

MANIVANNAN PRUSHORTH

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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

Sep 2020 - Jun 2023

Skills:

- Java | Python | HTML | CSS | JavaScript | Bootstrap | Django | React | TypeScript | C++ | SQL | NoSQL
- Swift | SwiftUI | Angular | Node | Express | MongoDB | C# | JUnit | Webpack | Frontend | Backend | Mobile

Projects

Stock-Exchange Web App - Angular, Node, Express, MongoDB, TypeScript, Bootstrap **Feb 2024 - Mar 2024**

- Parallelized 7 API requests to show stock data by using fork join after an auto-complete debounce search.
- Polled stock price data every 15 seconds when the market is open by using the Pub-Sub design pattern.
- Reduced time to load data by 4 seconds using local storage for charts API so prevented API rate limits.
- Utilized stock transactions which updates the amount of stock, current prices and total money left for a user.
- Showed alerts when saving or deleting to the watchlist which then refetches API data to prevent staleness.

ChatNow iOS Mobile App - Swift, SwiftUI, NoSQL, Firebase

Jan 2024 - Feb 2024

- Integrated NoSQL Document Firestore database to save and retrieve chat messages for a user's group.
- Implemented an upload images feature so that a user could send images in their message.
- Used Firebase authentication for sign up and login views.

Realtor-Zillow 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 by using Jest for asynchronous code.
- Saved \$5/week by mocking API responses and blocking network requests 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, HTML, CSS, JavaScript, Django, SQLite

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.
- Filtered 1 million book review dataset to 200,000 book reviews by using Pandas library.

Relevant Courses:

- Algorithms | Data Structures | Web Technologies | 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 7 sports events at Foxborough school 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.