Yucheng Shao

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Education

University of Pennsylvania – Philadelphia, PA — GPA: 4.0/4.0

BSE in Computer & Information Science; Minor in Mathematics
Sept 2023 - May 2027

- **University Scholars:** Selected among 120 members for interdisciplinary research-focused program recognizing academic excellence & leadership potential
- **Wharton Asia Investments (Quant Global Macro):** 2023 FACT Capital Stock Pitch Competition Finalist
- **Relevant Coursework:** Algorithms & Data Structures, Automata Theory, Computer Architecture, Big Data Analytics, Program Design, Discrete Mathematics, Linear Algebra, Multivariable Calculus, Probability & Statistics

Winston Churchill High School – Potomac, MD — Unweighted GPA: 4.0/4.0; Weighted GPA: 4.97/4.0
Sept 2019 - May 2023

- **2022 Rochester Institute of Technology Computing Medal Award & Scholarship:** Selected from 1,200 students
- **2023 National Merit Scholar;** AP Scholar with Distinction (5/5 on 15 APs)

Experience

Research Intern in the Weber Lab – **University of Pennsylvania, Neuroscience Department** — May 2024 - Present

- Developing machine learning models using Pytorch to predict p-waves in brain state data during REM sleep in mice
- Built Convolutional (CNN) and Long Short-Term Memory (LSTM) neural networks from scratch
- Achieved 98% accuracy with an LSTM model and 95% accuracy (RMSE) with a CNN model using 60+ features
- Processed & cleaned 50+ local field potential (LFP) files with > 26 million samples per file
- Generated augmented data; visualized predicted waveforms, accuracy, & loss using Matplotlib

Research under Prof. Charles Yang – **University of Pennsylvania, Linguistics Department** — May 2024 - Oct 2024

- Developed an algorithm using Python to mimic how children exercise pattern recognition using the Abductive Discovery of Productivity (ADP) and the Tolerance Principle (TP)
- Built a recursive decision tree-based algorithm that dynamically resizes based on user input

CIS 1200 TA (Programming Languages and Techniques) – **University of Pennsylvania** — Jan 2024 - Present

- Teach OCaml, Java, & program design concepts, including functional programming, GUI, & interfaces
- Lead weekly recitation review for 20+ students and office hours for 350+ students
- Develop weekly recitation materials for 50+ TAs including interactive slides & worksheets

CISESS Internship – **University of Maryland, ESSIC** — June 2022 - Aug 2022

- Developed a machine learning-based snowfall detection algorithm using Python for NASA's Global Precipitation Measurement Mission satellite (GPM); Used inputs from 9 microwave sensors
- Achieved 95% classification accuracy using XGBoost with less than 0.1% false prediction rate
- Increased forecast accuracy in Alaska & the Southern Hemisphere from 0% to 94.6%
- Developed XGBoost, Random Forest, & Linear Regression ML models to predict snowfall from 800+ features

Skills & Interests

Programming Languages: Python, Java, OCaml, C, RISC-V, SQL, MATLAB, HTML/CSS, Javascript, LaTeX
Frameworks/Libraries: Pytorch, Scikit Learn, Tensorflow, Raspberry Pi, Regex, Github, Pandas, Matplotlib
Languages: English (native proficiency), Chinese (native proficiency), Spanish (professional fluency)
Extracurriculars: Theta Tau: Engineering Fraternity, Bubble Bees Crochet (Co-founder)