Jakob J. Schoeffer

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Education

Karlsruhe Institute of Technology (KIT) — Karlsruhe, Germany
PhD in Information Systems — *2019 – Q4 2023 (expected)*

Georgia Institute of Technology — Atlanta, GA, USA
MS in Operations Research — *2016 – 2017*

Karlsruhe Institute of Technology (KIT) — Karlsruhe, Germany
BS in Industrial Engineering and Management — *2011 – 2015*

Keywords

Artificial intelligence (AI)-based decision-making; human-AI collaboration; algorithmic fairness; ethical AI; explainable AI (XAI); human-centered AI; perceptions of AI

Peer-Reviewed Publications

[1] Jakubik, J., **JS**, Hoge, V., Voessing, M., Kuehl, N. *An empirical evaluation of predicted outcomes as explanations in human-AI decision-making*. ECML PKDD 2022 Workshop on Explainable Knowledge Discovery in Data Mining (XKDD).

[2] **JS**, Kuehl, N., Machowski, Y. (2022). *"There is not enough information": On the effects of transparency on perceptions of informational fairness and trustworthiness in automated decision-making*. ACM Conference on Fairness, Accountability, and Transparency (FAccT '22). **Acceptance rate 25%**

[3] **JS**, De-Arteaga, M., Kuehl, N. (2022). *On the relationship between explanations, fairness perceptions, and decisions*. ACM CHI 2022 Workshop on Human-Centered Explainable AI (HCXAI). **Oral presentation (acceptance rate 24%)**

[4] **JS** (2022). *A human-centric perspective on fairness and transparency in algorithmic decision-making*. Extended Abstracts of the 2022 CHI Conference on Human Factors in Computing Systems (CHI '22). **Doctoral consortium**

[5] **JS**, Machowski, Y., Kuehl, N. (2022). *Perceptions of fairness and trustworthiness based on explanations in human vs. automated decision-making*. 55$^{\text{th}}$ Hawaii International Conference on System Sciences 2022 (HICSS-55). **Acceptance rate ∼45%**

[6] Hemmer, P., Kuehl, N., **JS** (2022). *Utilizing active machine learning for quality assurance: A case study of virtual car renderings in the automotive industry*. 55$^{\text{th}}$ Hawaii International Conference on System Sciences 2022 (HICSS-55). **Acceptance rate ∼45%**

[7] **JS**,* Ritchie, A.,* Naggita, K.,* Monachou, F.,* Finocchiaro, J.,* Juarez, M. (2021). *Online platforms and the fair exposure problem under homophily*. ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO '21). **Non-archival track**
(* denotes equal contribution)

[8] **JS**, Kuehl, N. (2021). *Appropriate fairness perceptions? On the effectiveness of explanations in enabling people to assess the fairness of automated decision systems*. Companion Publication of the 2021 Conference on Computer Supported Cooperative Work and Social Computing (CSCW '21). **Poster presentation**

[9] **JS**, Kuehl, N., Valera, I. (2021). *A ranking approach to fair classification*. ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS '21). **Acceptance rate 37%**

[10] **JS**, Machowski, Y., Kuehl, N. (2021). *A study on fairness and trust perceptions in automated decision making*. Transparency and Explanations in Smart Systems (TExSS) Workshop at the 26$^{\text{th}}$ Annual Conference on Intelligent User Interfaces (ACM IUI 2021). **Panel presentation**

[11] Hemmer, P., Kuehl, N., **JS** (2020). *DEAL: Deep evidential active learning for image classification*. 19$^{\text{th}}$ IEEE International Conference on Machine Learning and Applications (ICMLA).

Work in Progress or Under Review

[1] **JS**, De-Arteaga, M., Kuehl, N. *On explanations, fairness, and appropriate reliance in human-AI decision-making*. Under review at ACM CHI Conference on Human Factors in Computing Systems (CHI '23).

[2] Ehsan, U., Lee, M. K., Lim, B., Nigam, I., **JS**, Smith-Renner, A., Springer, A., Watkins, E., Zhang, T. (ordered alphabetically) *Explaining to whom? Stakeholder power dynamics in designing AI explanations for humans.* Work in progress.

[3] Mhasawade, V., Naggita, K., Rahmattalabi, A., **JS**, Singh, H. (ordered alphabetically) *Human behavior-aware strategy-proof decision-making* (working title). Work in progress.

[4] **JS**, Kuehl, N., Machowski, Y. *Perceptions of informational fairness and trustworthiness in human vs. AI-based decision-making.* Under review at Business & Information Systems Engineering (BISE).

[5] Hensel, A., **JS**, Kuehl, N. *Untapping analytical synergies in industrial SME ecosystems: An empirical evaluation of federated machine learning.* Under review at Decision Support Systems (DSS).

Relevant Experience

Research Associate Oct. 2019 – present
Karlsruhe Institute of Technology (KIT) *Karlsruhe, Germany*

- Research on fairness and explainability in AI-based decision-making
- Project lead on AI-based service ecosystems for SMEs, funded by the German Federal Government
- Teaching of *Digital Services: Foundations* and *AI in Service Systems*

Visiting Researcher Jan. 2022 – Apr. 2022
The University of Texas at Austin *Austin, TX, USA*

- Research on the relationship between explanations, fairness, and reliance in human-AI decision-making
- Supervision by Maria De-Arteaga

(Senior) Data Scientist July 2017 – Aug. 2019
International Business Machines Corp. (IBM) *Armonk, NY, USA*

- Worked at the Chief Analytics Office, supporting IBM's C-suite
- Developed and implemented statistical and machine learning models for decision support
- Managed team of 5 data scientists and consultants
- Co-led team's recruiting efforts, both strategy and execution

Research and Teaching Assistant Sept. 2013 – Aug. 2016
Karlsruhe Institute of Technology (KIT) *Karlsruhe, Germany*

- Worked as a RA and TA in the field of mathematical optimization
- Offered tutorials to >100 undergraduate and graduate students
- Graded assignments and exams in mathematical optimization and stochastic modeling

Acquired Funding & Awards (Sample)

Research Travel Grant, USA 2022
Karlsruhe House of Young Scientists (KHYS)

- Merit-based scholarship for research stay at UT Austin
- Value of ∼6k €

Data Science Education Program 2021
Siemens Gamesa Renewable Energy (SGRE)

- Project acquisition and execution of data science and machine learning educational program for SGRE employees
- Funding volume of 35k €

Graduate Scholarship, USA 2016
German Academic Exchange Service (DAAD)

- Merit-based full-ride scholarship for pursing the MS in Operations Research (MSOR) program at Georgia Tech
- Value of ∼45k €

Other

Current Extracurricular Work:

- MD4SG (Bias, Discrimination, and Fairness working group) project lead since Mar. 2020
- Data Science for Social Good (DSSG) Solve volunteer since July 2020

Invited Talks:

- *On the effects of attention-based explanations on fairness perceptions and decisions* @ WU Wien (Nov. 2022, upcoming)
- *On explanations, fairness, and appropriate reliance in human-AI decision-making* @ Karlsruhe Service Summit (Oct. 2022)
- *On the relationship between explanations, fairness perceptions, and decisions* @ UT Austin (Apr. 2022)
- *Perceptions of fairness and trustworthiness in AI-based decision-making* @ KIT Speaker Series (Nov. 2021)
- *(Un)Fairness in AI-based decision-making* @ Medienakademie Köln (Sept. 2021)
- *Fairness and transparency in AI-based decision-making* @ Mittelstand 4.0-Kompetenzzentrum Saarbrücken (Feb. 2021)

Academic Service:

- Program committee (PC) member at
  ACM EAAMO '21, '22
  TExSS Workshop @ ACM IUI '22
  TRAIT Workshop @ ACM CHI '22
  HMCaT Workshop @ ICML '22
- Reviewing at various additional conferences (e.g., CSCW, CHI, ICIS, HICSS)

Programming: Python, SQL, R, MATLAB

Academic References

Gerhard Satzger: PhD advisor, KIT, `gerhard.satzger@kit.edu`

Niklas Kuehl: PhD co-advisor, KIT, `niklas.kuehl@kit.edu`

Maria De-Arteaga: Collaborator and mentor, UT Austin, `dearteaga@mccombs.utexas.edu`

As of October 4, 2022