

# Joseph Liu

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

## EDUCATION

### UNIVERSITY OF PENNSYLVANIA

#### MS IN COMPUTER SCIENCE

Sept 2018 | Philadelphia, PA

Cum. GPA: 3.84 / 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

Mathematical Statistics

Probability

Functional Programming

Computer & Network Security

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 •  $\text{\LaTeX}$

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

- Helped lead and ship 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 with a 96% success rate on real data 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

## RESEARCH & PROJECTS

### MACHINE LEARNING RESEARCH | Github link

March 2020 - Current

- Worked with Prof. Lyle Ungar to design a machine learning algorithm based on Complementary Learning Systems theory of the brain, which consists of both a slow learner and fast learner, and is closely related to the research on few shot learning and meta-learning.

### AUTHOR CLASSIFICATION WITH NLP | Github link

April 2020 - May 2020

- 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%.

### NEWS CRAWLER & TEXT SUMMARISER | Github link

Nov 2019 - Dec 2019

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