Research \ Design   @proxyjesse

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Drawing from my design training, I integrate design research with philosophical analyses to unfold phenomena associated with emerging technologies; such as sense-making practices, design affordances, and how in particular technologies transform the appearance of the world and the things and people in it. I particularly enjoy deep dives into the past and present trajectories of technologies such as AI, and what traces from these tell us about the future such technologies will bring about. I publish at and review for ACM CHI, DIS, CSCW and GROUP; and am a member of ACM as well as the Society for Philosophy of Technology. Currently, I'm a PhD candidate in Philosophy of Technology at the University of Twente.

My interdisciplinary education as a designer, practice-based researcher and philosophy student is reflected in my professional experience. I have worked as a graphic designer, photographer, and research associate (and a bookseller, nurse, and briefly, on a scrapyard). Along this trajectory, I have enjoyed the priviledge to apply my curiousity across fields such as design theory, computer science, philosophy of technology, ethics, machine learning, cultural theory, anthropology, data visualization and human-computer interaction. I have studied abroad, attended and presented at international conferences, led software development projects, conducted qualitative and quantitative HCI research, taught students and recruited team members.

Furthermore, I have greatly enjoyed and benefited from networking, bringing together a diversity of scholars at all stages to advance mutual interests. Recently, this has resulted in my first paper at ACM CHI on understanding machine learning (ML) uncertainty as a design material. This project, further illustrated below, exemplifies my synthetic approach to design research and philosophy of technology; bringing about conceptual as well as tangible outputs that bridge disciplines, domains and stakeholders.

Currently: **PhD Candidate**

Philosophy of Technology,
University of Twente

2017-2022

Supervisors:
Prof. Dr. ir. Peter-Paul Verbeek
Dr. Michael Nagenborg

The philosophical framework of **post-phenomenology is applied in human-computer interaction (HCI), engineering and ethics**, as it argues that technologies mediate human-world relations, and investigates how practices and experiences are brought forth by actual technologies. However, post-phenomenology struggles to account for information technologies, as these usually withdraw from experience. This leads to the objective of my PhD research: **how can we enable post-phenomenological AI studies?**
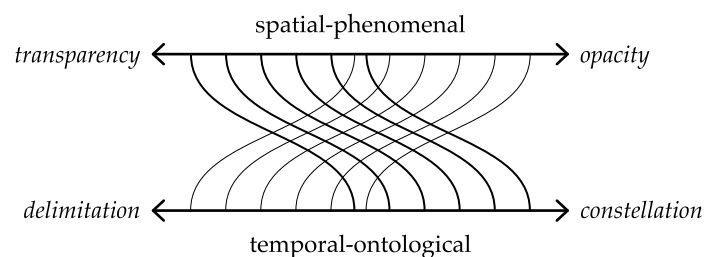
My main theoretical contribution is an **expanded model of technological mediation** (see above) which allows for analyses of how technologies, even if they do not 'appear' in experience, still shape the latter. In part, I derive this model from theoretical work. However, a core part of my PhD research lies also in **deploying design research as philosophy-in-practice to provoke post-phenomenology to account for AI**. I briefly showcase two such projects on the next page.

Publications (selected)

Benjamin, Jesse Josua. Forthcoming. '**What in the World? The Site of the Ethical in Human-AI Relations**'. Journal Paper based on **IACAP/CEPE '21** submission.

Benjamin, Jesse Josua. Forthcoming. '**Three Post-Phenomenological Design Projects on and with ML Technologies as Philosophy-in-Practice**'. Accepted to **IASDR '22**.

Benjamin, Jesse Josua, Arne Berger, Nick Merrill, and James Pierce. 2021. '**Machine Learning Uncertainty as a Design Material: A Post-Phenomenological Inquiry**'. In Proceedings of the 2021 CHI Conference on Human Factors in Computing System**s**, 1–14. **CHI '21**. New York, NY, USA: Association for Computing Machinery. https://doi.org/10.1145/3411764.3445481.

Entoptic Field Camera (ongoing)

The lastest project consists of an actual prototype. Inspired by the phenomenon of skies in photos of the 2020 Californian wildfire (i.e., deep reds appeared blueish-grayish), I have prototyped a GAN-driven camera web application which makes this 'reality-autocorrect' explicit. Photos taken by a user are sent to API for 'development', and a synthetic output image is returned. Currently, I am conducting a field study with collaborators to probe how we can understand ML technologies better as a uniquely generative design material.

→ Benjamin, Forthcoming.

ML Uncertainty as a Design Material

In this project, I conducted post-phenomenological analyses of four projects from different methodological strands of design research in order to discern how ML technologies may be seen as a design material. Due to the probabilistic techniques employed, I specifically centered on model and data uncertainty. From the analysis of human-technology-world relations unfolding from the diverse artefacts, scenarios and fictions in existing design research projects, my co-authors and I derived three provocative shorthands as an initial vocabulary for ML uncertainty as a design material: thingly uncertainty, pattern leakage and futures creep.

→ Benjamin et al., 2021a.
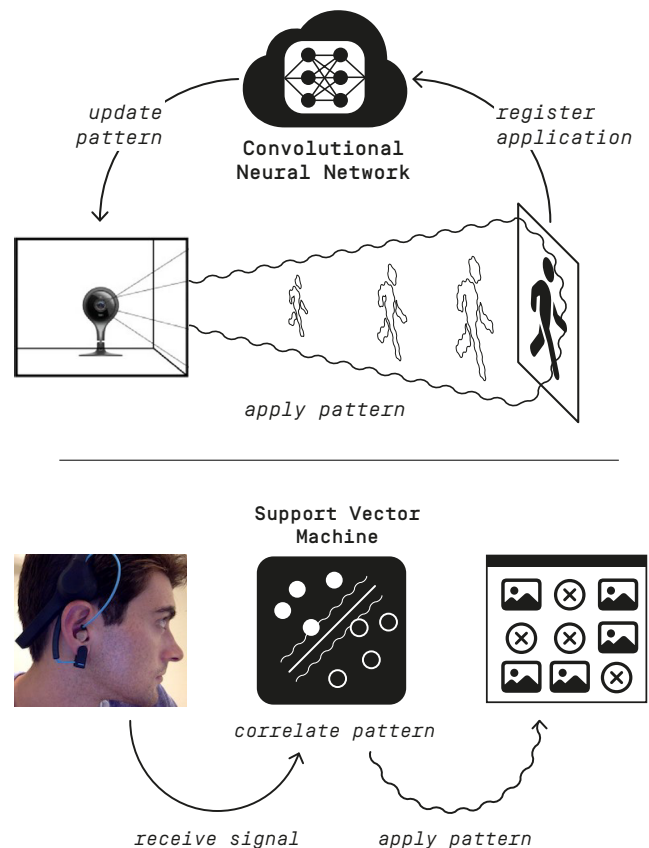
Previously: **Research Associate**

Human-Centerd Computing,
Freie Universität Berlin

2017-2020

Lead:
Prof. Dr. Claudia Müller-Birn

At the Human-Centered Computing (HCC) research group, I was employed in a publically funded project, collaborating with a major German natural history institution. The goal of the project was to **develop a data visualization for non-technical experts**, which was meant to (1) help researchers and staff working at the institution understand ongoing research and knowledge transfer, and (2) promote collaboration and knowledge exchange beyond hierarchical 'silos'. My role was not only to **head the project regarding communication, financial controlling, knowledge dissemination and research direction**, I was also the primary researcher and the only one **applying qualitative methods**. Accordingly, I **conducted contextual inquiries, explicitation interviews, and prototype testing**. From this qualitative research, I derived that an ML-driven visualization was best suited for the use case by showing thematic similarities. This led me to **study the research fields of interpretability and explainable AI, and conclude that a participatory design workshop with potential explanations for our prototype was required**. Accordingly, we deployed a co-design method (see next page), to find out how exactly our stakeholders reasoned about the proposed visualization, a paper on which has recently been accepted for ACM GROUP 2022.

More information on project IKON can be found here:
→ https://fub-hcc.github.io/IKON/

Publications (selected)

Benjamin, Jesse Josua, Christoph Kinkeldey, Claudia Müller-Birn, Tim Korjakow, and Eva-Maria Herbst. 2021. **'Explanation Strategies as an Empirical-Analytical Lens for Socio-Technical Contextualization of Machine Learning Interpretability'**. Accepted to **ACM GROUP 2022**. ArXiv:2109.11849 [Cs]. http://arxiv.org/abs/2109.11849.

Kinkeldey, Christoph, Tim Korjakow, and **Jesse Josua Benjamin**. 2019. **'Towards Supporting Interpretability of Clustering Results with Uncertainty Visualization'. TrustVis '19**. The Eurographics Association. https://doi.org/10.2312/trvis.20191183.

Sense-making of ML by non-ML experts

To understand how stakeholders would make sense of the proposed prototype, we developed a method for conducting co-design workshops with actual ML technologies. Designing bespoke transparencies that represented possible explanations (see right, above), participants engaged in a series of open tasks. We studied the patterns of behavior with the supplied artefacts, and gained invaluable insights for the further progression of our prototype regarding socio-technical factors that could not have been appreciated before.

→ Benjamin et al., 2021b.

Visualizing ML Uncertainty

At the same time as we concluded that an ML-driven visualization was needed, we predicted that it would be challenging for the non-technical stakeholders to make sense of it. In this regard, I collaborated closely with my team colleague, Dr.-Ing. Christoph Kinkeldey, to conceptualize and design an ML-driven visualization and associated explanation techniques; and in particular, the visualization of uncertainty.

→ Kinkeldey, Korjakow and Benjamin, 2019.

→ Kinkeldey et al., 2019.

Jesse Josua Benjamin
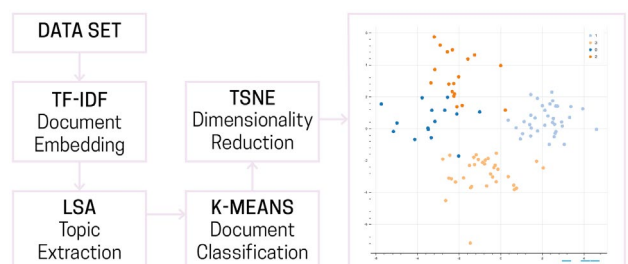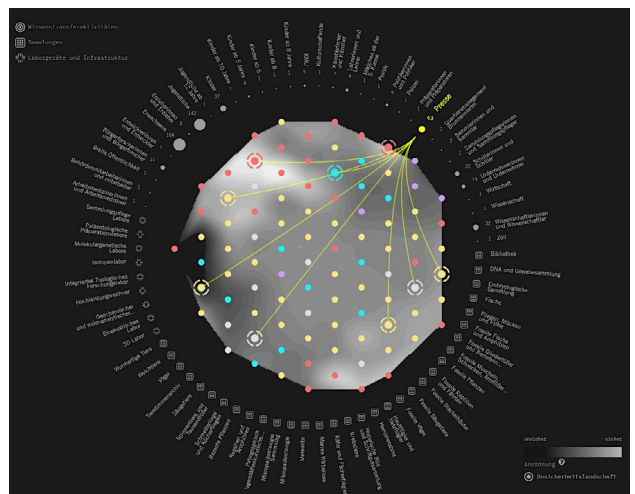
Born 18/4/1988

Education

PhD Candidate 2017-2022	**Philosophy of Technology** University of Twente Supervisors: Prof. Dr. Peter-Paul Verbeek Dr. Michael Nagenborg
Postgraduate Certificate 2019-2020	**Interdisciplinary Studies** New Centre for Research & Practice
Postgraduate Certificate 2017-2019	**Certificate for Postgraduate Didactics** Freie Universität Berlin
Master of Research 2015-2016	**MRes Arts & Cultural Research (Distinction)** University of Brighton Supervisors: Prof. Dr. Paul Sermon Dr. Jon Gilhooly
Bachelor of Arts 2013-2015	**Interaction Design (First)** Berliner Technische Kunsthochschule Supervisors: Prof. Dr. Christoph Windgätter Steffen Klaue
Vocational Training 2009-2012	**Communication Design (Diploma)** Berliner Technische Kunstschule

Professional

Research Associate 2021-2022	**Human-Computer Interaction,** Anhalt School for Applied Sciences
Research Associate 2017-2020	**Human Centered Computing,** Freie Universität Berlin
Freelance 2010-	**Graphic Design and Consulting** jesse-benjamin.com

Born 18/4/1988

Publications ([selected](#))

Benjamin, Jesse Josua. Forthcoming. 'What in the World? The Site of the Ethical in Human-AI Relations'. Journal Paper based on **IACAP/CEPE '21** submission.

Benjamin, Jesse Josua. Forthcoming. '**Three Post-Phenomenological Design Projects on and with ML Technologies as Philosophy-in-Practice**'. Accepted to **IASDR '22**.

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Benjamin, Jesse Josua, Christoph Kinkeldey, Claudia Müller-Birn, Tim Korjakow, and Eva-Maria Herbst. 2021b. '**Explanation Strategies as an Empirical-Analytical Lens for Socio-Technical Contextualization of Machine Learning Interpretability**'. Accepted to **ACM GROUP 2022**. ArXiv:2109.11849 [Cs]. http://arxiv.org/abs/2109.11849.

Benjamin, Jesse Josua, Claudia Müller-Birn, and Simon Razniewski. 2020. '**Examining the Impact of Algorithm Awareness on Wikidata's Recommender System Recoin**'. ArXiv:2009.09049 [Cs]. http://arxiv.org/abs/2009.09049.

Kinkeldey, Christoph, Tim Korjakow, and **Jesse Josua Benjamin**. 2019. '**Towards Supporting Interpretability of Clustering Results with Uncertainty Visualization**'. TrustVis '19. The Eurographics Association. https://doi.org/10.2312/trvis.20191183.

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Kinkeldey, Christoph, Claudia Müller-Birn, Tom Gülenman, **Jesse Josua Benjamin**, and Aaron Halfaker. 2019. '**PreCall: A Visual Interface for Threshold Optimization in ML Model Selection**'. In **CHI '19 Workshop Human-Centered Machine Learning**. Glasgow, UK. https://doi.org/10.17605/OSF.IO/XAZKT.

Benjamin, Jesse Josua, Claudia Müller-Birn, and Christoph Kinkeldey. 2019. '**Understanding Knowledge Transfer Activities at a Research Institution through Semi-Structured Interviews**'. Technical Report TR-B-19-02. B. Berlin: **Freie Universität Berlin.** https://refubium.fu-berlin.de/handle/fub188/25265?locale-attribute=en.

Hong, Ming-Tung, **Jesse Josua Benjamin,** and Claudia Müller-Birn. 2018. '**Coordinating Agents: Promoting Shared Situational Awareness in Collaborative Sensemaking**'. In Companion of the 2018 ACM Conference on Computer Supported Cooperative Work and Social Computing, 217–20. **CSCW '18**. New York, NY, USA: ACM. https://doi.org/10.1145/3272973.3274059.