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Harmandeep Singh

Education

Melbourne, VIC	RMIT	Feb 2023 – Nov 2026

- B.S in Software Engineering
- Undergraduate Coursework: Full Stack Development; Algorithms and Analysis; Maths for Computing

Projects

Interactive Maze Generator

- Led a collaborative project focused on immersive maze generation and solving within the Minecraft gaming environment using the high level **Spigot API and C++**.
- Planned the project, including the integration of recursive maze generation and right hand follower maze solving methods, resulting in **25% reduction** in average solution time compared to alternative algorithms (Random Walk, Depth First Search (DFS), etc).
- Created a user friendly console based interface for generatiosn, solving and removal, which received a **user satisfaction rating of 4.3/5**.

Full Stack Recipe/Shopping Hub

- Collaborated on a project to develop a personalized recipe and shopping website for hypothetical company.
- Used **ReactJS** for the front-end, **Node.js with Express.js** for the middle layer, and **Cloud MySQL** for the backend.
- Integrated the **Edamam API** to provide tailored recipe options based on user profiles.
- Built an **admin dashboard using GraphQL**, enabling administrators to manage products and reviews (e.g. delete inappropriate reviews flagged by my algorithm) in real time.

Algorithmic Teaching Tool

- Developed a dynamic learning tool for visualising maze generation and solving algorithms.
- Allowed users to **customize maze parameters** and select from a range of maze generators (Prim, Wilson, Recursive) and solvers (Pledge, Follower, Recursive).
- Utilized Matlab for visualization of solvers and **Python** for algorithms.
- **Current Status:** Work in progress, with a planned completion and release date in September 2024.

Employment

Crew Member	Hungry Jacks	Feb 2020 – Oct 2021

- Managed an average of 100+ daily customer interactions, consistently ensuring exceptional satisfaction and swift issue resolution.
- Trained and mentored 3 new crew members, ensuring adherence to company standards and protocols.

Soccer Coach		Feb 2023 – Dec 2023

- Organized and supervised 12+ practice sessions and matches weekly, ensuring a safe and engaging environment.
- Effectively communicated with parents, providing detailed updates on progress, receiving feedback and altering session accordingly.

School House Captain		Feb 2023 – Nov 2023

- Led house meetings and activities to foster teamwork and camaraderie.
- Represented the school in various inter-house competitions and events.

Languages and Technologies

- C++; Java; Python; SQL; JavaScript; HTML/CSS
- Visual Studio; Ubuntu, phpMyAdmin, graphQL, Node.js, Express.js, ReactJS