Himanish Jindal

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Education

University of Toronto April 2024
Bachelor of Computer Engineering, Specializing in Software, Minor in AI, Minor in Business *Current GPA: 3.7/4.0*

Skills

Languages: C/C++, Python, PostgreSQL, Java, HTML/CSS, JavaScript, TypeScript
Frameworks: React, Django, Flask

Relevant Experience

Intel - Programmable Solutions Group | *Software Engineering Intern* May 2022 – August 2023

- Utilized **Simics Simulator for Intel FPGA** to create real-time hardware modelling, significantly aiding the firmware team by providing simulation environments before physical hardware availability.
- Developed a remapper model in **C and Python**, partitioning and controlling access to memory RAM for multiple processors to ensure secure, isolated operations and prevent overlapping memory regions.
- Engineered a bitstream manipulation model, capable of efficiently managing data streams with a credit-based mechanism. This model significantly reduced back-pressure issues, improving data throughput and system performance.
- Implemented comprehensive unit tests using **Python** and the **GoogleTest framework**, achieving **over 80% test coverage**, which significantly enhanced code quality, stability, and functionality of the models.
- Authored detailed technical documentation and created intricate flow diagrams representing model functionalities, register definitions, and system inputs/outputs, facilitating clearer understanding and utilization by the firmware and hardware teams.

Projects

Using Machine Learning to Analyze Material Properties | *Python, Sklearn* January 2024 – April 2024

- Analyzed two material science datasets comprising over 4,000 samples, applying Magpie featurization and PCA to reduce feature space by over 90%, significantly enhancing model training efficiency and data interpretability
- Developed multiple regression models, including **Linear Regression, Gradient Boosting Regression, Support Vector Regression, and Bayesian Ridge Regression**, employing GridSearchCV for extensive hyperparameter tuning to optimize model performance.
- Deployed and fine-tuned several classification models, such as **Support Vector Machine Classifier, Stochastic Gradient Descent Classifier, and K-Nearest Neighbors**, achieving a maximum **accuracy of 89% with SVM** in classifying metals through strategic kernel and regularization adjustments.
- Implemented an active learning framework with custom acquisition functions, achieving an R^2 of 0.5 with less than 10% of the total dataset, demonstrating substantial efficiency gains in model training.

Event Hub Website | *React, JavaScript, Flask, Python, PostgreSQL* September 2023 – December 2023

- Implemented full-stack development using **React with JavaScript** for the front-end and **Flask with Python** for the back-end, demonstrating proficiency in both client-side and server-side technologies.
- Created robust user authentication and event management features with an integrated **PostgreSQL** database, allowing users to create and host events, ensuring secure and efficient operations.

Recreating Google Maps | *C++* January 2021 – April 2021

- Engineered a global map application by leveraging the OpenStreetMap API, utilizing **C++** for back-end development and **Git** for version control, demonstrating proficiency in API integration and software versioning
- Implemented the **A* search algorithm** to efficiently find the most optimal paths between locations, showcasing advanced algorithmic skills and problem-solving capabilities.
- Explored advanced optimization techniques such as **Simulated Annealing** and **Ant Colony Optimization** to address the Travelling Salesman Problem

AI for Reversi Board Game | *C Language* January 2020 – April 2020

- Devised an AI solution for the popular Reversi (Othello) board game using the **C language**, engaging in competitive matchups with other students' AIs.
- Implemented the **Minimax algorithm with Alpha Beta Pruning**, coupled with a refined heuristic function, to systematically identify the optimal move at each turn, elevating strategic decision-making.