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Education

- **Carnegie Mellon University** 2024-2028
  B.S. Computer Science, Statistical Machine Learning *GPA: 3.93/4.0*
  - **Coursework:** Data Structures and Algorithms, Computer Systems, Functional Programming, Parallel Algorithms, Theoretical Ideas in Computer Science, Discrete Math, Linear Algebra, Multivariate Calculus, Probability Theory

Experience

- **CMU School of Computer Science Zhang Lab** Advisor: Dr.Martin Zhang
  Software Research Intern *Mar 2025 - Sept 2025*
  - Created a computer vision model (PyTorch, OpenCV) to predict cell counts from a novel type of cell imaging data
  - Conducted extensive preprocessing, parameter tuning and evaluated model performance using IoU between predicted and annotated cell regions, along with correlation and regression metrics across multiple tissue types
  - Built a python package linking predicted cell counts with spatial gene expression for disease–cell association analysis
- **Stony Brook University School of Informatics IMAGINE Lab** Advisor: Dr. Prateek Prasanna
  Summer Research Assistant *May 2024 - Sept 2024*
  - Performed radiomic image analysis on dental cone-beam CT scans to analyze vascular calcifications.
  - Applied feature selection and trained machine learning models (neural networks, random forests, logistic regression) to predict clinical outcomes such as stroke and heart attack based on medical history and radiomic features
- **UC Irvine, Learning and Decision Neuroscience Lab** Advisor: Dr. Mimi Liljeholm
  Software Research Assistant *Jun 2022 - Nov 2023*
  - Built and maintained the lab's cloud-based web experiment infrastructure using Google App Engine and Firebase, supporting large-scale online decision-making studies on Amazon MTurk and SONA crowdsourcing pipelines
  - Designed and deployed end-to-end Flask-based web experiments to study neural basis of decision-making

Projects

- **AnkiLite: Time-Aware Spaced Repetition Learning System (Jan 2025 - Feb 2025)**:
  - Built a full-stack flashcard learning system that tracks user response time to estimate recall difficulty and dynamically schedules future flashcard reviews based on user accuracy and response speed.
  - Implemented a Django REST backend with JWT authentication (dockerized) and a standalone Angular frontend supporting multi-user login, card creation, deck management, and scheduling of card review order.
- **Deep Learning–Based Mobile Application for Retinitis Pigmentosa Detection (Sept 2022 - Feb 2023)**:
  - Developed and optimized an ensemble neural net model with transfer learning (MobileNet) to diagnose retinitis pigmentosa from retinal images, achieving 97% accuracy and 0.94 F1 score on 300-image dataset.
  - Integrated the trained model into a cross-platform mobile application using Ionic React Native and Expo
- **Localizing Optimal Locations for Deep Transcranial Magnetic Brain Stimulation (Jun 2022 - Sept 2023)**:
  - Performed brain MRI tissue segmentation and large-scale finite element analysis simulations of induced electric fields to identify optimal coil placement locations on scalp for maximal stimulation of target brain regions
  - Analyzed data using unsupervised machine learning (dimensionality reduction and clustering) and validated findings against an independent TMS electric field simulation toolkit developed by Massachusetts general hospital.
  - Authored research paper: "Identifying Locations for Transcranial Magnetic Stimulation Coil Placement For Deep Brain Structures" in Journal for Student Research Vol. 12 No. 4 2023

Achievements

- **USA Biology Olympiad 2023 Finalist/Top 20 Scorer (∼11,000 participants nationally)**:
  - Invited to training camp for top 20 scorers to compete for spot on USA International Biology Olympiad (IBO) team
- **USA National Brain Bee Neuroscience competition 5th Place (2500 participants nationally)**:

Skills

- **Proficient Programming Languages**: Python, C/C++, Java, JavaScript, HTML/CSS, SQL, R, MATLAB
- **Packages/Software**: React Native, Angular, Flask, Django, MongoDB, Firebase, TensorFlow, Keras, PyTorch, scikit-learn, Matplotlib, Pandas, NumPy, Seaborn, jsPsych, Gmsh, PyRadiomics, SimNIBS, Ionic