

Jung Min Lee

jminlee@umich.edu
(443) 627-0602

EDUCATION

University of Michigan PhD, Computer Science and Engineering	Ann Arbor, MI 2020 – Present
Johns Hopkins University MSE, Biomedical Engineering (Biomedical Data Science) BS, Double Major in Computer Science & Biomedical Engineering (CGPA 3.94) Minor in Applied Math and Statistics	Baltimore, MD 2019 – 2020 2016 – 2020
<ul style="list-style-type: none">Honors/Awards: Dean's List (2016-19), BDP Undergraduate Research Program Grant Recipient, CER Technology Fellow, Rewriting the Code Fellow, Member of Tau Beta Pi Engineering Honor Society	

RESEARCH EXPERIENCE

AI for Surgery Group , <i>Undergraduate Research Assistant</i> Malone Center for Engineering in Healthcare	June 2019 – Present
<ul style="list-style-type: none">Develop surgical phase recognition model with Python from instrument motion and surgical video data using machine learning classification techniques under guidance of Dr. Anand Malpani.Analyze surgical motion data and video data to extract features and build classification models that can assess the skill level of the surgeon. Publication in progress to American Journal of Obstetrics and Gynecology.	
Precision Care Medicine , <i>Undergraduate Student</i> Johns Hopkins University and Johns Hopkins School of Medicine	September 2018 – May 2019
<ul style="list-style-type: none">Applied quantitative analysis and machine learning to identify crucial biomarkers for predicting insomnia from electrical biosignals (EEG, EKG, EOG) and built classification models using generalized linear models.Analyzed and processed large medical datasets to clean data and extract relevant features.Collaborated with faculty in both the Biomedical Engineering department (Dr. Sridevi Sarma) and the School of Medicine (Dr. Charlene Gamaldo, Dr. Rachel Salas). Publication in progress.	
Biostatistics Lab , <i>Undergraduate Research Assistant</i> Johns Hopkins Bloomberg School of Public Health	June 2018 – February 2019
<ul style="list-style-type: none">Built pipeline to streamline analysis of 500,000+ patients' genomic data on 1 million single nucleotide polymorphism sites to identify crucial biomarkers for breast cancer.Developed new risk prediction models for breast cancer using linear and lasso regression using Python and R, integrated and compared with existing models to evaluate performance. Under guidance of Dr. Nilanjan Chatterjee.	
Computational Cardiology Lab , <i>Undergraduate Research Assistant</i> Johns Hopkins University	January 2017 – September 2017
<ul style="list-style-type: none">Developed and simulated single-cell ventricular myocyte models to identify connection between distribution of L-type calcium channels and arrhythmias. Compared simulated results with wet-lab experimental results to validate model. Under guidance of Dr. Natalia Trayanova.	

DESIGN PROJECTS

Control Theory Applet	August 2018 – May 2019
<ul style="list-style-type: none">Created an interactive online applet using R to aid understanding and real-life biomedical applications of control theory. Funded by the JHU Center for Educational Resources.Hosted final implementation online to be evaluated by students in 2019 Systems and Controls course. Survey results showed that 93% of students found the applet to be useful in understanding the concepts they learned in class and connecting it to real-life applications.	

App Minutes

February 2018 – May 2018

- Designed and developed an Android app that tracks user's phone usage and habits.
- App displays total usage time of specific apps in real time, shuts down apps automatically based on pre-set limits, and sends alerts to remind users to get off the phone. Used SQLite to maintain usage history database.

TacPac

November 2016 – December 2017

- Team lead of five students to develop an affordable point-of-care device for organ transplant recipients to measure drug levels in a droplet of blood.
- Designed and developed affordable PDMS millifluidic device that can move and mix microliters of fluid to run drug assay. Improved performance through several prototype iterations.
- Developed web application and iOS app to facilitate communication between patients and clinicians and maintained database to keep track of patients' drug level data.
- Consulted with end users and clinicians at Johns Hopkins Hospital to determine need and design requirements. Presented prototype at 2018 BMES conference.

TEACHING EXPERIENCE

Course Assistant for Intro to Algorithms

January 2019 – Present

Johns Hopkins University, Department of Computer Science

- Hold weekly office hours to assist students in understanding materials covered in class and practice problems.
- Grade and evaluate students' algorithms for correctness and runtime and space complexity.

Teaching Assistant for Probability and Statistics

January 2019 – May 2019

Johns Hopkins University, Department of Applied Math and Statistics

- Held weekly recitation sessions and office hours. Created practice problem sets for exam preparation.
- Substituted for professor as lecturer multiple times.

Teaching Assistant for Discrete Math

September 2018 – December 2018

Johns Hopkins University, Department of Applied Math and Statistics

- Held weekly office hours and review sessions.

Head PILOT Leader

September 2017 – May 2019

Johns Hopkins University, Office of Academic Support

- Lead weekly linear algebra review sessions for 10+ students. Created weekly problem sets to help students understand material covered in class that week. Received average of 3.92/4 in end of semester reviews.
- Lead PILOT leader meetings, organize review session for 60 students, facilitate communication between PILOT leaders, students, and course instructors.

PRESENTATIONS

An Interactive Applet for Teaching Biomedical Applications of Feedback Control Theory

J. Costacurta, J. Lee, R. Sczerba, S. Sarma. Poster presented at: 2019 BMES Annual Meeting, Oct. 16-19, 2019. Philadelphia, Pennsylvania

At-Home Automated Device for Therapeutic Monitoring of Tacrolimus

J. Lee, B. Ye, G. Fernandes, E. Wu, B. Wolfinger, D. Mogul, A. Manbachi. Poster presented at: 2018 BMES Annual Meeting, Oct. 17-20, 2018. Atlanta, Georgia

VOLUNTEER ACTIVITIES

Yo! Baltimore Tutoring Project

September 2016 – Present

Vice President (2019-2020), Secretary (2018-2019)

- Mentor and provide support to students at the Baltimore Youth Opportunity Center every week.
- Manage volunteer attendance, club wide communication, and end-of-semester “Science Day” scheduling.

Baltimore Robotics Institute

September 2016 – September 2017

Volunteer, 3hrs/week

- Mentored local middle school students during weekly robotics classes and helped them prep for tournaments.

TECHNICAL SKILLS

Programming Languages: Python (NumPy, SciPy, PyTorch, OpenCV), R, Java, MATLAB, C/C++

Tools/OS: Android Studio, SQLite, LaTeX, Git; Windows, Linux

Languages: English (proficient), Korean (proficient)