

# Chenyi “Lisa” Zhu

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## EDUCATION

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### Johns Hopkins University

Baltimore, MD

**Majors:** *B.S. Computer Science, Applied Math (GPA 3.52)*

2018~2022

**Honors:** *Dean’s List, Malinow Fund (\$4,000)*

**Courses:** *Algorithms, Object-Oriented Programming, Human Language Technology, Optimization, AI, Computer Systems, Probability, Statistics, Linear Algebra & Differential Equations*

## RESEARCH EXPERIENCE

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### Neural Machine Translation

Baltimore, MD

*Student Researcher · Center for Language and Speech Processing*

Aug 2020 ~ Present

*Advisor: Dr. Philipp Koehn*

- Synthesize parallel corpora to include previously unseen single-word terminologies to distribute relevant information on the global pandemic through the TICO-19 dataset for low-resource languages.
- Working to incorporate multi-word terms by generating efficient, order-sensitive embeddings with Python.

### Medical Image Segmentation

Baltimore, MD

*Delineator · Image Analysis & Communications Lab*

Aug 2020 ~ Dec 2020

- Traced thalamus segmentation based on MRI scans and created training data for image segmentation algorithm.

### Electro-analgesic Pain Modulation

Baltimore, MD

*Student Researcher · Neurosurgery Pain Institute*

Mar 2019 ~ Present

- 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.

## TEAM PROJECTS

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### GOOSE

Baltimore, MD

*Software Engineer · Department of Computer Science*

Aug 2020 ~ Dec 2020

- Created **MyCooksApp**, a social network application to support local small businesses by connecting food trucks and potential customers; built mainly in Java following CI/CD and AGILE development principles.
- Integrated Google Maps JavaScript API with server endpoints allowing food trucks to see and update locations, and customers to rank food trucks with regard to relative distances in real time.

### Weather Balloon Project

Baltimore, MD

*Project Lead · Bloomberg Center for Physics and Astronomy*

Mar 2019 ~ Present

- 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, and Shell scripts to establish communication between ground and payload, driven by Arduino and Raspberry Pi computers.
- Organized and prepared the team for meetings, day-of-launch planning, and post-launch data analysis workshops.

## EpiX

*Engineering Lead · Center for Bioengineering Innovation and Design*

**Baltimore, MD**

*Nov 2018 ~ Present*

- 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.
- Presented product solution at American Society of Anesthesiologists' 2020 annual meeting.

## TEACHING EXPERIENCE

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### Intermediate Programming

*Course Assistant*

**Baltimore, MD**

*Aug 2020 ~ Present*

- TA for core computer science course in C and C++, chosen from a pool of over a hundred highly competitive candidates.
- Help students in class with coding practices, hold office hours, and grade assignments.

### Electromagnetism

*Learning Assistant*

**Baltimore, MD**

*Jan 2020 ~ May 2020*

- TA for Physics II, a core engineering course.
- Aided lecture delivery, taught Friday sections to help students solve additional problems, and held office hours weekly.
- Compiled notes on mathematical backgrounds of electromagnetism to consolidate understanding of course materials.

## VOLUNTEER & LEADERSHIP

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### First-year Mentoring Group

*Junior Mentor*

**Baltimore, MD**

*Aug 2020 ~ Present*

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

### Global Medical Brigades

*Executive Board Member*

**Tegucigalpa, Honduras**

*Jan 2019 ~ May 2020*

- 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.

## SKILLS

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**Programming:** Java, C/C++, Python, HTML/CSS, JavaScript, MATLAB, R, Assembly x86, SQL.

**Software:** Git, PyTorch, AWS, CAD, Bloomberg Terminal, Microsoft Office.

**Certificate:** BMC Certificate (Bloomberg LP, 6/2020).

**Languages:** Mandarin, English, French, Latin.