MANIVANNAN PRUSHORTH

425-625-4261 | maniprush3@gmail.com | LinkedIn | prushorth90.github.io/ | 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: Graduated with 2:1 **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**

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 a skill from a user's task.
- Invoked the identified skill by leveraging other APIs (e.g. Microsoft).
- Processed execution flow using ChatGPT to synthesize a final response to the user.

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.
- Raised visited number of houses by 29.2% and tab usage fell by 28% during user evaluation.
- 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.

- Attained win percentages of 40%, 70%, 50% and 60% for 10 games for each agent below.
- 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 reported from users by 15%.
- Filtered an initial dataset of 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.

Airbnb London Desktop App - Java, JavaFX **Mar 2021 - Apr 2021**

Collaborated with 2 members to design an app to let users view available properties for rental.

- Analyzed Airbnb dataset of 55,000 properties to calculate 8 statistics via the Java Stream API.
- Created a colour-coded geographical map of 32 London boroughs to display property data.

Skills:

- Java | Python | C# | HTML | CSS | JavaScript | React | TypeScript | C++ | MySQL | Swift | Scala
- Full-Stack | Frontend | Backend | CI/CD

Awards:

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

Volunteer Experience:

- Mentored incoming university students about Computer Science career advice.
- Dr French Memorial Elderly Home | Oxfam Charity | Student Prefect Leader