

YUCHENG SHAO

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Education

University of Pennsylvania

GPA: 3.97/4.0

B.S.E. and M.S.E. in Computer Science (Accelerated Master's); Minor in Mathematics

Aug 2023 - May 2027

University Scholars: Selected among **120 students** for Penn's flagship undergraduate research program

Coursework: Algorithms & Data Structures; Operating Systems; Databases; Applied Machine Learning; Big Data Analytics; Computer Systems; Automata, Computability, and Complexity; Discrete Math; Probability & Statistics

Technical Skills

Languages: Python, Java, JavaScript, SQL, C, C++, OCaml, HTML/CSS

Frameworks: React, Node.js, AWS, Docker, PyTorch, TensorFlow, Scikit-learn, Pandas, Git, Assembly, Regex, Figma

Professional Experience

Broadridge Financial Solutions

June 2025 – Aug 2025

Software Engineer Intern

New York, NY

- Built RESTful APIs (Node.js, MCP) integrating Broadridge's Confluence/Jira ecosystem, exposing **5K–10K** Confluence pages and **300+** Jira projects through a unified backend.
- Connected backend to VS Code AI extension, letting **3,000+ engineers** query docs and tickets directly in their IDE.
- Created an XBRL NLP pipeline using Python (Hugging Face Transformer + XGBoost, Random Forest) achieving **85%** accuracy on **20K+ filings** and automating **10–14 hrs/week** of manual tagging.
- Refactored **8+ MCP flows**, reducing duplicate logic by **30%** and cutting request errors by **20%**.

Weber Lab, University of Pennsylvania

May 2024 – Present

Research Intern

Philadelphia, PA

- Trained and tuned LSTM & CNN models for REM sleep P-wave detection with **98%** accuracy, **0.05** RMSE, and **100K+** noisy waveform samples through hyperparameter sweeps and cross-recording validation.
- Built automated preprocessing/visualization for **20+ EEG/LFP channels**, reducing manual cleaning time by **70%**.
- Packaged full P-wave detection pipeline into reusable module, cutting experiment setup time by **50%**.

University of Pennsylvania

Jan 2024 – Present

Teaching Assistant – CIS 1200: Programming Languages & Techniques

Philadelphia, PA

- Lead weekly recitations (**20+ students**) and office hours (**350+ students**) for OCaml- & Java-based course.
- Develop course materials, debugging worksheets, and review modules used by **50+ TAs** across assignments.

University of Maryland / NOAA-CISESS

June 2022 – Aug 2022

CISESS Intern

College Park, MD

- Built Python ML models (XGBoost, Random Forest, Linear Regression) for NASA's GPM mission using **800+ features** and data from **9** microwave sensors; Achieved **95%** accuracy with **0.1%** false rate on global snowfall detection
- Improved detection accuracy in Alaska and the Southern Hemisphere from **0% → 94.6%**.

Projects

Horse Racing Analytics Application | React, Node.js, PostgreSQL, AWS

- Built an interactive React UI backed by PostgreSQL (AWS RDS) and REST APIs, integrating **4M+** horse race & jockey records with sortable tables & filters for real-time analysis.
- Designed normalized schemas and optimized SQL (indexes, CTEs, materialized views) enabling real-time ranking of **100K+** trainer-jockey combinations and historical race outcomes.
- Reduced query latency from **20s** to less than **4s** using caching and query-plan optimization on large aggregations.

PennOS | C, User-Level Threads, FAT File System

- Implemented a UNIX-style OS with user-level threads and a **priority scheduler** supporting **100+** runnable tasks.
- Built a FAT-based file system with support for **40+** file operations including copy, move, chmod, and script execution.
- Implemented core shell features (parsing, redirection, pipelines) supporting **25+** built-in and external commands.

Leadership & Achievements

Leadership & Awards: PennApps Hackathon Board (2025 Marketing Lead), IMC x Wharton Finance Club Trading Competition (1st Place), Wharton Asia Exchange x FACT Capital Stock Pitch Finalist

Conferences: 2022 American Geophysical Union Fall Meeting; AIAA Mid-Atlantic YPSE Conference

Extracurriculars: Theta Tau Engineering Fraternity (PR Chair); DJ at Penn; Bubble Bees Crochet Shop (Co-Founder)