Joseph Liu

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Outgoing doctor turned software engineer with a teamwork ethic and desire to learn.

EDUCATION

UNIVERSITY OF PENNSYLVANIA

Dual MS in Computer Science & Information Technology
Sept 2018 | Philadelphia, PA
Cum. GPA: 3.83 / 4.0

IMPERIAL COLLEGE SCHOOL OF MEDICINE

MBBS in Medicine
BSc in Cardiology
Sept 2006 | London, UK
First Class Honours

COURSEWORK

GRADUATE

Natural Language Processing
Machine Learning
Machine Learning Research
Mathematical Statistics
Probability
Logic and Formal Verification
Functional Programming
Distributed Systems
Operating Systems
Network Systems

SELF-STUDY

Linear Algebra (MIT OCW)
Multi-Variable Calculus (MIT OCW)
Single-Variable Calculus (MIT OCW)

SKILLS

LANGUAGES

Over 5000 lines:
Java • Javascript • Python • C
HTML • CSS • LaTeX
Over 1000 lines:
C++ • Haskell

TOOLS/TECHNOLOGIES

Fluent:
React • Node.js • Vim • Git
Pytorch • Sklearn • Numpy • Pandas
Proficient:
Spring • Spring Boot • Flask • JavaFX
MySQL • PostgreSQL • MongoDB
Redis • Pulsar • Docker • Linux/Unix

INTERESTS

Boxing • Cooking • Soccer
Arsenal FC • Electronic music • Reading

EXPERIENCE

COINFLEX | Software Engineering Intern

May 2020 - Sept 2020 | Hong Kong, HK

- Led and shipped the trading interface for V2 in React, which was a complete rebuild of the entire exchange now doing $100 million in daily trading volume.
- Onboarded and reviewed code for other interns on the frontend team.
- Bug-fixed risk engine code in Spring and set up centralised logging via ELK and Pulsar for all microservices.

CURAI | Software Engineering Intern

June 2019 - Aug 2019 | Palo Alto, CA

- Implemented LIME in Python to explain results outputted by the diagnosis prediction model.
- Designed a graph algorithm in Python to group similar clinical symptoms and implemented it into the frontend web application using React and Node.js.

FINDDOC | Software Engineering Intern

- Prototyped a full-stack web & Facebook chatbot application that predicts a type of medical specialist depending on user's symptoms, using React, Node.js, MySQL, Redis, DialogFlow.

NHS | Doctor in General Medicine

June 2012 – July 2016 | London, UK

TEACHING

UNIVERSITY OF PENNSYLVANIA | Teaching Assistant

Jan 2020 – May 2020 | CIT 596 Algorithms

OPEN SOURCE

HUGGINGFACE TRANSFORMERS | Minor Contributor

PROJECTS

COMPLEMENTARY MACHINE LEARNING | Github link

- Worked with Lyle Ungar to design a machine learning algorithm based on the Complementary Learning Systems theory of the hippocampus.

AUTHOR CLASSIFICATION WITH BERT | Github link

- Designed an end-to-end classifier with BERT as an embedding layer in a forward-feed neural network which beat the best published accuracy of 69.1% with an accuracy of 92.9%.

PENN OS | Github link

- Built the shell, page table and job handler for an operating system from scratch in C.

NEWS CRAWLER & TEXT SUMMARISER | Github link

- Built a web crawler in Haskell that crawls news sites and summarises articles using TF-IDF with tests written with QuickCheck.