Aishwarya Mandyam

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Education

Stanford University, Stanford CA
- PhD Computer Science, Advised by Barbara Engelhardt — September 2022- Present
- Transferred along with advisor

Princeton University, Princeton NJ
- PhD Computer Science, Advised by Barbara Engelhardt — August 2020-May 2022

University of Washington, Seattle WA
- M.S Computer Science — June 2020
  - Advised by Luis Ceze, Jeff Nivala, and Kevin Jamieson
- B.S Computer Science, B.A Philosophy — June 2019

Research Interests

Statistical Machine Learning, Reinforcement Learning, Bayesian Statistics

Publications and Posters

"Kernel Density Bayesian Inverse Reinforcement Learning", **Aishwarya Mandyam**, Didong Li, Diana Cai, Andrew Jones, Barbara E. Engelhardt. (Draft) Poster at O'Bayes 2022, to be presented at WiML 2022.

"Guiding Efficient, Effective, and Patient-Oriented Electrolyte Replacement in Critical Care: An Artificial Intelligence Reinforcement Learning Approach", Niranjani Prasad*, **Aishwarya Mandyam***, Corey Chivers, Michael Draugelis, C. William Hanson III, Barbara E. Engelhardt, Krzysztof Laudanski. Journal of Precision Medicine

"Nested Policy Reinforcement Learning", **Aishwarya Mandyam**, Andrew Jones, Krzyzstof Laudanski, Barbara E. Engelhardt. Arxiv Preprint.

"COP-E-CAT: Cleaning and Organization Pipeline for EHR Computational and Analytic Tasks", **Aishwarya Mandyam**, Jeff Soules, Elizabeth Yoo, Krzyzstof Laudanski, Barbara E. Engelhardt. ACM BCB 2021

"Estimating Influential Samples in the Fragile Families Challenge", **Aishwarya Mandyam**, Siena Dumas Ang, Barbara E. Engelhardt. NeurIPS WiML Workshop 2020 (poster)

"Molecular Matchmaker: selecting peptide-aptamer binding pairs using machine learning", **Aishwarya Mandyam**, Yuhao Wan, Luis Ceze, Jeff Nivala, Kevin Jamieson. MLCB 2020 (Invited for Oral Presentation, 15% acceptance rate)

"Porcupine: Rapid and robust tagging of physical objects using nanopore-orthogonal DNA strands" Katie Doroschak, Karen Zhang, Melissa Queen, **Aishwarya Mandyam,** Karin Strauss, Jeff Nivala, Luis Ceze. Nature Communications 2020. **UW Madrona Prize Runner-up**

"Reducing Identification Time in a Molecular Tagging System", **Aishwarya Mandyam**, Katie Doroschak, Karen Zhang, Melissa Queen, Karin Strauss, Jeff Nivala, Luis Ceze. Grace Hopper Conference 2019, **ACM Student Research Award 2nd Place.** (poster)

Research Experience

Gladstone Institutes

Advised by Barbara E. Engelhardt — 08/2021 – Present
- Building statistical machine learning tools for reinforcement learning for healthcare applications using Electronic Health Records data.

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Molecular Information Systems Lab, University of Washington
Advised by Luis Ceze, Jeff Nivala, Kevin Jamieson 12/2017 – 08/2020

- *Aptamer Pursuit*: Used neural networks to effectively characterize peptide sequences that will bind with high affinity to aptamer sequences. This is relevant in functional genomics, immunotherapy and improving the efficiency of the SELEX pipeline.
- *Molecular Tagging System*: Evaluated the results of sequencing from nanopore phasing on custom DNA barcodes to determine their effectiveness and designing new DNA barcodes based on the error analysis results, presented at DNA 25, Grace Hopper 2019.

Allen Institute for Artificial Intelligence, *Research Intern,* Ultrasight 03/2019 – 09/2019
Advised by Vu Ha, Oren Etzioni

- Implemented and analyzed custom computer vision models to detect veins and arteries in ultrasound videos; these models perform with higher accuracy and speed than state of the art models.
- Deployed the fastest and most accurate model to an Android tablet using Keras.

UbiComp Lab, University of Washington
Advised by Mayank Goel and Shwetak Patel 08/2015 – 01/2017

- *RainCheck*: Built an Android app that bypasses the Android kernel to generate custom responses to touch screen events to improve the phone screen's performance under exposure to rain.

Work Experience

Sage Bionetworks, *Research Engineering Intern,* Bridge Team 09/2018 – 03/2019

- Designed and developed an Android app feature to measure cardiorespiratory fitness to be used in a National Institute of Health study with 1 million users.
- This feature teaches users how to measure their heart rate using a smartphone camera and provides feedback about their measurement using signal processing.

Microsoft, *Machine Learning Intern*, Xbox Machine Learning and Artificial Intelligence 06/2018 – 09/2018

- Designed and implemented a Convolutional Neural Network to detect highlight clips from game streams to enable gamers to share the best parts of their gameplay sessions, increasing the visibility of the Xbox gaming environment.

Microsoft, *Software Engineering Intern*, Xbox Shell Speech 06/2017 – 09/2017

- Built an end-to-end prototype that allows users to control the Xbox using Amazon Alexa and Cortana Assistant. Prototype was expanded to create a shipped feature and covered in The Verge, TechCrunch, IGN, Geekwire.

Microsoft, *Explorer Intern*, Outlook Satisfy Team 06/2016 - 09/2016

- Developed and deployed a C# Outlook plugin to help employees view information about their support tickets.

Expedia, *Software Developer Apprentice*, Cruise Team 06/2015 - 08/2015

- Implemented a responsive web design for 4 cruise shopping pages; project shipped at expedia.com/cruises.

Invited Talks

American Statistical Association, Spring Chapter Meeting 04/2021
Machine Learning for Computational Biology (MLCB) 10/2020

Awards + Fellowships

Stanford School of Engineering Fellowship (2022): Awarded a 1-year fellowship to cover rotations in my first year at Stanford University.
ACM Student Research Competition Award (2019): Presented research at the Grace Hopper Conference and won 2nd place in the undergraduate research category.

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Class of 2019 Allen School Undergraduate Service Award (2019): The Allen School service award recognizes 2 students in every graduating class for outstanding service contributions to the Allen School.
Husky 100 (2018): The Husky 100 recognizes 100 out of 40,000 UW undergraduate and graduate students who are making the most of their time at the UW.

Teaching Experience

UW CSE 415 *Artificial Intelligence, TA* 09/2019 – 12/2019

Volunteer Experience

ACM Conference on Health Informatics and Learning *Reviewer* 2021
IEEE/ACM Transactions on Computational Biology and Bioinformatics *Reviewer* 2021
UW Association of Computing Machinery *Chapter President, Event Coordinator* 06/2016 – 06/2018
DubHacks, *Co-Director* 05/2016 – 11/2017