Event Schedule
9 May, 2023
DESIGN AND SCIENCE, THE SWISS CENTRE FOR DESIGN AND HEALTH

All times below are Swiss time.

17.30 – introduction (Jan)

Introduction to Centre and Welcome, Jan Eckert, Director, Living Lab at the Swiss Centre for Design and Health and Introduction of Leslie Atzmon, Jan Eckert
10 minutes

17.40 – Design and Science and the collection

Leslie Atzmon, Professor Graphic Design and Design History, Eastern Michigan University, USA
Editor, *Design and Science* (Bloomsbury 2023)
10 minutes

Design and Science features sixteen historical and contemporary essays—in four themed sections—that consider various approaches to the relationships between design and science. The essays in the first section, "Visual Metaphor, Conceptualization, and Modeling Ideas in Design and Science," examine how both science and design use visual metaphor, visual thinking, and modeling to help unveil tacit processes and obscure concepts. The second section is devoted to biodesign and biomimicry. In the former, biological organisms are integrated with design in solutions to real-world issues, while in the latter design is inspired by living systems. In the third section, "Maker and Users in Design and Science," the essays consider user-focused biodesign projects. Other essays in this section consider biodesign projects that are devised by "citizen scientists," non-scientists who collaborate with scientists. Finally, scientific data that is fashioned by design can reveal aspects of scientific systems to makers and users. In the fourth section, "Data Manifestation in Design and Science," the essays contend with the visualization and communication of scientific data. In my talk, I will consider what I learned about interdisciplinary work in design and science from doing this project.

18.00 – video reel, 10 minutes

Purifungi, Audrey Speyer
Cinematic Data Visualization, Catherine Griffiths
Agile Artifacts: Designing the Incomplete, Daniel Eckert

18.10 – Panel discussion

Introduction into paper 1: 10 min, in person

Lenses of Invention: A Collaborative Perspective on Design Leadership
Diana Nicholas, Associate Professor, Director MS Design Research, Department of Architecture, Design and Urbanism, Antoinette Westphal College of Media Arts & Design, Drexel University, Philadelphia

Abstract
Design leadership is necessary for the future of our world and will shape the future of our creative disciplines. This short talk will explore design and science as forces to create disciplinary change. My chapter "URBN STEAMlab and Biophilic Environments: Science, Art, and Design," written with microbiologist Shivanthi Anandan, is focused on a set of design- and science-based processes that inform the creation of the world at all scales—in particular, the scale of the healthy home. After more than ten years of collaborating, at URBN STEAMlab we have moved among human-centered design, bench science, and technological development to enhance the creation of our home-based interventions. In this talk, I will describe our long-term collaborative practice and the resulting project. I will lay out how our project methodology and outcomes dissolve

disciplinary boundaries and embody similar processes in design and science. *We are currently deeply interested in this collaborative practice as a new culture of creative thinking and design leadership.* As collaborative designers, we believe the practice of design leadership arises in part from critical and change-oriented design and STEM (Science Technology Engineering and Math) processes.

Introduction into paper 2: 10 min, via zoom

From the Mind's Eye to the GUI

Michael Chandler, M.D., Allery and Immunology, founder Medical Digital Developers, LLC, New York

Abstract

In my chapter for *Design and Science* I argue that both physicians and designers reason by processing verbal, visual, and data-generated clues through the apparatus of the mind's eye. While designers use this methodology to imagine possible solutions for design outcomes, physicians utilize the conclusions drawn from this Bayesian medical analysis process to visualize patient treatment plans. The success or failure of medical treatments then serves as feedback that reshapes treatment. In this talk, I consider how dynamic image-based digital medical records—such as real-time videos of medical procedures—can facilitate Bayesian analysis, enhance medical narratives, allow written prompts that augment the data, and enrich diagnosis. Dynamic image-based digital formats can also be used to analyze multiple patient records with Artificial Intelligence algorithms. AI can conglomerate data from thousands of patients and provide feedback on diagnosis processes for medical conditions. I will discuss how other physicians and I use digital video medical hardware and software developed by my company, Medical Digital Developers, LLC to accomplish these objectives.

45 min discussion Dr. Leslie Atzmon, Moderator
with Dr. Michael Chandler (zoom), Professor Diana Nicholas (in person), Dr. Minou Afzali, Head of Research, Swiss Centre for Design and Health (in person), and Dr. Jan Eckert (in person)

around 19.00: wine and snacks

BIOGRAPHIES

Minou Afzali is Head of Research at the Swiss Centre for Design and Health— Switzerland's national Competence Centre at the interface between People, Healthcare, Design and Architecture. Prior to that, she was Deputy Head of the Institute of Design Research and Professor of Social Design at Bern Academy of the Arts (HKB). She was coordinator of the interdisciplinary research group Health Care Communication Design (HCCD) of the Bern University of Applied Sciences including experts from the fields of design, architecture, nursing, medical informatics and economy.

Afzali holds a PhD in Social Anthropology from the University of Bern where she wrote her dissertation on the role of design in culture-specific nursing homes in Switzerland. She received her degree in Product Design (diploma) at Hochschule für Gestaltung Offenbach (D). Prior to that she studied at Basel School of Design. Afzali worked for ten years as a professional designer in the area of product, furniture, exhibition, and communication design.

Leslie Atzmon is a designer, design historian, and design critic who teaches at Eastern Michigan University in the US. She holds a BS in Biology and a BFA in Graphic Design from the University of Michigan, an MFA in Graphic Design from Eastern Michigan University, and a PhD in Design History from Middlesex University in the UK. She has published in the journals *Eye*, *Design and Culture*, *Communication Design*, and *Design Issues*. Atzmon edited *Visual Rhetoric and the Eloquence of Design* (Parlor Press 2011) and co-edited *Encountering*

Things: Design and Theories of Things (Bloomsbury 2017) with industrial designer Prasad Boradkar and *The Graphic Design Reader* (Bloomsbury 2019) with Teal Triggs of the Royal College of Art.

Atzmon's most recent work is on the topic of design and science. In 2016, she was a Fulbright Fellow at Central Saint Martins in London investigating the topic of Darwin and design thinking. In 2019, Atzmon curated an exhibition, entitled *Design and Science*, which ran at the University Gallery at Eastern Michigan University from September 11 to October 17, 2019, and then at Esther Klein Gallery at the Science Center in Philadelphia from February 13 to March 28, 2020. She is currently working on a monograph on *fin de siècle* design and science.

Michael Chandler completed his undergraduate studies at the University of Michigan and his medical studies at Wayne State University School of Medicine in Detroit. He went on to train in internal medicine and allergy-immunology at Northwestern University Medical School in Chicago. He is currently affiliated with the Weill Cornell Medical School and is a member of the attending staff at New York Presbyterian Hospital in New York City. Dr. Chandler has maintained a lifelong interest in history and medical history. He was also an early adopter of digital medical technology and has employed innovative technologies for the benefit of his practice and patients. Dr. Chandler is a co-founder of D Scope Systems, a digital medical video archive and analytic system for endoscopic procedures. The D Scope Systems team is currently working on exploring the role of cutting-edge medical technologies on a scale beyond the individual patient.

Daniel Eckert currently works as a CMC manager at BioNTech SE, a company he joined in early 2022. He coordinates CMC operational activities for drug substance manufacturing across different units, e.g., process and analytical method development, assessment of critical quality attributes and critical-process parameters manufacturing. Eckert holds a BSc in Biochemistry (Hochschule Mannheim University of Applied Sciences, Mannheim, Germany) and a MSc in Molecular Biotechnology (FH Campus Wien University of Applied Sciences, Vienna, Austria). During his studies at the Children's Hospital at Westmead in Sydney, Australia and at the Medical University of Vienna, Austria, his research focused on the electrophysiology of the heart, investigating the (mal)function of ion channels in dystrophic heart muscle. After his academic research, Eckert worked in the field of gene editing. In 2016 he joined Horizon Genomics in Vienna where he used the cutting-edge CRISPR/Cas9 technology to produce knockout cell lines. As part of the company's R&D team he helped to develop Induced Pluripotent Stem Cells carrying tumorigenic point mutations or fluorescent tags at specific target proteins of these cells.

Jan Eckert is Head of the Living Lab at the Swiss Center for Design and Health. Previously Jan worked as Head of the Design Unit at the University of Gothenburg, as Full Professor and Head of the Master's Programmes in Design, Service Design and Digital Ideation at Lucerne University of Applied Sciences and Arts, as a Senior Researcher at Lucerne's Competence Center for Typology & Planning in Architecture, as Senior Strategy Consultant at Mint Architecture in Zürich, Switzerland, and as an Interior Architect both in Switzerland and Germany. Eckert holds a PhD in Design Sciences obtained from IUAV University of Venice and an international Masters Degree in Interior Architectural Design from the University of Applied Sciences in Stuttgart, Germany, the Edinburgh College of Art, Scotland, and the University of Applied Sciences and Arts in Lugano, Switzerland. Jan studied Interior Architecture at the University of Applied Sciences in Stuttgart, Germany and at the École Nationale Supérieure des Arts Décoratifs in Paris, France.

Catherine Griffiths is a media artist and researcher exploring critical code and algorithmic aesthetics in the context of machine learning ethics. By creating simulations, short films, and software applications, her hybrid theoretical-creative research attempts to make palpable invisible computational forces that shape power and social dynamics. Drawing on the legacy of generative art, the rise in artificial intelligence, and critical theory, she seeks to contribute to an emerging arts knowledge.

She received her PhD in Interdisciplinary Media Arts from USC's School of Cinematic Arts, her MArch in Architectural Design from The Bartlett, University College London, and her BA in Fine Art from the University of the Arts London. Her research has been exhibited in the Centre Pompidou, Paris, the Arnolfini Centre for Contemporary Arts, Bristol, and the Tokyo Game Show at Geidai University, Tokyo. Her research has been published in the *Journal of Digital Culture and Society* and the *Journal of Science and Technology of the Arts*. She is currently an assistant professor at the University of Michigan with a joint appointment between Taubman College of Architecture and Urban Planning and the Digital Studies Institute.

Diana Nicholas holds a Bachelor of Architecture from Carnegie Mellon University and an MFA from the University of the Arts. She is a socially responsive designer and researcher. A registered architect, fine artist, and certified interior designer, her research work is focused in two interconnected areas: 1) Design and Design Processes: this includes inter-professional creative collaborations with health and STEM researchers that include mentorship of novice designers in advanced manufacturing, designing, ideating, and advocating for change, 2) Focusing on home as a base for urban families: this involves defining conceptions of home and developing health-oriented solutions for urban substandard housing and housing insecurity issues in the US.

In 2013 Nicholas established Integral Living Research (ILR), which supports research on housing and process, as well as inter-professional teaching that connects scholarship, teaching, and service. ILR mentors students in the Master of Science in Design Research program, of which Nicholas is the founding director. Funded ILR work includes Garden Fresh Home (Patent Pending) with microbiologist Professor Shivanthi Anandan, and Health and Design Research with epidemiologist and biostatistician Yvonne Michael. Nicholas's work has been published and exhibited in a variety of academic and professional journals including ARCH IN-Form, Context, ARCC, and ACSA.

Audrey Speyer completed her undergraduate work in textile design, and MA degree in Materials and Design at ESAA Duperré in Paris. She earned a second graduate degree, MA Material Futures, at Central Saint Martins in London in 2016. Speyer is interested in crossover projects between design and science through a common focus on the environment. For her MA Material Futures, Speyer researched the biotechnology of fungi that break down contaminants found in soil. For her degree project, Speyer designed PuriFungi's MycoPod—a bioremediation system using mushrooms—while working with a laboratory in the UK and with scientific researchers from Kew Gardens (UK, Richmond) and CNRS (France, Paris). Speyer exhibited PuriFungi in Milan, Venice, London, and Paris in spring and summer 2016.

Speyer deployed the mycoremediation technique on cigarette butts in order to treat this toxic waste and transform it into a clean biopolymer. She created myco-ashtrays made of mycoremediated cigarette butts, for which she won the European prize (DEMO Interreg) in 2019. Her work was published in *75 Designers for a Sustainable World* (Editions de La Martinière), and on the European Circular Economy Stakeholder Platform. In 2019, she founded the company PuriFungi and patented her technique of treating cigarette butts with mycoremediation and recycling them into a biopolymer. Since then, Speyer has implanted PuriFungi's collection and recycling systems, and has distributed her myco-ashtrays at various festivals, companies, and municipalities in Belgium, France, and Luxembourg.