Mohamed **Harmanani**

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Skills

Programming Python, SQL, TypeScript, JavaScript, HTML, CSS, Java, PHP, C, Unix/Linux, Git
Frameworks REST API, PyTorch, scikit-learn, React.js, Flask, Node.js, pandas, NLTK, bash, matplotlib, SciPy, NumPy

Work Experience

Software Engineer Intern

Toronto, ON, Canada

VENNGAGE, INC. *May 2019 - May 2020*

- Built an interface for users to generate designs with a heuristic AI solution, using TypeScript, React, Redux, and CSS animations
- Developed **image aware algorithms** for autonomous layout generation, and **increased design complexity** metrics by 20%
- Diagnosed critical issues in high-impact user flows by automating UI tests with Python and Cypress
- Increased the **speed and reliability** of icon search features by over 50%, using React and JavaScript
- **Identified and fixed performance issues** in the presentation manager, significantly reducing the thumbnails' loading time

Projects

Shoe Pair Classification

PYTHON · PYTORCH · TORCHVISION · NUMPY · MATPLOTLIB

- Implemented a **convolutional network in PyTorch** to determine if two shoes belong to the same pair or not
- Built and **trained different model configurations** to determine the best architecture for appropriately modelling the data
- Wrote a customized training loop from scratch and effectively **tuned the hyperparameters with grid search**
- Achieved a final testing accuracy of 80% for men's shoes and 88% for women's shoes

Toxic Tweets Classification

PYTHON · SCIKIT-LEARN · NLTK · NUMPY · PANDAS

- Implemented and compared various models for detecting toxic and hateful tweets, **with an average accuracy of 94%**
- Performed **exploratory data analysis** of the data by processing, cleaning, and visualizing tweets

Episode Recommender System

PYTHON · NLTK · NUMPY · BEAUTIFULSOUP · SQL, SQLITE

- Wrote **web scraping** scripts to collect and clean TV show data from IMDb using Python and **BeautifulSoup**
- Wrote **SQL queries** to store the collected data in a SQLite database with the help of the sqlite3 framework
- Implemented a recommendation system that matches keyword input from the user with the data
- Developed recommendation techniques based on episode rankings and similarity of descriptions

Multiplayer Survival Game

REST API · JAVASCRIPT · REACT.JS · NODE.JS · EXPRESS.JS · WEBSOCKET · AJAX · SQLITE · MATERIALUI

- Created a multiplayer survival game with a **React and MaterialUI** front end
- Implemented the **RESTful API** using jQuery/AJAX module to issue requests on the frontend, and Node.js on the backend
- Implemented a **Node.js + Express.js server** to encrypt and store highscores and login information in a **SQLite3 database**

Cosmic Jump

JAVASCRIPT · HTML5 · PHASERJS

- Developped a flappy bird clone written in JavaScript, HTML5 and Phaser
- Added immersive elements such as music, sound effects, and high resolution graphics for optimal user experience

Education

University of Toronto

Toronto, ON, Canada

HBSC. SPECIALIST IN COMPUTER SCIENCE, MINOR IN PHILOSOPHY *2016 - 2021*

Relevant Coursework: Neural Networks and Machine Learning, Databases, Numerical Analysis, Data Structures and Algorithms, Probability and Statistics, Multivariate Calculus