Xavi Simpson

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Education

Carleton University Expected Grad: May 2025
Bachelor of Computer Science (Honours) *Ottawa, ON*

- **Relevant Coursework**: Discrete Structures, Linear Algebra, Calculus
- **Activities**: CU Blueprint, Competitive Programming Club, Computer Science Society, Climbing Club

Skills

Languages/Frameworks: JavaScript, TypeScript, Python, C/C++, Java, Node.js, HTML/CSS
Other Tech: React, Redux, Git, Unix, Bash, Express.js, MongoDB,
Interests: Badminton, Cooking, Fashion, Football

Projects

Timershare | *Typescript*, *React*, *Next.JS*, *Socket.io*, *NodeJS* (Github)

- Designed web application enabling users to collaborate using shared timers with **real-time** editing
- Implemented a **websocket server** using Socket.io to allow changes in real-time from users within the same room
- Created **responsive front-end** with CSS and React components

Badminton Tournament Match Database | *Typescript*, *React*, *Redux*, *MongoDB*, *NodeJS*, *HTML/CSS* (Github)

- Developed a full-stack web application allowing users to store information about their tournament matches
- Implemented REST API, using **Express.js**, enabling CRUD operations and user authentication with appropriate response codes and **error handling**
- Implemented **responsive** front-end with editing functionality using React components and Chakra UI

University Schedule Converter | *Python* (Github)

- Developed a command-line application to enable users to convert their timetables into calendar files
- Parsed user input using **regular expressions** and capture groups to organize course information
- Converted schedule information into a calendar format to allow easy importing into calendar applications
- Utilized object-oriented design principles and to enable adding developing features such as alternative import methods

Nifty Mountains | *C++* (Github)

- Developed a **graph traversal visualization** application using C++ and Allegro
- Parsed a mountain's topology map to be used as a graph representation
- Reduced virtual travel time by **60%** using Dijkstra's shortest path algorithm
- Implemented a variety of graph traversal algorithms to find paths and display to the user in real-time

Formula 2029 | *C++* (Github)

- Led a team to develop a racing game using C++ enabling users to complete fun, and interactive levels
- Implemented a vector-based **physics system** allowing the car to drift and steer with realistic handling
- Developed tests and documentation to solve numerous software issues during the project

Experience

STEM Camp Counsellor July 2019 – August 2019
University of Ottawa *Ottawa, ON*

- Taught over 100 kids different STEM concepts and introduced them to variety of fields within the discipline
- Worked with other co-workers to ensure safety and smooth operation of the camp
- Organized fun and interactive activities to prime young students to concepts like 3-D printing, CAD, and micro-controllers