

EDUCATION

The Johns Hopkins University **Baltimore, MD**
Majors: Computer Science, Applied Math & Statistics *2018~2022*
Minor: Computer Integrated Surgery
GPA: 3.50/4.00 *2018~2020*

WORK & INTERNSHIPS

Research: Neural Machine Translation **Baltimore, MD**
Student Researcher *Aug 2020 ~ Present*

Advisor: Dr. Philipp Koehn · Center for Language and Speech Processing (CLSP)

- Exploring ways to integrate glossaries and inline instructions into machine translation models at runtime to enforce specialized terminology to prevent degradation of model performance.

Teaching: C/C++ **Baltimore, MD**
Course Assistant *Aug 2020 ~ Present*

- TA for Intermediate Programming, a core computer science course.
- Assisted students in class with coding practices, held office hours, and graded assignments.

Teaching: Electromagnetism **Baltimore, MD**
Learning Assistant *Jan 2020 ~ May 20*

- TA for Physics II, a core engineering course. Attended lectures twice a week, taught Friday sections to help students review class materials and solve additional problems, and held office hours weekly.
- Compiled supplementary notes on the mathematics of electromagnetism for students to help understand the material.

Internship: Electro-analgesic Pain Modulation **Baltimore, MD**
Student Researcher *Mar 2019 ~ Present*

Advisors: Dr. Yun Guan, Dr. Amir Manbachi, Dr. Allan Belzberg et al. · Neurosurgery Pain Institute (JHMI)

- Reverse-engineered “Scrambler” electro-analgesic device for chronic pain relief with Arduino and various other electronic components, and reconstructed electrical waveforms with C/C++.
- Visualized individual waveforms with the Spike2 data acquisition system in combination with MATLAB and categorized each waveform based on its distinct stimulation patterns.
- Conducted testing trials and used ImageJ cellular analysis software to examine stimulation effects on DRG neurons.
- Created neuro-stimulation pathway models based on the principles of gate control theory.

Design Team: Weather Balloon Project **Baltimore, MD**
Project Lead *Mar 2019 ~ Present*

Advisor: Dr. Brice Ménard · Bloomberg Center for Physics and Astronomy (JHU)

- Launched payloads with helium weather balloons to high altitudes of 84,000 feet; collected atmospheric data along the payload’s ascent to and descent from the stratosphere.
- Created effective payload designs containing electronic sensors and devices including cameras, multiple sensors, and APRS & GSM tracking modules, programmed with C, Python, Arduino, and Shell scripts to establish communication between ground and payload, driven by Raspberry Pi computers.
- Organized and prepared the team for meetings, day-of-launch planning, and post-launch data analysis workshops.

Design Team: EpiX **Baltimore, MD**
Engineering Lead *Nov 2018 ~ Present*

Advisors: Dr. Youseph Yazdi · Center for Bioengineering Innovation and Design (CBID); Martin Jacobsen · Becton Dickson (BD)

- Performed product research and designed novel extendable Tuohy needle prototypes aimed to reduce patient and physician discomfort in current epidural procedures and to save \$162 million/year for hospitals.
- Prototyped with Fusion360 and performed finite element analysis (FEA) to test model’s efficacy and usability.

- Collaborated with the School of Medicine and BD to optimize our model for clinical and industrial settings.
- Applied and received the Malinow Grant award (\$4,000) to fund the project over the summer of 2019, currently seeking IRB approval and preparing to present at ASA 2020.

VOLUNTEER & LEADERSHIP EXPERIENCES

Global Medical Brigades

Executive Board Member · Volunteer

Tegucigalpa, Honduras

Jan 19 ~ May 20

- Assisted three local Honduran communities to build infrastructure in healthcare, sanitation, and clean water systems.
- Organized donation drive for over 1400 sanitation bundles and contacted companies to sponsor future brigades.

First-year Small Group

Junior Mentor

Baltimore, MD

Aug 20 ~ Present

- Help incoming freshmen navigate an online college experience.
- Organize discussions regarding current issues/advances in computer science.

PERSONAL PROJECTS

Project Ada

Engineer

Birmingham, AL

May 20 ~ Aug 20

- Built and deployed a quadcopter drone from scratch.

Night Sky

Telescope Operator

Baltimore, MD

June 19 ~ Present

- Certified operator of the Morris W. Offit telescope at JHU.
- Photographed planets in the solar system and stars beyond.

SKILLS & INTERESTS

Technical:	Git, Java, C/C++, Python, MATLAB, L ^A T _E X, HTML/CSS/JS, R, AWS, CAD, Arduino, Raspberry Pi.
Courses:	Algorithms, Object-Oriented Programming, Human Language Technology, AI, Data Structures, Intermediate Programming, Optimization I, Probability & Statistics, Linear Algebra & Differential Equations, Linear Signals & Systems, Discrete Math, Calculus III, Electromagnetism, Mechanics.
Certificates:	Bloomberg Certificate (Bloomberg, 6/2020), Radio Operator (ARRL, 6/2019), Telescope Operator (Maryland Space Grant Consortium, 6/2019).
Languages:	Mandarin (fluent), English (fluent), French (intermediate), Latin (elementary).
Interests:	Software Engineering, Machine Translation, Computational Research, Aerospace Engineering.
Honors:	Dean's List.