

Mike Schaekermann

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OVERVIEW My research focuses on developing methods to capture and utilize the structure of ambiguous classification problems in the context of human-centered machine learning and human-AI collaboration. My work has a special focus on medical data analysis.

EDUCATION **Doctor of Philosophy**, Computer Science 2016 - 2020
University of Waterloo, ON, Canada
Advisors: Edith Law and Kate Larson

Bachelor of Science in Engineering, Media Informatics 2014
Salzburg University of Applied Sciences, Austria
Thesis Supervisor: Lennart Nacke

State Examination (equivalent to BSc), Medicine 2011
University of Marburg, Germany

AWARDS & HONOURS **Google PhD Fellowship** (\$68,000/year) 2018-2020
Best Paper, ACM CSCW 2018
Graduate Excellence Scholarship (\$5,000) — UWaterloo 2017
David R. Cheriton Graduate Scholarship (\$10,000) — UWaterloo 2016
International Doctoral Student Award (\$11,760/year) — UWaterloo 2016
Amazon Web Services Research Grant (\$7,000) — Amazon 2016
Merit-based Scholarship — Salzburg University of Applied Sciences 2014
Engineering Scholarship — Economic Chamber of Salzburg 2013
Nominee for the German National Academic Foundation 2009

SELECT PUBLICATIONS **Peer-Reviewed Conference Proceedings**

[C.1] [Schaekermann, M.](#), Beaton, G., Sanoubari, E., Lim, A., Larson, K., & Law, E. **Ambiguity-aware AI Assistants for Medical Data Analysis.** CHI'20. Honolulu, HI.

[C.2] [Schaekermann, M.](#), Cai, C. J., Huang, A. E., & Sayres, R. **Expert Discussions Improve Comprehension of Difficult Cases in Medical Image Assessment.** CHI'20. Honolulu, HI.

[C.3] [Schaekermann, M.](#), Beaton, G., Habib, M., Lim, A., Larson, K., & Law, E. **Understanding Expert Disagreement in Medical Data Analysis through Structured Adjudication.** CSCW'19. Austin, TX.

[C.4] Cohen, R., [Schaekermann, M.](#), Liu, S., & Cormier, M. **Trusted AI and the Contribution of Trust Modeling in Multiagent Systems.** AAMAS'19. Montréal, Canada.

[C.5] [Schaekermann, M.](#), Goh, J., Larson, K., & Law, E. **Resolvable vs. Irresolvable Disagreement: A Study on Worker Deliberation in Crowd Work.** CSCW'18. New York City, NY. **Best Paper Award**

- [C.6] [Schaekermann, M.](#), Ribeiro, G., Wallner, G., Kriglstein, S., Johnson, D., Drachen, A., & Nacke, L. E. **Curiously Motivated: Profiling Curiosity with Self-Reports and Behaviour Metrics in the Game “Destiny”**. **CHI PLAY’17**. Amsterdam, Netherlands.
- [C.7] Jaini, P., Chen, Z., Carbajal, P., Law, E., Middleton, L., Regan, K., [Schaekermann, M.](#), Trimponias, G., Tung, J., & Poupart, P. **Online Bayesian Transfer Learning for Sequential Data Modeling**. **ICLR’17**. Toulon, France.
- [C.8] Wehbe, R. R., Mekler, E. D., [Schaekermann, M.](#), Lank, E., & Nacke, L. E. **Testing Incremental Difficulty Design in Platformer Games**. **CHI’17**. Denver, CO.

Peer-Reviewed Journal Publications

- [J.1] Sokolov, E., Abdoul Bachir, D. H., Sakadi, F., Williams, J., Vogel, A. C., [Schaekermann, M.](#), Tassiou, N., Bah, A. K., Khatri, V., Hotan, G. C., Ayub, N., Leung, E., Fantaneanu, T. A., Patel, A., Vyas, M., Milligan, T., Villamar, M. F., Hoch, D., Purves, S., Esmaeili, B., Stanley, M., LehnSchioler, T., TellezZenteno, J., GonzalezGiraldo, E., Tolokh, I., Heidarian, L., Worden, L., Jadeja, N., Fridinger, S., Lee, L., Law, E., Fod Abass, C., & Mateen, F. J. **Tablet-based electroencephalography diagnostics for patients with epilepsy in the West African Republic of Guinea**. In **European Journal of Neurology**. 2020.
- [J.2] [Schaekermann, M.](#), Hammel, N., Terry, M., Ali, T. K., Liu, Y., Basham, B., Campana, B., Chen, W., Ji, X., Krause, J., Corrado, G. S., Peng, L., Webster, D. R., Law, E., & Sayres, R. **Remote Tool-Based Adjudication for Grading Diabetic Retinopathy**. In **Translational Vision Science & Technology**. 2019.
- [J.3] Williams, J., Cisse, F.A., [Schaekermann, M.](#), Sakadi, F., Tassiou, N.R., Hotan, G., Bah, A.K., Hamani, A.B.D., Lim, A., Leung, E.C.W., Fantaneanu, T.A., Milligan, T., Khatri, V., Hoch, D., Vyas, M., Lam, A., Cohen, J., Vogel, A., Law, E., & Mateen, F. **Smartphone EEG and remote online interpretation for children with epilepsy in the Republic of Guinea: Quality, characteristics, and practice implications**. In **Seizure**. 2019.
- [J.4] Phene, S. and Dunn, C. and Hammel, N. and Liu, Y. and Krause, J. and Kitade, N. and [Schaekermann, M.](#) and Sayres, R. and Wu, D. and Bora, A. and Semturs, C. and Misra, A. and Huang, A. and Spitze, A. and Medeiros, F. and Maa, A. and Gandhi, M. and Corrado, G. and Peng, L., & Webster, D. **Deep Learning and Glaucoma Specialists: The Relative Importance of Optic Disc Features to Predict Glaucoma Referral in Fundus Photographs**. In **Ophthalmology**. 2019.

Peer-Reviewed Workshop Papers and Abstracts

- [P.1] [Schaekermann, M.](#), Beaton, G., Habib, M., Lim, A., Larson, K., & Law, E. **crowdEEG: A Platform for Structured Consensus Formation in Medical Time Series Analysis**. 8th Workshop on Interactive Systems in Healthcare (WISH) at **CHI’19**. Glasgow, UK.
- [P.2] [Schaekermann, M.](#), Beaton, G., Habib, M., Lim, A., Larson, K., & Law, E. **Capturing Expert Arguments from Medical Adjudication Discussions in a Machine-readable Format**. 2nd Workshop on Subjectivity, Ambiguity and Disagreement (SAD) in Crowdsourcing at **WebConf’19**. San Francisco, CA.

- [P.3] Williams, J., Cisse, F.A., [Schaekermann, M.](#), Sakadi, F., Tassiou, N.R., Bah, A.K., Hamani, A.B.D., Lim, A., Leung, E.C.W., Fantaneau, T.A., Milligan, T., Khatri, V., Hoch, D., Vyas, M., Lam, A., Hotan, G., Cohen, J., Law, E., & Mateen, F. **Utilizing a wearable smartphone-based EEG for pediatric epilepsy patients in the resource poor environment of Guinea: A prospective study.** Annual Meeting of the American Academy of Neurology **AAN'19**. Philadelphia, PA.
- [P.4] [Schaekermann, M.](#), Lim, A., Larson, K., & Law, E. **Expert Disagreement in Sequential Labeling: A Case Study on Adjudication in Medical Time Series Analysis.** 1st Workshop on Subjectivity, Ambiguity and Disagreement (SAD) in Crowdsourcing at **HCOMP'18**. Zurich, Switzerland.
- [P.5] [Schaekermann, M.](#), Law, E., Williams, A. C., & Callaghan, W. **Resolvable vs. Irresolvable Ambiguity: A New Hybrid Framework for Dealing with Uncertain Ground Truth.** 1st Workshop on Human-Centered Machine Learning at **CHI'16**. San Jose, CA.

Invited Articles

- [I.1] [Schaekermann, M.](#), Homan, C. M., Aroyo, L., Paritosh, P., Bollacker, K., & Welty, C. **AI Bookie: Will Machine Learning Outgrow Human Labeling?** In **AI Magazine**. 2020.

INVITED TALKS	Apple , Seattle	2020
	Human-AI Interaction in the Presence of Ambiguity	
	NeuroTechX , Kitchener	2019
	CrowdEEG: A collaborative annotation platform for clinical EEG recordings	
	NeuroTechX , Toronto	2016
	CrowdEEG: A collaborative annotation platform for clinical EEG recordings	
CONFERENCE WORKSHOPS ORGANIZED	Subjectivity, Ambiguity and Disagreement in Crowdsourcing. Co-chaired with Chris Welty, Lora Aroyo, Praveen Paritosh, Anca Dumitrache, Jennimaria Palomaki, Alex Quinn, Olivia Rheinart, & Michael Tseng at WebConf'19 .	
	Designing for Curiosity: an Interdisciplinary Workshop. Co-organized with Edith Law, Pierre-Yves Oudeyer, Ming Yin, & Alex Williams at CHI'17 .	
RESEARCH & WORK EXPERIENCE	Student Researcher , Google Health, Mountain View, CA	2018 - present
	Research Intern , Google Brain, Mountain View, CA	2018
	Visiting Researcher , Inria Bordeaux, France	2017
	Software Engineering Intern , Google, Mountain View, CA	2017
	Head of IT & Co-Founder , Stilnest.com, Berlin, Germany	2011 - 2015
	Visiting Researcher , Ontario Tech University, ON, Canada	2013 - 2014
	Research Assistant , University Medical Center, Marburg, Germany	2010 - 2011

TEACHING	Human-Computer Interaction (CS449), Teaching Assistant University of Waterloo, ON, Canada	Winter 2018
	Introduction to Artificial Intelligence (CS486), Teaching Assistant University of Waterloo, ON, Canada	Fall 2017
	Graduate Research Skills Seminar (CS697), Guest Lecturer University of Waterloo, ON, Canada	Fall 2017
	Introduction to Computer Science II (CS116), Teaching Assistant University of Waterloo, ON, Canada	Spring 2017
	Introduction to Artificial Intelligence (CS486), Teaching Assistant University of Waterloo, ON, Canada	Fall 2016
	Applied Mathematics , Tutorial Class Instructor Salzburg University of Applied Sciences, Austria	2012-2013
FUNDING	Waterloo Citizen Science Laboratory Prepared a grant application with Edith Law and Alex Williams to provide infrastructure for scientific crowdsourcing studies. \$144,703 awarded through the Canadian Foundation for Innovation (CFI).	2016
	Amazon Web Services Research Grant Prepared a grant application with Alex Williams to secure funding for computing resources to support various crowdsourcing studies and online hybrid human-AI systems. \$7,000 awarded in credits through Amazon Web Services (AWS).	2016
SERVICE & LEADERSHIP	Associate Chair: “Computational Interaction” at ACM CHI (2021), Applied Research Track at ACM CIKM (2020)	
	Session Chair: “Designing Decision Support” at ACM CHI (2019)	
	Journal Reviewer: ACM Transactions on Interactive Intelligent Systems (2017)	
	Conference Reviewer: ACM CHI (2017-2020), ACM CSCW (2018-2020), ACM UIST (2020), ACM DIS (2020), ACM CHI PLAY (2016)	
	Workshop Reviewer: CrowdBias (2018), HumBL (2019)	
REFERENCES	Edith Law , PhD co-supervisor <i>Assistant Professor</i> , Computer Science, University of Waterloo <i>Email:</i> edith.law@uwaterloo.ca	
	Kate Larson , PhD co-supervisor <i>Professor</i> , Computer Science, University of Waterloo <i>Email:</i> kate.larson@uwaterloo.ca	
	Rory Sayres , Internship Mentor <i>Staff Researcher</i> , Google Health Research & Innovations, Google <i>Email:</i> sayres@google.com	
	Michael Terry , Fellowship Mentor <i>Staff Software Engineer</i> , People+AI Research, Google Previously <i>Associate Professor</i> , Computer Science, University of Waterloo <i>Email:</i> michaelterry@google.com	