# 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 React and TypeScript
- Implemented responsive landing pages and UI components from scratch with React, Redux, and CSS
- Developed **image aware algorithms** for autonomous layout generation, and **increased design complexity** metrics by 20%
- Diagnosed and **addressed 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 proprietary slides 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

- Developed a flappy bird-like web application 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*

- CGPA: 3.24/4.00
- Relevant Coursework: Neural Networks and Machine Learning, Databases, Numerical Analysis, Data Structures and Algorithms, Probability and Statistics, Multivariate Calculus