Jakob J. Schoeffer

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EDUCATION

Karlsruhe Institute of Technology (KIT)   Karlsruhe, Germany
PhD in Information Systems & Human-Computer Interaction   *2019 – 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; behavioral studies

PEER-REVIEWED PUBLICATIONS

[1] **JS**,* Jakubik, J.,* Voessing, M., Kuehl, N., Satzger, G. *On the interdependence of reliance behavior and accuracy in AI-assisted decision-making*. Accepted at Hybrid Human Artificial Intelligence 2023 (HHAI).
(* denotes equal contribution)

[2] **JS**, De-Arteaga, M., Kuehl, N. (2023). *On explanations, fairness, and appropriate reliance in human-AI decision-making*. ACM CHI 2023 Workshop on Trust and Reliance in AI-Assisted Tasks (TRAIT).

[3] **JS**,* Ritchie, A.,* Naggita, K.,* Monachou, F.,* Finocchiaro, J.,* Juarez, M. (2023). *Online platforms and the fair exposure problem under homophily*. 37th AAAI Conference on Artificial Intelligence (AAAI-23).
(* denotes equal contribution)

[4] Baier, L., Schloer, T., **JS**, Kuehl, N. (2023). *Detecting concept drift with neural network model uncertainty*. 56th Hawaii International Conference on System Sciences 2023 (HICSS-56).

[5] Jakubik, J., **JS**, Hoge, V., Voessing, M., Kuehl, N. (2022). *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).

[6] **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).

[7] **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).

[8] **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).

[9] **JS**, Machowski, Y., Kuehl, N. (2022). *Perceptions of fairness and trustworthiness based on explanations in human vs. automated decision-making*. 55th Hawaii International Conference on System Sciences 2022 (HICSS-55).

[10] Hemmer, P., Kuehl, N., **JS** (2022). *Utilizing active machine learning for quality assurance: A case study of virtual car renderings in the automotive industry*. 55th Hawaii International Conference on System Sciences 2022 (HICSS-55).

[11] **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).

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

[13] **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 26th Annual Conference on Intelligent User Interfaces (IUI '21).

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

Work Under Review or in Progress

[1] **JS**, De-Arteaga, M., Kuehl, N. *On explanations, fairness, and appropriate reliance in human-AI decision-making* (extended version). Under review.

[2] **JS**, Kuehl, N., Machowski, Y. *Perceptions of informational fairness and trustworthiness in human vs. AI-based decision-making* (extended version). Under review.

[3] Hensel, A., **JS**, Kuehl, N. *Untapping analytical synergies in industrial SME ecosystems: An empirical evaluation of federated machine learning.* Under review.

[4] **JS**, Deck, L., De-Arteaga, M., Kuehl, N. *A critical survey on the relationship between explainable AI and algorithmic fairness.* Work in progress.

Relevant Experience

Research Intern
May 2023 – present
Microsoft Research (MSR)
Redmond, WA, USA
- Internship with the Office of Applied Research
- Research on human-AI collaboration for scheduling tasks

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
Jul. 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
Sep. 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

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 Jul. 2020

Invited Talks:
- *"There is not enough information": On the effects of transparency on perceptions of informational fairness and trustworthiness in automated decision-making* @ MILA/Vector Institute (Apr. 2023)
- *On the effects of attention-based explanations on fairness perceptions and decisions* @ WU Wien (Nov. 2022)
- *Fairness and transparency in AI-based 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 (Sep. 2021)

- *Fairness and transparency in AI-based decision-making* @ Mittelstand 4.0-Kompetenzzentrum Saarbrücken (Feb. 2021)

Academic Service:
- Program committee (PC) member at
  ACM FAccT '23
  ACM EAAMO '21, '22
  TExSS Workshop @ ACM IUI '22
  TRAIT Workshop @ ACM CHI '22, '23
  HMCaT Workshop @ ICML '22
- Reviewing at various additional conferences (e.g., CSCW, CHI, ICIS, HICSS) and journals (e.g., ACM Journal on Responsible Computing, Business & Information Systems Engineering)

Programming: Python, SQL, R, MATLAB

As of May 7, 2023