

Harsimar Singh

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Computer Science student with over 4 years of programming experience, including contributions to full-stack development projects like UML Mentor, where I worked on both front-end and back-end components. Skilled in technologies such as React and Node.js, with a solid understanding of data structures and algorithms. Passionate about game development and committed to pursuing a career as a full-time software developer.

Education

University of Toronto (GPA - 3.84/4.0)

September, 2022 - August, 2027 (with Co-op)

Currently Pursuing :

Honours in Bachelor of Science, **Computer Science** (Specialist), and **Mathematical Sciences** (Major), **PEY Co-op**

Relevant Courses : Data Structures and Algorithms, Software Design, Computer Organization, Theory of Computation, Linear Algebra, Probability and Statistics, Machine Learning, Software Tools and Systems Programming, Principles of Management, Information Security, Artificial Intelligence

Awards :

University of Toronto

- **Dean's List Scholar (2023, 2024)** - Cumulative GPA of 3.5 or higher at the end of the academic year.
- **Honour Roll (2023)** - Achieved the highest grade (A+) in more than 3 Computational and Mathematical Science courses.

Experience

Teaching Assistant

(September 2024 - Present)

University of Toronto | Computer Science

- Provided **mentorship to 30+ students** and **conducted tutorial sessions** in areas of theoretical Computer Science.
- Assisted in **evaluating and grading assignments, quizzes, and exams**, providing detailed feedback to students to **support their learning** and academic progress.

Projects

Check out <https://harsimarsinghg.github.io/> for my personal website.

UML Mentor - *Git, React, React flow, Node.js, TypeScript, JavaScript, Bootstrap, MySQL, HTML/CSS, OpenAI*

(September 2024 - Present)

- Developing UML Mentor, a collaborative learning platform using React and Node.js, which is adopted by UofT's software design course, **benefiting 200+ students annually**.
- Utilized JavaScript for **dynamic functionality**, React for a **modular user interface**, and Node.js for **back-end server management** and API requests in UML Mentor. Also used React flow to create an **editor** that is used for creating UML diagrams.
- Integrated OpenAI in the project that can be used by students to get **feedback** on their UML diagrams.
- Selected to **present UML Mentor at ARIA 2024**, showcasing innovative approaches to software design education to an international audience of computer science educators.
- Managing weekly scrums, sprint planning, and code reviews, ensuring **best agile practices** and securing additional development time.

TaleTeller - *C#, Unity Engine, Maven, OpenAI API, DALL-E*

(Deerhacks **Hackathon project** - February 2024)

- Managed and led a team of 4 using agile methodologies and **designed a dynamic storytelling game** inspired by Madlibs.
- **Integrated OpenAI** in the project for **dynamic storytelling** that iteratively builds a story based on user input.
- **Integrated DALL-E** complements the dynamic storytelling with AI image generation to bring the narrative to life visually.
- Successfully delivered a functional prototype of the dynamic storytelling game during the hackathon, highlighting **innovative AI** use in gameplay.

The Cryptic Odyssey (Adventure Game) - *Java, JavaFX, Maven, Google API*

(November 2023)

- Led a team of four in designing a Zork-inspired text-based adventure game, using **agile methodologies** to drive development.
- Utilised JavaFX to build the game's interface, allowing players to make choices for an interactive experience.
- **Implemented various accessibility features** using Google API like **Speech-to-text, Text-to-speech, and language translation** functionalities. The addition of these features resulted in the game being **positively reviewed** amongst people with disabilities.

Raining Bullets (Bullet-hell Game Prototype) - *Unity Engine, C#, Unity Netcode Services*

(July 2023 - August 2023)

- **Designed a prototype** for a co-op bullet-hell action game using **Unity Netcode Services, RPCs, and Unity's Lobby and Relay Services**.
- Implemented various **compelling game mechanics and level design**, resulting in multiple **positive reactions towards the game's demo**.

City Predictor - *Python, matplotlib, sklearn, pandas, numpy, seaborn, regex*

(February 2024 - March 2024)

- Worked in a team of 4 and **developed a machine learning model to predict city identity** based on factors such as temperature, population, and what the city is popular for, etc.
- Utilized multiple ML libraries like sklearn, pandas, numpy, and others to demonstrate **expertise in data cleaning and preprocessing, interpretive visualization, and model development**.
- Exploration of different models and **employing techniques like bagging** resulted in the final **training and validation accuracy of around 93%** and **test accuracy of around 89%**.

Skills

- **Coding Languages :** Python, Java, C#, C, HTML/CSS, Javascript, Assembly, Bash, TypeScript
- **Libraries :** Pygame, Numpy, Unity's Netcode and Relay Services, Google API, JavaFX, OpenAI API, DALL-E API, Matplotlib, tkinter, React, React flow
- **Frameworks :** .NET, Maven, Bootstrap
- **Environments :** Node.js
- **Developer Tools/ Engines :** Git/Github, Unity Engine, Rides, Microsoft Office
- **Professional skills :** Knowledgeable in short-cycle, agile, iterative development, proficient in communicating complex ideas, detail-oriented, inquisitive, analytical individual, and a problem solver.