MANIVANNAN PRUSHORTH

425-625-4261 | prushort@usc.edu | Personal Website | LinkedIn | Github

Education

University of Southern California, USA: Master of Science in Computer Science **Aug 2023 - May 2025**

King's College London, UK: Bachelor of Science in Computer Science: Upper Second-Class **Sep 2020 - Jun 2023**

St Michael's Grammar School, UK: A Levels: Maths (A*), Further Maths (A), Physics (A) **Sep 2017 - Jun 2019**

Upton Court Grammar School, UK: GCSE: 10A*, 2A **Sep 2012 - Jun 2017**

Skills:

- Java | Python | C# | HTML | CSS | JavaScript | React | TypeScript | AngularJS | NodeJS | C++ | SQL
- Swift | SwiftUI | Scala | NoSQL | Full-Stack | Frontend | Backend | CI/CD

Projects

ChatGPT Multi Step Assistant - C#, OpenAI **Jun 2023 - Jul 2023**

- Developed a command line personal assistant to perform custom tasks.
- Designed a structured prompt for the ChatGPT API to decompose and extract 1 skill from a user's task.
- Invoked identified skill such as sending an email by leveraging other APIs (e.g. Microsoft).
- Processed execution flow using ChatGPT to synthesize a final response.

Real Estate Google Chrome Extension - React, TypeScript, Material UI, Jest, Webpack **Nov 2022 - Mar 2023**

- Displayed Google Cloud API data and photos on a series of cards for Realtor and Zillow websites.
- Increased data shown for a house by letting users switch among 6 topics and vary 5 filters such as price.
- Achieved 100% code coverage with 144 integration and unit tests using Jest for asynchronous code.
- Saved $5/week by mocking API responses for 1000 API requests made during each set of test runs.
- Utilized asynchronous promises and useEffect hooks for Google Cloud and Chrome browser APIs.

Pacman Machine Learning Agents - Python, NumPy **Nov 2022 - Mar 2023**

- Implemented 4 agents below from scratch for a 2D world with supervised and reinforcement learning.
- Reduced Breadth First Search average time to finish a game by 30 seconds by utilizing corner waypoints.
- Improved Markov Decision Process win percentage by employing a smaller discount factor of 0.4.
- Optimized Q-Learning hyperparameters and exploration values to increase win rate by 10%.
- Raised decision tree win rate by 20% by choosing information gain rather than gini impurity.

Book Recommender Web App - Python, Django, Pandas, Heroku, Surprise **Feb 2022 - Mar 2022**

- Managed and led a team of 7 to build a web-app to recommend books to users and to book clubs.
- Selected SVD out of 12 algorithms as it performed better on 62% of offline metrics used.
- Decreased time by 5 minutes to generate recommendations by employing batch learning in deployment.
- Minimized RMSE score to 1.58 having started with a book ratings scale from 1 to 10.
- Improved quality of recommendations by 15% and reduced 1 million book ratings by 80%.

Image Classification Mobile App - Swift, TuriCreate **Jul 2021 - Aug 2021**

- Designed to let a user upload an image to be classified between apples and pears.
- Achieved accuracy and precision scores of 75% and 80% for 20 uploaded images.

Relevant Courses:

- Algorithms | Data Structures | Databases | Optimization Methods | Software Engineering | AI
- Operating Systems | Concurrency | Machine Learning | Cryptography | Statistics

Awards:

- LAMDA Public Speaking Grade 6 Distinction | National Citizen Service Challenge | Piano ABRSM Grade 5

Volunteer Experience:

- Collaborated with 3 teachers to organize Foxborough school of 7 sports events as part of student leader job.
- Supervised 10 elderly patients and caregivers in weekly meetings at Dr French Memorial Home.
- Teamed up with Oxfam Charity and 5 others to negotiate and sell used clothes to customers.
- Mentored 2 incoming university students about Computer Science career advice.