Mike A. Merrill

PHD STUDENT · PAUL G. ALLEN SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

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Research_

My work focuses on methods, datasets, and benchmarks for training and evaluating large models (including language models) on time series data and code. Recently I've been teaching multimodal language models to reason about time series, and building LLM agents that can make decisions and take actions based off of these inputs.

Education _____

University of Washington

Seattle, WA

PhD Computer Science

September 2019 - present

• Advisor: Tim Althoff

Cornell UniversityBS Information Science

Ithaca, NY August 2013 - May 2017

Magna Cum Laude

• Undergrad Research Advisor: Tanzeem Choudhury

Other Research Experience _____

2023 - Now	Google, Student Researcher, Consumer Health Research - Agents for Tabular Data
2022	Apple, PhD ML Research Intern, Health AI - Large Scale Pretraining with Sensor Data
2016-2019	HealthRhythms, Data Scientist (Second Full Time Employee, now \$40m+ raised)
2015-2017	Cornell University, Undergraduate Research Assistant, Advised by Tanzeem Choudhury
2016	Carnegie Mellon University, Undergraduate Research Assistant, Advised by Anind Dey

Publications _____

CONFERENCE AND JOURNAL PAPERS

- Mike A. Merrill, Esteban Safranchik, Arinbjorn Kolbeinsson, Piyusha Gade, Ernesto Ramirez, Ludwig Schmidt, Luca Foschini, and Tim Althoff. Homekit2020: A Benchmark for Time Series Classification on a Large Mobile Sensing Dataset with Laboratory Tested Ground Truth of Influenza Infections. CHIL (Published in TMLR), 2023
- Mike A. Merrill and Tim Althoff. Self-supervised Pretraining and Transfer Learning Enable Flu and COVID-19 Predictions in Small Mobile Sensing Datasets. CHIL (Published in TMLR), 2023
- Ge Zhang, **Mike A. Merrill***, Yang Liu, Jeffrey Heer, and Tim Althoff. Coral: Code representation learning with weakly-supervised transformers for analyzing data analysis. In *EPJ Data Science*, 2022
- **Mike A. Merrill**, Ge Zhang, and Tim Althoff. Multiverse: Mining collective data science knowledge from code on the web to suggest alternative analysis approaches. *KDD*, 2021
- Dror Ben-Zeev, Rachel Brian, Rui Wang, Weichen Wang, Andrew T. Campbell, Min S. H. Aung, Michael Merrill, Vincent W. S. Tseng, Tanzeem Choudhury, Marta Hauser, John M. Kane, and Emily A. Scherer. Cross-

Check: Integrating self-report, behavioral sensing, and smartphone use to identify digital indicators of psychotic relapse. *Psychiatric Rehabilitation Journal*, 2017

- Rui Wang, Min S. H. Aung, Saeed Abdullah, Rachel Brian, Andrew T. Campbell, Tanzeem Choudhury, Marta Hauser, John Kane, Michael Merrill, Emily A. Scherer, Vincent W. S. Tseng, and Dror Ben-Zeev. CrossCheck: toward passive sensing and detection of mental health changes in people with schizophrenia. In *Ubicomp*. ACM, September 2016
- Vincent W. S. Tseng, **Michael Merrill**, Franziska Wittleder, Saeed Abdullah, Min Hane Aung, and Tanzeem Choudhury. Assessing mental health issues on college campuses: Preliminary findings from a pilot study. In *UbiComp workshop on Mental Health and Well-being: Sensing and Intervention*, 2016

PREPRINTS

Momin M. Malik, Afsaneh Doryab, Michael Merrill, Jürgen Pfeffer, and Anind K. Dey. Can Smartphone Colocations Detect Friendship? It Depends How You Model It. https://arxiv.org/abs/2008.02919, 2020

POSTERS

- Ellen Frank, Michael Merrill, Hane Aung, Claudio Soares, Sidney Kennedy, Mark Matthews, David Kupfer, Aleksandra Lalovic, and Tanzeem Choudhury. Sensing depression: Using smartphone sensors to predict changes in depression severity, 2017
- Ellen Frank, **Michael Merrill**, Hane Aung, Claudio Soares, Sidney Kennedy, Mark Matthews, David Kupfer, Aleksandra Lalovic, and Tanzeem Choudhury. Continuous behavioral data as a potential depression biomarker, 2016

Awards, Fellowships, & Grants _____

2019 Corin Anderson Endowed Fellowship, UW CSE	\$ 20,000
2017 Excellence in Research, Cornell University Department of Information Science	
2014 Big Red Idea, CU Tonight	\$ 1,000
Pitch Festival Finalist Travel Grant, RECESS	\$ 1,000

Outreach & Professional Development _____

SERVICE AND OUTREACH

- 2023 NeurIPS, Reviewer, Deep Generative Models for Health Workshop
- 2023 ICLR, Reviewer, Time Series Representation Learning for Health Workshop
- 2021, 2023 CSE Graduate Admissions, Data Science Area Chair
 - 2022 **CHI**, Reviewer
- 2021, 2022 KDD, Reviewer
 - 2020 **Graduate Liaison**, Faculty Recruitment Committee **UW CSE Pre-Application Review Service**, Reader
 - **CSE Prospective Students Committee**, Grad Student Panel Coordinator

Presentations _

- Fall 2023 Google Fitbit Leadership "Agents for Tabular Data", Remote
- Summer 2023 Evidation Health "Representation Learning for Wearable Health Sensing", Remote
- Summer 2021 KDD 2021 "MULTIVERSE", Remote
 - Evidation Health "Transfer Learning for Behavioral Data", Remote
 - Spring 2018 MassChallenge HealthTech Finale, Boston, MA
 - Fall 2017 Results International "AI and Analytics in Healthcare" Panel, New York, NY

^{*} denotes co-first author

Teaching Experience	
TEACHING EXPENSIVE	

Fall 2021 CSE 481DS: Data Science Capstone, TA Fall 2020 CSE 481DS: Data Science Capstone, Head TA

Mentorship _____

2019-2020 **Jacopo Mocellin**, University of Trento, now at University of Zurich

2019-2020 **Ge Zhang**, Peking University, now at UMich iSchool