journalism and New Media at the Faculty of Humanities of Leiden University (The Netherlands). He lectures in rhetoric, style in politics and in journalism. As a researcher he wrote books and articles on the exordium and the peroration of (political) speeches and of stylistical and rhetorical aspects of journalism.

He is editor of Dutch language journal Onze Taal. He is co-founder of the Leidse Werkgroep Retorica and organizer of the second Rhetoric in Society Conference in Leiden (2009).

Prof. Dr. Jens Kjeldsen
Knowledge Design as Persuasive Design. The Rhetoric of Digital Presentation Tools in Politics.

Thu, 5.15 pm

The political speech seems to be the last resort for oral communication without the use of digital presentation tools such as PowerPoint. At least it used to be. President Barack Obama is arguably the best orator in American politics, however, when the president delivers his State of the Union speeches, The White House Administration offers a so-called Enhanced version of the speech online. In this version the television images of Obama delivering the speech are accompanied by pictures, graphs and tables used to convince the audience about the factual state of affairs in the US. This paper will explore the rhetoric and epistemology of such visual knowledge in oratory.

Bio: Jens E. Kjeldsen is professor of rhetoric and visual communication at the University of Bergen, Norway. He has worked extensively on political speechmaking, visual rhetoric and digital presentation tools. Kjeldsen is president of Rhetoric Society of Europe as well as co-founder and previous long time editor of Rhetorica Scandinavia, the Scandinavian journal for the study of rhetoric.

Abstracts Session Four

Knowledge on Display: Illustration and Effect

Chair: PD Dr. Olaf Kramer

Prof. Eva Vitting
Infographic Interfaces for Dynamic Data

Fri, 9.00 am

In data visualizations, humans are responsible for generating the image: They decide which values and references are important, and how these are to be graphically portrayed. All information is encoded in a contextually appropriate "visual variable" (see Bertin), and the real-time visualization's reaction to change is designed in such a way that important elements always receive priority attention. The potential of "big data" in automatic production is currently being discussed under the buzzword of "Industry 4.0". Other fields are also gathering mass data and looking for innovative ideas for its use. Designers are enhancing interdisciplinary research teams in this area, using generative design to make data clear and thus more accessible.

Particularly helpful synergy effects emerge when visualizations present a large number of parameters at once which are evaluated differently or whose interactions have not yet been fully explored. Translation into visual form aids experimental processes, and when integrated into interactive tools can enable new findings.

Bio: Eva Vitting has been Professor of Design and Applied Color Design at Aachen University of Applied Sciences since 2008. After completing her degree at Darmstadt University of Applied Sciences in 1995, she worked as a communication designer in a variety of interdisciplinary networks, and was responsible for the conception and design of print and electronic media on behalf of various well-known companies. Her research at Aachen University of Applied Sciences focuses on visual encoding in information design. From 2012 to 2015 as part of the BMBF research project "ProSense", her team worked with RWTH Aachen University and other consortium partners to design an iPad app to aid planning and control in automated production.

Prof. Dr. Jakob Steinbrenner
Sorting „I" „N" „F" „O" „S"

Fri, 9.45 am

One of the main basic human skills it the ability to learn how to sort things. Even our whole work as scientists also consists of sorting our texts. My maybe not very original assertion is that e.g. graphic design, the production of scientific posters is nothing else but a specific way of sorting. In the following I will start to introduce different forms of sorting, I will then present some basic thoughts about sorting and will finally try to transfer the presented sortings to the main topic of the conference.

Bio: Jakob Steinbrenner, born in Frankfurt. From 1976 to 1982 he was working at the Städtischen Bühnen Frankfurt amongst others as assistant director with Hans Neuenfels. He studied philosophy, German studies and art history in Frankfurt and München. Dissertation in 1994. he habilitated in philosophy in Munich in 2002. Visiting professor at the LMU München, the University of Stuttgart and the University of Münster. Since october 2012, he is academic researcher at the Institute for Philosophy at the University of Stuttgart.

Julius Wiedemann
How Less Might Be More

Fri, 11.00 am

How do we get down to the essentials of any message? How do we edit down from all the information we have available to answer the questions we posed to ourselves and to others? After 15 years and over 50 books, I find increasingly important to determine parameters for a conversation beforehand, in order to be able to construct a meaningful conversation. As an editor, I have to put myself in the position of the reader, and imagine the hard questions before a book even exists. And there are methodologies that can help us both with the quality control of a publication, as well as the assurance of a depth that is expected from the reader.

Bio: Julius Wiedemann was born in Brazil, where he studied design and marketing, and has lived and worked in Japan, Germany and in the UK. He is the Executive Editor for Design and Pop Culture, at TASCHEN Publishing House, has edited over 50 titles, is a regular contributor to magazines, and has been in the jury of several design awards all over the world. Wiedemann's publications have sold over 1,5 million copies worldwide, and among his

most popular titles are Information Graphics, Understanding the World, Product Design in the Sustainable Era.

Dr. Willem Koetsenruijter
When Attractiveness and Comprehensibility Collide: Classifying Suitable Information for Infographics

Fri, 11.45 am

Most editors in a newsroom decide at least a few times a day that a specific unit of information is better presented in the form of an infographic. While other information apparently does better in text. Against the background of three theoretical schools in infographics making, I show that a so called spatial relations criterium can help to underpin the decision whether to add an infographic to a news story. And that it helps to distinguish and balance the three goals of an infographic: informing, persuading and entertaining.

Bio: Willem Koetsenruijter (1958) is an assistant professor at the Journalism & New Media Department of Leiden University. He published about Visual Language, Numbers in the News, News photography and methods of Journalism Studies. Before he came to Leiden University he was a journalist, writer and editor of magazines.

Gavin Ambrose, Luke Pendrell
A World in Vertigo

Fri, 2.00 pm

'Ours is a world in vertigo. It is a world that swarms with technological mediation, interlacing our daily lives with abstraction, virtuality, and complexity.'[1]
As a society we are increasingly preoccupied with information. Every day, we create 2.5 quintillion bytes of data — so much that 90%[2] of the data in the world today was created in the last two years alone.
Finance, social media, images and phone records to name just a few. This is big data. But all this information does not necessarily mean more knowledge. Phenomena such as the 'infographic' exemplify the veneer of visual complexity masking an absence of content, an illusion of information.
What strategies can we develop to cope with such relentless data, to make sense of it all and to filter out the garbage?

References
[1] Reed, P. (2015) Xenofeminism: A Politics for Alienation – in Dea ex machina (as/with Laboria Cuboniks), Merve, Berlin. Available at http://www.laboriacuboniks.net/ [Accessed 6th February 2016].

[2] CBS (2013) Cat videos take over Internet, marketing world. Accessed at http://www.cbsnews.com/videos/cat-videos-take-over-internet-marketing world [Accessed 6th February 2016].

Bio: Gavin Ambrose is a practising Graphic Designer and Senior Lecturer at the University of Brighton. He has produced a series of educational and design books for Bloomsbury Press. In 2015, his book of interviews with design contemporaries, Design Genius was nominated for Scholarly, Academic & Reference title at the British Book Design and Production Awards.

Luke Pendrell is an artist and writer whose work examines issues of memory, understanding and the construction of knowledge.
A founding member of the digital art collective Antirom, his work has been exhibited internationally since the mid 1990's and can be found in collections including the Tate artists book archive and featured in publications including The Happy Hypocrite (2009, Book Works). Work has been exhibited at amongst others: Le Salle de Legion d'honneur, Paris; MoMi, New York and The Barbican, Tate and ICA galleries in London.

Prof. Dr. Ralph Tille
From Image Characters to Infographics: Why Emojis Can't Explain Everything

Fri, 2.45 pm

Image characters are not an indispensable part of today's communication. In addition to illustrative or emotionalising effects, symbols, pictograms and graphics can visualize and represent also concepts or situations. The Emoji pictrograms already reached the status of „Word of the Year 2015". Twitter, WhatsApp but also Facebook are showing us the usability and simplicity of this signs. If we take these „talking pictures" and their parentage in the early 20th century seriously, we should understand better how they work and which possibilities and limitations are connceted during the information transfer process. Extending the context of use of visual information exchange, we recognize that graphs have a variety of use cases. Information graphics and especially their interactive species provide great potential for information presentation, but also enable serious misinterpretations. Possibilities and limitations during drafting, designing and using image-linguistic elements and infographics are illustrated with examples.

Bio: In 1997 Prof. Ralph Tille obtained his diploma as an Industrial-Designer at HfG Pforzheim and is still working as a freelance designer. He was academic researcher at the „Institut für Ergonomie und Designforschung (IED)"/ Univ. Duisburg-Essen. He switched to Daimler AG and lead research projects in the field of human machine interfaces. Since 2006 he was Professor of the study course Innovation- and Productmanagement/FH Upper Austria. 2007 he was appointed as Professor of Interaction Design at Stuttgart Media University. Since 2014 he is Study Dean and leads the research of Interaction Design. His research activities are: Interactive Infographics, Information Experience and Design Methods.