Fahad Kamran

Research Scientist
Health AI
Apple

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Biography

I am a research scientist on the Health AI team at Apple. My research aims to build machine learning models that can be used to help improve decision-making for health. My work focuses on the development and evaluation of novel machine learning algorithms to solve problems inspired by healthcare. My research specializes in working with large-scale wearable time-series sensor data and large-scale text corpora for training and evaluating foundation models. I am also interested in causal inference, survival analysis, and applying machine learning to electronic health record data.

Education

University of Michigan *Ann Arbor, MI, USA*
Ph.D. Candidate in Computer Science and Engineering (CSE) Sep 2018–Present
Thesis Title: Aligning Objectives of Machine Learning with Clinical Care
Thesis Committee: Jenna Wiens (advisor), Maggie Makar, David Fouhey, Rahul Ladhania

University of Michigan *Ann Arbor, MI, USA*
M.S. in Computer Science Sep 2018–Aug 2020
GPA: 4.0/4.0

University of California, Berkeley *Berkeley, CA, USA*
B.A. in Computer Science, Mathematics, and Statistics Sep 2014–May 2018
GPA: 3.80/4.0
Research Advisor: Stuart Russell

Employment History

Health AI - Apple *Seattle, WA, 2025*
Research Scientist Jan 2024–Present
Led efforts for large-scale training and evaluation of foundation models and large language models.
Developed novel methodologies for training foundation models from regular and irregularly sampled wearable sensor data.
Contributed to post-training using supervised fine-tuning and reinforcement learning for large language models.
Developed novel evaluation pipelines for assessing the utility of reasoning models.

University of Michigan *Ann Arbor, MI, USA*
Graduate Student Research Assistant Sep 2018–Nov 2023
Worked under Professor Jenna Wiens to develop novel machine learning algorithms to augment decision-making in healthcare.
Focused on the fields of causal inference, survival analysis, and analyzing EHR and wearable sensor data.
Developed novel learning frameworks and evaluation schemes to advance the field of machine learning research.
Primarily worked with an application in healthcare, with the goal of improving patient care for diseases such as sepsis and COVID-19.

Evidation Health *San Mateo, CA, USA*

Data Science Intern May 2022–Aug 2022
Analyzed the effects of missing confounders and omitted variable bias in intensive longitudinal data.
Developed a new theoretical framework to study the effect of omitted variable bias in mixed-effect models.
Empirically explored the effects of missing lagged variables on statistical associations in mixed-effect models, through simulations and real person-generated health data.

University of California, Berkeley *Berkeley, CA, USA*
Undergraduate Researcher June 2016–May 2018
Worked under Professor Stuart Russell to analyze ECG signals using deep learning.
Utilized generative models to improve representation learning for downstream tasks such as detecting cardiac arrhythmia.

Peer-Reviewed Publications and Preprints

1. Eray Erturk*, **Fahad Kamran***, Salar Abbaspourazad, Sean Jewell, Harsh Sharma, Yujie Li, Sinead Williamson, Nicholas J Foti, Joseph Futoma "Beyond Sensor Data: Foundation Models of Behavioral Data from Wearables Improve Health Predictions." ***International Conference on Machine Learning***. 2025.

2. **Fahad Kamran**, Donna Tjandra, Thomas S Valley, Hallie C Prescott, Nigam H Shah, Vincent X Liu, Eric Horvitz, Jenna Wiens. "Reformulating patient stratification for targeting interventions by accounting for severity of downstream outcomes resulting from disease onset: a case study in sepsis." ***Journal of the American Medical Informatics Association***. 2025.

3. **Fahad Kamran**, Maggie Makar, Jenna Wiens. "Learning to Rank for Optimal Treatment Allocation Under Resource Constraints." ***Artificial Intelligence and Statistics Conference***. 2024.

4. **Fahad Kamran,** Donna Tjandra, Andrew Heiler, Jessica Virzi, Karandeep Singh, Jessie King, Thomas Valley, Jenna Wiens. "Evaluation of Sepsis Prediction Models Before Onset of Treatment." ***NEJM AI***. 2024.

5. **Fahad Kamran**, Shengpu Tang, Erkin Otles, Dustin McEvoy, Sameh Saleh, Jen Gong, Benjamin Li, Sayon Dutta, Xinran Liu, Richard Medford, Thomas Valley, Lauren West, Karandeep Singh, Seth Blumberg, John Donnelly, Erica Shenoy, John Ayanian, Brahmajee Nallamothu, Michael Sjoding, Jenna Wiens. "Early Identification of Hospitalized Patients with COVID-19 at Risk of Clinical Deterioration: A Multi-Site Study" ***The British Medical Journal***. 2022.

6. **Fahad Kamran**, Kathryn Harrold, Jonathan Zwier, Wendy Carender, Tian Bao, Kathleen H Sienko, Jenna Wiens. "Automatically evaluating balance using machine learning and data from a single inertial measurement unit." In ***Journal of NeuroEngineering and Rehabilitation***. 2021.

7. Karandeep Singh, Thomas S Valley, Shengpu Tang, Benjamin Y Li, **Fahad Kamran**, Michael W Sjoding, Jenna Wiens, Erkin Otles, John P Donnelly, Melissa Y Wei, Jonathon P McBride, Jie Cao, Carleen Penoza, John Z Ayanian, Brahmajee K Nallamothu. "Evaluating a widely implemented proprietary deterioration index model among hospitalized patients with COVID-19." In ***Annals of the American Thoracic Society***. 2021.

8. **Fahad Kamran**, Jenna Wiens. "Estimating Calibrated Individualized Survival Curves with Deep Learning." In ***Proceedings of the AAAI Conference on Artificial Intelligence***. 2021.

9. Jeremiah Hauth, Safa Jabri, **Fahad Kamran**, Eyoel W Feleke, Kaleab Nigusie, Lauro V Ojeda, Shirley Handelzalts, Linda Nyquist, Neil B Alexander, Xun Huan, Jenna Wiens, Kathleen H Sienko. "Automated loss-of-balance event identification in older adults at risk of falls during real-world walking using wearable inertial measurement units." In ***Sensors***. 2021.

10. **Fahad Kamran**, Victor C Le, Adam Frischknecht, Jenna Wiens, Kathleen H Sienko. "Noninvasive Estimation of Hydration Status in Athletes Using Wearable Sensors and a Data-Driven Approach Based on Orthostatic Changes." In ***Sensors***. 2021.

11. **Fahad Kamran**, Jiaxuan Wang, Haozhu Wang, Jenna Wiens. "Exploiting Spatial and Temporal Invariances when Mining Player Tracking Data in Basketball." 2019.

12. Caleb Belth, **Fahad Kamran**, Donna Tjandra, Danai Koutra. "When to remember where you came from: node representation learning in higher-order networks." In ***International Conference on Advances in Social Networks Analysis and Mining (ASONAM)***. 2019.

Awards and Honors

Service Award for Excellence in Climate, Diversity, Equity, and Inclusion; Univ. of Michigan CSE	2020
Campus Outstanding GSI Award; Univ. of California, Berkeley	2019
Computer Science Outstanding Teaching and Leadership Award; Univ. of California, Berkeley	2019

Workshops, Presentations, and Talks

1. Fahad Kamran. "Augmenting Clinical Decision Making with Artificial Intelligence". To Center for Molecular and Clinical Epidemiology of Infectious Diseases and Michigan Center for Infectious Disease Threats Seminar Series. April 2022. Talk.

2. Fahad Kamran. "Estimating Calibrated Individualized Survival Curves with Deep Learning." *Michigan AI Symposium*. October 2021. Poster.

3. Fahad Kamran. "Estimating Calibrated Individualized Survival Curves with Deep Learning." *AAAI Conference on Artificial Intelligence*. April 2021. Poster.

4. Fahad Kamran. "Deep Calibrated Survival Analysis." *Michigan AI Symposium*. October 2020. Poster.

5. Fahad Kamran. "Deep Calibrated Survival Analysis." *Conference on Health, Inference, and Learning (CHIL) Workshop*. July 2020. Presentation.

Technical Skills

Analysis: Machine Learning, Deep Learning, Causal Inference, Survival Analysis, Time Series, Natural Language Processing, Computer Vision, Wearable Data, Large Language Models, Healthcare and EHR Data, Sports Analytics, Data Mining, Mixed-Effect Modelling, Hypothesis Testing

Programming Languages: Fluent in Python, SQL, R, Scala, Java, and C

Teaching

Introduction to Artificial Intelligence (EECS 492) *Ann Arbor, MI, USA*

GSI for Prof. Emily Mower Provost in undergraduate course at the University of Michigan Aug 2019–Dec 2019

Foundations of Data Science (Data 8) *Berkeley, CA, USA*

Course Instructor for undergraduate course at University of California, Berkeley May 2018–Aug 2018

Foundations of Data Science (Data 8) *Berkeley, CA, USA*

Head Teaching Assistant for Profs. Ani Adhikari, David Wagner, and John DeNero in undergraduate course at University of California, Berkeley Jan 2016–May 2016; Aug 2016–Dec 2016; Aug 2017–May 2018

Data Structures and Algorithms (CS 61B) *Berkeley, CA, USA*

Teaching Assistant for Prof. Josh Hug in undergraduate course at University of California, Berkeley Jan 2017–May 2017

Introduction to Artificial Intelligence (CS 188) *Berkeley, CA, USA*

Teaching Assistant for Jacob Andreas and Davis Foote in undergraduate course at University of California, Berkeley May 2016–Aug 2016

Professional Service and Activities

ML4H Symposium Organizer

Organizer for Machine Learning for Health (ML4H) 2022 and 2023

Area Chair

ML4H 2025

Reviewer

AAAI 2026, NeurIPS 2025, ICML 2025, MLHC 2023, CHIL 2023, ML4H 2022, ICML 2022: Workshop on Spurious Correlations, Invariance and Stability, NeurIPS 2021 Workshop - Bridging the Gap: From Machine Learning Research to Clinical Practice, MLHC 2021, MLHC 2020, Scientific Reports, Nature Machine Intelligence, Nature Cardiovascular Research

CSEG Buddy Program Founder and President *Ann Arbor, MI, USA*

Founded and organized program for onboarding new graduate students at University of Michigan's Computer Science and Engineering (CSE) department Jun 2020–Present

CSEG President *Ann Arbor, MI, USA*

Manage leadership of CSEG and represent CSE graduate students Jun 2020–Sept 2021

CSEG Relations Chair *Ann Arbor, MI, USA*

Communicate with department leadership, faculty, and company sponsors on behalf of CSE graduate students Jun 2020–Sept 2021

CSEG Tea Chair *Ann Arbor, MI, USA*

Held social events for CSEG May 2019–May 2020

Explore Graduate Studies Volunteer *Ann Arbor, MI, USA*

Advised prospective students about graduate studies in computer science Oct 2018, Oct 2019

Lunch and Lab with a Grad Mentor Program Volunteer *Ann Arbor, MI, USA*

Mentored a student on how to prepare for graduate school in computer science Sep 2019

Graduate Admissions Recruit@Home Speaker *Berkeley, CA, USA*

Gave a recruitment talk at University of California, Berkeley of behalf of UMich CSE Sep 2019

Big Data Summer Institute Lecturer *Ann Arbor, MI, USA*

Created and delivered data science lectures to public health undergraduate students July 2019, July 2021

Computer Science Mentors President *Berkeley, CA, USA*

Managed large scale mentoring for introductory computer science courses June 2016–May 2017

Peer Advisor *Berkeley, CA, USA*

Held advising sessions for students interested in a mathematics degree June 2016–May 2017

Computer Science Mentors Secretary *Berkeley, CA, USA*

Assisted in communications for mentoring organization June 2015–May 2016

Languages

English: native
Urdu: advanced proficiency
Spanish: moderate proficiency