Luke Guerdan

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Education

2021-Current **Carnegie Mellon University**.
Ph.D. Student in Human-Computer Interaction
Advisors: Steven Wu, Kenneth Holstein

2020–2021 **Cambridge University**.
MPhil in Advanced Computer Science (Honors with Distinction)
Advisor: Hatice Gunes
Thesis: "Federated Continual Learning for Human-Robot Interaction"

2015–2019 **University of Missouri**.
B.S. in Computer Science, Psychology (GPA: 4.0/4.0)
Advisors: Yi Shang, Tim Trull, Steven Hackley

Awards & Honors

2023 CASMI PhD Fellow, Center for Advancing Safety of Machine Intelligence at Northwestern University

2020 National Science Foundation Graduate Research Fellowship

2019 University of Missouri Award for Academic Distinction

2018 DAAD RISE Fellowship

2018 Barry Goldwater Scholarship in Science and Engineering

Research & Industry Experience

2018-2021 **TigerAware, LLC**, *Co-founder*.
Developed and commercialized mobile-based data collection platform for addiction research. Platform in use by 5,000+ research participants at over a dozen US research institutions, including Brown, Vanderbilt Medical Center, and Massachusetts General Hospital [web, press].

2019 **Washington University in St. Louis**, *Summer Research Intern*, NSF REU in Big Data Analytics.
Advisor: Chien-Ju Ho
Investigated primal-dual based techniques for efficient online allocation of scarce societal resources.

2018 **Technische Universität Berlin**, *Summer Research Intern*, Berlin, Germany.
DAAD RISE Fellowship. Advisors: Lukas Gehrke, Klaus Gramann
Developed semi-supervised learning algorithms for EEG-based neuroimaging.

2017 **ESRI**, *Software Engineering Intern*, Redlands, CA.
Developed geospatial database query optimization algorithms in an enterprise C++/COM stack.

2015-2019 **Distributed and Intelligent Computing Lab, University of Missouri**, *Research Assistant*.
Advisors: Yi Shang, Tim Trull
Investigated machine learning techniques for understanding human physiology and behavior.
Developed routing algorithms for real-time disaster response coordination (NSF REU in Consumer Networking Technologies, advised by Prasad Calyam).

Academic Publications

(An asterisk (*) indicates joint first-author.)

Refereed Conference & Journal Publications (Stringently Peer Reviewed)

2023 **Luke Guerdan**, Amanda Coston, Zhiwei Steven Wu, and Kenneth Holstein. Ground(less) truth: A causal framework for proxy labels in human-algorithm decision-making. In *Proceedings of the ACM Conference on Fairness, Accountability, and Transparency (FAccT)*, 2023.

2023 **Luke Guerdan**, Amanda Coston, Kenneth Holstein, and Zhiwei Steven Wu. Counterfactual prediction under outcome measurement error. In *Proceedings of the ACM Conference on Fairness, Accountability, and Transparency (FAccT)*, 2023.

2019 Kendall Park, Kourtney Meiss, **Luke Guerdan**, Ev Cheng, Josiah Burchard, John Gillis, Prasad Calyam, and Salman Ahmad. Real-time geotracking and cataloging of mass casualty incident markers in a search and rescue training simulation: Pilot study. In *American Journal of Disaster Medicine*, 2019.

2019 Lukas Gehrke*, **Luke Guerdan***, and Klaus Gramann. Extracting motion-related subspaces from eeg in mobile brain/body imaging studies using source power comodulation. In *Proceedings of the IEEE/EMBS Conference on Neural Engineering (NER)*, 2019.

2018 William Morrison, **Luke Guerdan**, Jayanth Kanugo, Timothy Trull, and Yi Shang. Tigeraware: An innovative mobile survey and sensor data collection and analytics system. In *Proceedings of the IEEE Conference on Data Science in Cyberspace (DSC)*, 2018.

2017 **Luke Guerdan**, Olivia Apperson, and Prasad Calyam. Augmented resource allocation framework for disaster response coordination in mobile cloud environments. In *Proceedings of the IEEE Conference on Mobile Cloud Computing, Services, and Engineering (MobileCloud)*, 2017.

2016 Peng Sun, Nicholas Wergeles, Chen Zhang, **Luke Guerdan**, Timothy Trull, and Yi Shang. Ada: automatic detection of alcohol usage for mobile ambulatory assessment. In *Proceedings of the IEEE Conference on Smart Computing (SMARTCOMP)*, 2016.

Refereed Workshop & Poster Publications (Lightly Peer Reviewed)

2022 Anna Kawakami, **Luke Guerdan**, Yang Cheng, Anita Sun, Alison Hu, Kate Glazko, Nikos Arechiga, Matthew Lee, Scott Carter, Haiyi Zhu, and Kenneth Holstein. Towards a learner-centered explainable ai: Lessons from the learning sciences. In *Workshop on Human-Centered Explainable AI (HCXAI) at the ACM CHI Conference on Human Factors in Computing Systems (CHI)*, 2022.

2022 **Luke Guerdan**, Kenneth Holstein, and Zhiwei Steven Wu. Under-reliance or misalignment? how proxy outcomes limit measurement of appropriate reliance in ai-assisted decision-making. In *Workshop on Trust and Reliance in AI-Human Teams (TRAIT) at the ACM CHI Conference on Human Factors in Computing Systems (CHI)*, 2022.

2022 **Luke Guerdan**, Amanda Coston, Ken Holstein, and Steven Zhiwei Wu. Ground(less) truth: The problem with proxy outcomes in human-ai decision-making. In *NeurIPS 2022 Workshop on Human-Centered AI (HCAI)*, 2022.

2022 **Luke Guerdan**, Amanda Coston, Ken Holstein, and Steven Zhiwei Wu. Counterfactual decision support under treatment-conditional outcome measurement error. In *NeurIPS 2022 Workshop on Causality for Real-world Impact*, 2022.

2021 **Luke Guerdan**, Alex Raymond, and Hatice Gunes. Toward affective xai: facial affect analysis for understanding explainable human-ai interactions. In *Workshop on Responsible Pattern Recognition and Machine Intelligence (RPRMI) at the International Conference on Computer Vision (ICCV)*, 2021.

2019 **Luke Guerdan***, Peng Sun*, Connor Rowland, Logan Harrison, Zhicheng Tang, Nickolas Wergeles, and Yi Shang. Deep learning vs. classical machine learning: A comparison of methods for fluid intelligence prediction. In *Adolescent Brain Cognitive Development Neurocognitive Prediction: First Challenge, ABCD-NP 2019, Held in Conjunction with MICCAI 2019*. Springer International Publishing, 2019.

Talks

2022 **Invited Speaker.** INFORMS 23' Session on Human-AI Teams. Indianapolis, IN. *'Understanding human-AI decision-making in the real-world: From observational studies to theoretical models'*.

2018 **Invited Speaker.** RISE 2018 Intern Summit. Heidelberg, DE. *'Extracting Motion-Related Sub-spaces from EEG in MOBI Studies'*.

Grants

2017-2018 **University of Missouri Interdisciplinary Innovations Fund**.
$25,000. Co-PI with William Morrison.

Service

Reviewer.

2023 ACM Fairness, Accountability, and Transparency (FAccT)

2022 ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW)

Departmental Service.

2021-2023 Graduate Student Assembly (GSA) Departmental Representative.

2021-2023 Carnegie Mellon Graduate Application Support Program Mentor

Leadership.

2015-2019 Mizzou Computing Association. *President, Vice President, Machine Learning SIG Director.*

2017 TigerHacks. *Assistant Director.*

2019-2020 Show Me Dharma Buddhist Society. *Board Member, Director of Communications.*

Mentorship

2022 Matthew Ok, Undergraduate, HCI Independent Study.

2022 Mahika Varma, Undergraduate, HCI Independent Study.

2022 Angelica Bonilla, Undergraduate, CMU AI Mentorship Program.