MARTIN SCHUESSLER

HCI Researcher in Explainable Artificial Intelligence

+49 (0) 1757632474 me@mschuessler.de mschuessler.de Berlin, Germany

RESEARCH STATEMENT

My research lies at the intersection of **Human-Computer interaction** and **Explainable Artificial Intelligence**. I currently investigate how explanation techniques can improve users understanding of highly complex **computer vision** models. I also critically analyse how datasets and models for computer vision are created to make suggestions about more intelligible, value complaint and ethical usage of AI systems. I am a **mixed-methods** researcher, employing a wide range of methods including quantitative methods from Psychology and qualitative methods from Sociology.

PROFESSIONAL EXPERIENCE

PhD Candidate | Research Fellow

Criticality of AI Research Group, Weizenbaum Institute 01/2018 - Ongoing
TU Berlin, Berlin, Germany

As part of a newly formed interdisciplinary research group, my research focuses on empirical studies in the field of explainable artificial intelligence (XAI). I currently conduct human-grounded evaluations of gradient based attribution methods, example-based explanations and invertible neural nets.

- Several interdisciplinary publications with machine learning experts, legal scholars and social scientist
- CSCW '20 Best Paper award for interdisciplinary paper

https://vernetzung-und-gesellschaft.de

Visiting Researcher

UCL Interaction Centre 08/2019 - Ongoing Virtual

In a virtual collaboration with my co-supervisor Enrico Costanza, I focus on the user evaluation and potential improvement of explanation algorithms for image classification applications of CNNs.

- Designed a user study evaluating the performance of "saliency maps" together with Ahmed Alqaraawi
- Co-authered IUI '20 full paper

https://uclic.ucl.ac.uk/

Java Programmer

Osyon GmbH 04/2017 - 01/2018 Berlin, Germany

Java Software development for a Europe-wide operating laboratory group

Student Assistant Researcher

HPI - Stanford Design Thinking Research Program 10/2015 - 09/2016
HPI, Potsdam, Germany

I was part of the Visual Diagnostics Team which is working on developing and evaluating diagnostic instruments for design team interaction.

- Advised the team on evaluation methods and statistical analysis with R
- Facilitated data acquisition and data cleaning by developing and maintaining a data management system

https://hpi.de/en/dtrp/program/overview.html

Student Assistant Researcher

Mobile and Physical Interaction Group, Q&U Lab 04/2014 - 03/2016
TU Berlin, Berlin, Germany

Under the lead of Prof. Jörg Müller, our group contributed to CHI, UIST, UBICOMP and CSCW.

- Implemented an advanced peephole display on iOS devices
- Designed and conducted 4 small scale studies on peephole displays
- Conducted experiments and contributed to UbiComp '15 full paper
- Taught 40 undergrad students how to code in C

http://qu.tu-berlin.de/menue/forschung/gruppen/mobile_physical_interaction/

EDUCATION

M. Sc. Computer Science

TU Berlin

04/2013 - 11/2016 Berlin, Germany

- Grade: 1.3 (GPA: 3.8)
- Mayor in HCI (communication-based systems) - courses incl.: usability engineering, multimodal interaction, augmented reality and python for Machine Learning
- Minor in empirical social science - courses incl.: survey methodology, ethnography, and statistics
- Thesis: Spatial Input for 2D Peephole Navigation on Mobile Devices

Study Abroad Program

University of Sydney

07/2010 - 12/2010 Sydney, Australia

B. Sc. Business Informatics

Otto-von-Guericke University

10/2008 - 04/2013 Magdeburg, Germany

- Major in computer science and Minor in economics
- Bachelor thesis published as CHI 2014 paper

SKILLS

Research Methods

Lab Studies · User Research · Online Studies · Literature Surveys · Surveys · Participatory Observations · Qualitative Interviews

Programming

R (tidyverse) · Python · Java · Obj-C · Matlab · SQL · Git

Creative Tools

Video Editing · Rapid Prototyping · Design Thinking

CERTIFICATES

Certificate in Advanced English (C1)

Design Thinking Basic Track

GDPR Specialist (ISQI)

PROFESSIONAL EXPERIENCE

Research and Development Assistant
Telekom Innovation Laboratories — 01/2013 - 03/2014
T-Labs, Berlin, Germany

T-Labs innovates in close cooperation with science and industry. Supervised by Mehran Roshandel and Dr. Hamed Ketabdar I enhanced a real time monitoring and outlier detection system (called ADIT).

- Developed and evaluated a new spectral analysis algorithm in Matlab
- Implemented the algorithm in Java as a component for ADIT
- Conducted extensive testing and parameter optimization

http://www.laboratories.telekom.com/public/Deutsch/Innovation/Pages/Cross-Domain-Middleware.aspx

Graduate Assistant
Department of Simulation and Graphics — 06/2010 - 06/2012
Otto-von-Guericke University, Magdeburg, Germany

Working on "Sugar" (One Laptop per Child Human Interface)

IT-Consultant
Self employed — 04/2009 - 06/2013 — Magdeburg, Germany

Setup and maintenance of e-commerce, content management and database management systems (7 projects)

SELECTED PUBLICATIONS

Between Subjectivity and Imposition: Power Dynamics in Data Annotation for Computer Vision
CSCW '20 - Best Paper Award - Full Paper

M. Miceli, M. Schuessler, T. Yang
10/2020 http://mschuessler.de/pub/CSCW20.pdf

Evaluating saliency map explanations for convolutional neural networks: a user study
IUI '20 - Full Paper

A. Alqaraawi, M. Schuessler, P. Weiß, E. Costanza, N. Berthouze
03/2020 http://mschuessler.de/pub/IUI20.pdf

A Taxonomy for Human Subject Evaluation of Black-Box Explanations in XAI
IUI '20 - ExSS Workshop Paper

M. Chromik, M. Schuessler
03/2020 http://mschuessler.de/pub/ExSS20.pdf

Minimalistic Explanations: Capturing the Essence of Decisions
CHI '19 - Late Breaking Work

M. Schuessler, P. Weiß
05/2019 http://mschuessler.de/pub/CHI19.pdf

Analyzing Visual Attention During Whole Body Interaction with Public Displays
UbiComp '15 - Full Paper

R. Walter, A. Bullling, D. Lindlbauer, M. Schuessler, J. Müller
09/2015 http://mschuessler.de/pub/Ubicomp15.pdf

Pinch-drag-flick vs. spatial input: rethinking zoom & pan on mobile displays
CHI '14 - Full Paper

M. Spindler, M. Schuessler, M. Martsch, R. Dachselt
04/2014 http://mschuessler.de/pub/CHI14.pdf

STRENGTHS

Analytical & Inquisitive
Seven years in research taught me to approach challenging problems methodically and persistently. I constantly strive for new insights and skills.

Teaching
Passionate about facilitating the exchange of knowledge, I acquired the ability to explain complex things in simple words.

Interpersonal and Interdisciplinary Communication
I am an extrovert, who mediates between different jargons in multi-disciplinary teams.

Self-organized and proactive
Working on a dissertation with remote teams worldwide taught me to organise my work needing little supervision.

PASSIONS

- VW T3 Camper Van
- DIY Projects
- Reducing Air Travel

ACADEMIC SERVICE

Reviewer
CHI '20

Program Committee
ExSS Workshop @ IUI '20

Student Volunteer
ITS '14, UIST '18, CHI '19, CHI '20*