CHAO LI (CHARLIE)

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EDUCATION

Carnegie Mellon University, Pittsburgh, PA ***May 2022***
Bachelor of Science in Electrical and Computer Engineering, GPA: 4.0

TECHNICAL SKILLS

Programming Language: Python, MATLAB, C, Java, HTML, CSS, JavaScript
Software: Git, MS Office, Arduino, LaTeX, AWS Cloud Services
Language: Fluent in English and Chinese (Mandarin)

RESEARCH & WORK EXPERIENCE

Undergraduate Research Assistant ***Sep 2019 – Present***
Robotics Institute, Carnegie Mellon University

- Built glove for soft robots with off the shelf sensors and materials to quantify in-hand manipulation
- Captured motion kinematics with IMUs and colored markers, and contact with force sensors
- Optimized marker tracking with Kruskal's Algorithm, Kalman Filter and Camera Calibration
- Conducted Taxonomy Experiments on human hand to justify sensor placement
- Developed quantitative baselines for dexterous manipulations of tendon-driven soft actuator

Machine Learning Research Intern ***Jun 2020 – Aug 2020***
*Institute for Infocomm Research, A*STAR*

- Implemented Deep Neural Networks on multiclass, unilabel, class imbalance 112,120 NIH Chest X-Ray images dataset with PyTorch Library
- Designed loss function for custom semi-supervised models *(*6.7% higher *AUPRC score than supervised baseline model with just 5% of the dataset)*

Physical Science Research Intern ***Apr 2019 – Aug 2019***
*Institute for Material Research and Engineering, A*STAR*

- Performed MUMAX simulations, Magnetic Force Microscopies (MFM) and Atomic Force Microscopies (AFM) to confirm fabricated antiferromagnetic stack hosts stable magnetic skyrmions at zero fields

Machine Learning Research Intern ***Jan 2019 – Mar 2019***
Electrical and Computer Engineering Department, NUS

- Prepared 20-folds cross validation on Human Connectome Project Dataset *(419x419 functional connectivity matrix from 954 patients' fMRI scans)*
- Compared performance of Classical Machine Learning in predicting fluid intelligence *(Support Vector Regression's correlation was 4.1% higher than Elastic Net CV and 1.9% higher than Ridge Regression)*

PROJECTS

Singapore COVID-19 National Response ***May 2020 – Jun 2020***

- Collaborated with UI/UX designer to build custom made medical device website, and research engineers to integrate Raspberry Pi with Blinkt! LEDs using JavaScript

Hack112, Team Leader, Carnegie Mellon University ***Oct 2019 – Oct 2019***

- Developed and presented easy reconfigurable Flappy Bird based motion interactive game
- Assigned different roles (e.g. game development, color detection, image filtering) to team members

EXTRACURRICULAR ACTIVITIES

IEEE Student Chapter, Pre-Professional, Member ***Feb 2020 – Present***

- Organized study groups and planned networking events within CMU's ECE community

Inter-Fellowship Association, Board Member ***Aug 2019 – Present***

- Publicized large scale "All Campus Praise Night" event attended by over 100 students on social media
- Led team of 8 on full-week Vacation Bible School for Philadelphia Mission's Trip
- Played the guitar and cajon during street outreach