Samantha Robertson

PH.D. STUDENT @ U.C. BERKELEY · ELECTRICAL ENGINEERING & COMPUTER SCIENCES · HCI+AI

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Applying the methods and theories of human-computer interaction to design more reliable, useful, and equitable AI systems.

Education

University of California, Berkeley   *Berkeley, CA, USA*
PH.D. ELECTRICAL ENGINEERING AND COMPUTER SCIENCES   *2019 - Present*
- Dissertation title: Building User Trust and Agency in Data Systems

Stanford University   *Stanford, CA, USA*
B.S. MATHEMATICAL AND COMPUTATIONAL SCIENCES (WITH DISTINCTION)   *June 2019*
- 🏆 J.E. Wallace Sterling Award for Academic Achievement - *Top 25 students in the School of Humanities and Sciences*

Research Highlights

Reliable and Trustworthy Machine Translation in Healthcare   *June 2020 - Present*
- Designing and implementing an interactive system for reliable translation of hospital discharge instructions, leveraging a custom retrieval-augmented translation model trained on over 3,000 patient discharge instructions from UCSF hospital.

Engaging Research Participants with Self-Logged Menstrual Health Data   *August 2021 - Present*
- Analyzed survey responses and tracking app log data from over 10,000 users to explore associations between menstrual cycle characteristics and behavioral factors like stress and sleep. Exploring how interactive data visualization could increase participant engagement with research towards more beneficial outcomes for those who contribute their data to studies.

Extracting Patterns from Police Misconduct Data   *Spring 2022*
- Extracted, cleaned, and analyzed unstructured text data from police use of force reports to help investigative journalists find patterns in free-text police narratives.

Configuring Student Assignment Algorithms to Meet Community Needs   *January 2020 - May 2021*
- Conducted mixed methods analysis to understand how families engage with algorithms for assigning students to public schools. Identified tensions between the algorithm's design and real world conditions that create challenges for meeting educational equity goals. This work prompted a long-term collaboration between U.C. Berkeley and San Francisco Unified School District to inform the design of their new assignment system.

Internships

Machine Learning Research Intern, Machine Intelligence Visualization   *Apple*
SUPERVISED BY DR. FRED HOHMAN AND DR. MARY BETH KERY   *May - September 2022*

Designed, built, and evaluated an interactive visualization tool that helps machine translation practitioners prioritize model evaluation resources on issues that matter to users.

Research Intern, Ethical AI   *Google*
SUPERVISED BY DR. MARK DÍAZ   *May - Dec 2021*

Designed and conducted a mixed method user study to understand the consequences of machine translation errors in high stakes settings like employment and housing, and users' strategies for identifying and recovering from those errors.

Skills

Languages	**R, Python, SQL**, Javascript, HTML/CSS, C, C++, Java
Tools & Packages	Git, Unix, Tidyverse, Jupyter, Svelte, LaTeX, MongoDB, PyTorch, SciKit-Learn, Qt
Research Methods	Exploratory Data Analysis, Applied ML, Data Visualization, Interviews, Qualitative Data Analysis

Publications

Samantha Robertson, Tonya Nguyen, Cathy Hu, Catherine Albiston, Afshin Nikzad, and Niloufar Salehi. 2021. Expressiveness, Cost, and Collectivism: How the Design of Preference Languages Shapes Participation in Algorithmic Decision-Making. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23)*.

Samantha Robertson*, Zijie J. Wang*, Dominik Moritz, Mary Beth Kery, and Fred Hohman. 2023. Angler: Helping Machine Translation Practitioners Prioritize Model Improvements. In *Proceedings of the 2023 Conference on Human Factors in Computing Systems (CHI '23)*.

Samantha Robertson, Tonya Nguyen, and Niloufar Salehi. Not Another School Resource Map: Meeting Underserved Families' Information Needs Requires Trusting Relationships and Personalized Care In *Proceedings of the ACM on Human-Computer Interaction, CSCW (CSCW '22)*. 🏆 **Recognized for contribution to Diversity and Inclusion.**

Samantha Robertson, and Mark Díaz. Understanding and Being Understood: User Strategies for Identifying and Recovering From Mistranslations in Machine Translation-Mediated Chat. In *Proceedings of the 2022 ACM Conference on Fairness, Accountability, and Transparency (FAccT 2022)*

Nikita Mehandru, **Samantha Robertson**, and Niloufar Salehi. Reliable and Safe Use of Machine Translation in Medical Settings. In *Proceedings of the 2022 ACM Conference on Fairness, Accountability, and Transparency (FAccT 2022)*.

Daniel Liebling, Katherine Heller, **Samantha Robertson**, and Wesley Hanwen Deng. Opportunities for Human-Centered Evaluation of Machine Translation Systems. In *Findings of the Association for Computational Linguistics: NAACL 2022*.

Samantha Robertson, Tonya Nguyen, and Niloufar Salehi. 2021. Modeling Assumptions Clash with the Real World: Transparency, Equity, and Community Challenges for Student Assignment Algorithms. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21)*.

Pavan Mehrotra, Sabar Dasgupta, **Samantha Robertson**, and Paul Nuyujukian. 2018. An open-source realtime computational platform (short WIP paper). In *Proceedings of the 19th ACM SIGPLAN/SIGBED International Conference on Languages, Compilers, and Tools for Embedded Systems (LCTES 2018)*.

Samantha Robertson, Elaine C. Khoong, Ana Milisavljevic, Pauline Padrul, Jaskaran Bains, and Niloufar Salehi. 2023. Cephalo: Reliably Translating Hospital Discharge Instructions by Verifying User Intent. Under review at ACM UIST 2023.

Samantha Robertson, Kim Harley, and Niloufar Salehi. 2022. Engaging Research Participants with Self-Logged Menstrual Health Data. *Workshop on Human-in-the-Loop Data Analytics (HILDA)*, co-located with *SIGMOD 2022*

Wesley Hanwen Deng, Nikita Mehandru, **Samantha Robertson**, and Niloufar Salehi. 2022. Beyond General Purpose Machine Translation: The Need for Context-specific Empirical Research to Design for Appropriate User Trust. *Workshop on Trust and Reliance in AI-Human Teams*, at *CHI 2022*

Samantha Robertson, Wesley Hanwen Deng, Timnit Gebru, Margaret Mitchell, Daniel J. Liebling, Michal Lahav, Katherine Heller, Mark Díaz, Samy Bengio, and Niloufar Salehi. 2021. Three Directions for the Design of Human-Centered Machine Translation. *HCI + NLP Workshop* at *EACL '21*

Samantha Robertson, Tonya Nguyen, and Niloufar Salehi. 2020. Modeling Assumptions Clash with the Real World: Configuring Student Assignment Algorithms to Serve Community Needs. *4th Workshop on Mechanism Design for Social Good (MD4SG '20)*. 🏆 **Best "New Horizons" Paper.**

Samantha Robertson and Niloufar Salehi. 2020. What if I Don't Like Any of the Choices? The Limits of Preference Elicitation for Participatory Algorithm Design. *Workshop on Participatory Approaches to Machine Learning* at *ICML '20*