Isaac Hu

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Education

Boston University Boston, MA
Combined B.A./M.S. in Computer Science *Sep 2021-May 2025*
Activities: All-Campus Orchestra, Undergraduate History Association, UPE (CS Honor Society)
Relevant Coursework: Data Mining, Quantum Computing, Embedded Systems, Machine Learning, Natural Language Processing, Artificial Intelligence, Data Science, Object-Oriented Design, Distributed Systems

National University of Singapore Singapore
Study Abroad *Fall 2023*
Coursework: Computer Graphics, Information Security, Programming Language Concepts

Technical Skills

- **Languages**: C/C++, Python, MATLAB, Java, Verilog, SQL, Bash
- **Methodologies / Dev Tools**: Agile (Scrum), SOLID OOP, Git, GitHub Actions (CI/CD), Linux, Docker

Work Experience

Church & Dwight | IT Analyst Intern Ewing, NJ *May 2024 – Dec 2024*

- Built end-to-end automation pipeline for purchase-order processing with Power Automate and Python, routing hundreds of special-format PDF contracts daily.
- Used K-means clustering in R to uncover consumer insights and desires from a laundry product survey, utilizing CRISP-DM methodology to help support data driven business decisions
- Authored Selenium automation test suites for 20 ServiceNow forms, checking for unintended behaviors

Carpenter Technology | Digital Technology Intern Reading, PA *May 2023 – Aug 2023*

- Analyzed iron-production process data in Python; applied receiver operating characteristic analysis to find factors associated with coarse grain steel, using base model of random forest
- Mined SAP plant-maintenance data with Pandas and Power BI, building algorithms to better inform spot-buys and reduce aging of inventory in warehouse

Boston University — Teaching Assistant "Computer Architecture" Boston, MA *Sept 2024 – Present*

- Instruct two-hour weekly labs for 250 students on digital logic design, x86-64 assembly, cache hierarchies
- Authored homeworks, designing edge case testing for C and assembly assignments
- Built containerised autograder (Python + pytest) that compiles binaries, runs differential checks

Selected Projects & Research

Airbnb Price-Prediction Challenge (Python, CatBoost, Optuna, SQL) 2025

- Created a model using random forest CatBoost for deducing the price of Airbnb rentals for Kaggle competition, utilizing hyper-parameter optimization, feature engineering, and filtering to achieve error rate of 13.8%

Real-Time Ball-Balancing Platform (dsPIC33, C, PID, UART) 2024

- Designed and programmed dual-axis closed-loop controller to keep a ball centered on a servo-actuated platform, integrating two analog tilt sensors, dual servo motors, and an LCD display.
- Implemented 2nd-order Butterworth low-pass filter in C to attenuate ADC noise; tuned PID gains to minimize overshoot and settling time while meeting real-time update deadlines.

Minimax Chess Engine (Java, SEPIA Framework) 2024

- Built a minimax algotithm chess bot, tuning heuristics and leveraging alpha-beta pruning to produce a model that achieved 68% winrate against the baseline AI

Autonomous Arduino Robot (Arduino, C/C++, FreeRTOS) 2025

- Designed and assembled a mobile robot from the ground up, integrating infrared and ultrasonic proximity sensors, a DC motor, a speaker, LEDs that could roll around, detect people, and greet them
- Programmed collision avoidance using FreeRTOS to schedule varying-priority tasks for motor control, sensor polling, and LED display updates, ensuring deterministic response times without blocking delays;