

Chenyi Zhu

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EDUCATION

The Johns Hopkins University

Baltimore, MD

Majors: Computer Science, Applied Math & Statistics

2018~2022

GPA: 3.50/4.00

Honor: Dean's List

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.

Internship: Medical Image Segmentation

Baltimore, MD

Delineator

Aug 2020 ~ Present

Advisor: Shangxian Wang · Image Analysis & Communications Lab (IACL)

- Working on segmentation of the thalamus based on MRI scans.
- Creating training data for medical image segmentation algorithm.

Teaching: C/C++

Baltimore, MD

Course Assistant

Jan 2020 ~ Present

- TA for Intermediate Programming, a core computer science course.
- Assisting 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.

Design Team: Weather Balloon Project*Project Lead***Baltimore, MD***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*Engineering Lead***Baltimore, MD***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 Malinow Grant (\$4,000) to fund the project over the summer of 2019 seeking IRB approval.
- Selected to present at ASA 2020.

VOLUNTEER & LEADERSHIP**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 2020 ~ Aug 2020*

- Built and deployed a quadcopter drone from scratch.

Night Sky*Telescope Operator***Baltimore, MD***June 2019 ~ 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^AT_EX, 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 L.P., 6/2020), Radio Operator (ARRL, 6/2019), Telescope Operator (Maryland Space Grant Consortium, 6/2019).

Languages: English (fluent), Mandarin (fluent), French (intermediate), Latin (elementary).

Interests: Software Engineering, Machine Translation, Computational Research, Aviation & Avionics.