

# Hassan Rizwan

(917) 251-2772 | hrizwan3@seas.upenn.edu | linkedin.com/in/hassan-rizwan3/

## EDUCATION

**University of Pennsylvania** | School of Engineering and Applied Sciences | Philadelphia, PA

Aug 2021 – May 2025

*Candidate for Bachelor of Science in Engineering*

*Major:* Computer Science | *Minor:* Math

*Relevant Coursework:* Artificial Intelligence, Big Data Analytics, Machine Learning, Operating Systems, Cloud Computing, Data Structures & Algorithms, Embedded Systems & Microcontrollers, Computer Architecture, Databases for Analytics, Java & OCaml

## PROFESSIONAL EXPERIENCE

**Systematic Research Advisors, Financial Data Science Intern** | Brooklyn, NY

May 2023 – Present

- Built a robust data pipeline, using Yahoo Finance API to scrape data and seamlessly integrating Azure Functions scheduler. Collected data was stored in a MySQL database for streamlined access and analysis.
- Developed a probability model using Pandas, Numpy, SQLAlchemy, and Scipy for statistical analysis, leveraging options expiration data and strike price contributing to valuable insights regarding investment opportunities.

**University of Pennsylvania, Research Volunteer** | Philadelphia, PA

Sept 2022 – Aug 2023

- Collaborated with Penn Medicine and Penn Radiology to build an AI to detect potential stress fractures in the hip area.
- Developed and implemented CNN using TensorFlow to analyze dicom files with 84% accuracy.

**Long Island University, Lab Researcher** | Brooklyn, NY

Sept 2019 – Mar 2020

- Researched and synthesized organosilicons and hydrazones for anti-diabetic and anti-cancer pharmaceuticals.
- Operated million-dollar R&D and manufacturing assets while extracting compounds with flash and thin layer chromatography and identifying candidates for further examination with NMR spectroscopy.

## LEADERSHIP & OTHER EXPERIENCE

**Penn Architechs, Founding Board** | Philadelphia, PA

Feb 2022 – Present

- Helped relaunch Architechs to foster Penn's EE and CS community, working with admin to reopen makerspace post-COVID.
- Worked with board, alumni, clubs, and professors to market and fund opportunities including career panels and workshops.
- Hosted the PennApps Hackathon with 1500 participants as an Architechs representative, providing hackers with hardware.

## PROJECTS

**PennOS (C, Systems)**

Oct 2023 – Dec 2023

- Designed and implemented a UNIX-like operating system, with robust support for system calls and integrated shell built-ins.
- Created a custom FAT for file organization and round-robin scheduler for efficient process management.

**Flights Delays and Cancellations (Python, Pandas, PyTorch)**

Nov 2023 – Dec 2023

- Built a predictive algorithm for flight delays/cancellations using Random Forests, Neural Networks, and Logistic Regression.

**Sudoku Solver (C++)**

Nov 2023 – Dec 2023

- Implemented Sudoku with a solver using backtracking and arc-consistency algorithms for constraint satisfaction problems.

**Theramin (Embedded C, ATmega328P)**

Feb 2023 – Mar 2023

- Created a digital theremin by using an ADC, offering continuous and discrete modes by using pulse-width modulation.

**Pong (Embedded C, C++, Blynk)**

Apr 2023

- Developed the classic game of Pong using a TFT LCD module and joystick control through bare metal C.
- Integrated wireless control using the NodeMCU board and Blynk platform, enabling remote control of player paddles.

**Senator Tweet Statistics (SQL)**

Apr 2023

- Extracted U.S. Senators' tweets and stored them in an Azure SQL Database by utilizing web scraping techniques.
- Conducted statistical analysis to determine average tweets per day by party, offering insights into the political discourse.

**AI Safe (Python, OpenCV, TensorFlow, Raspberry Pi)**

Nov 2021 – Dec 2021

- Designed and built a facial and body recognition email alert system using PIR sensors, Raspberry Pi, OpenCV, and smtplib.

## SKILLS & INTERESTS

*Technical:* Java, C, C++, Python, OCaml, SQL, AI, PyTorch, TensorFlow, OpenCV, Blynk, Adafruit, Digital Logic and Circuitry, IoT, Machine Learning, Artificial Intelligence, Cloud Computing, AWS, Linux, Computer Vision, Networks, Systems Programming

*Other Languages:* Urdu (Business Proficient)