Aishwarya Mandyam

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Education

Princeton University, Princeton NJ

- PhD Computer Science — August 2020-Present
  - Advised by Barbara Engelhardt

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 (double degree) — June 2019

Research Interests

Machine Learning for Healthcare, Reinforcement Learning

Research Experience

BEEHIVE, Princeton

Advised by Barbara E. Engelhardt — 08/2020 – Present

- Building machine learning methods for clinical decision making.

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.
- *Memories in DNA*: Leveraged Microsoft Cognitive Services API and Clarifai computer vision tools to process images from a social media campaign to generate more testing data for the DNA data storage project. These tools are being used for all images uploaded to the Memories in DNA project.

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

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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.

Publications and Posters

"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)

"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)

"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**

Invited Talks

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

Awards

ACM Student Research Competition Award (2019): Presented research at the Grace Hopper Conference and won 2nd place in the undergraduate research category.
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

UW Association of Computing Machinery *Chapter President, Event Coordinator* 06/2016 – 06/2018
DubHacks, *Co-Director* 05/2016 – 11/2017