NATHAN PANNELL

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EDUCATION

University of Victoria | Victoria, BC   Sept 2021 – Present
B.Sc. (Computer Science with Business Minor; Expected graduation - May 2025)
– Award of Excellence Scholarship   Jun 2021

SKILLS

Programming Languages: Python, JavaScript, HTML/CSS, VBA, Java, C, SQL, R
Software Development: Git, Github, Visual Studio Code, Windows 10/11, Linux, Trello
Technologies: React, Tailwind, JQuery, Wordpress, REST APIs, Excel, Outlook

EXPERIENCE

Simulation Executive   Jan 2024 – Present
UVic AI, Victoria, BC   *Part-time*
- **Co-hosted UVic AI's 2024 hackathon** and developed a framework to process and represent entrants.
- Led team developing a Python simulation environment for the Canadian Undergraduate Conference on AI.

Front-end Web Developer   Sep 2023 – Present
Sidekick Players, Remote   *Freelance*
- Designed a modern website in collaboration with the organization's president, using **React** and **Tailwind.**
- **Managed migration** including acquiring a new domain, rerouting previous website, and hosting with Vercel.

Business Automation Developer   May – Aug 2023
AMJ Campbell, Delta, BC   *Internship*
- Implemented a suite of automation macros to save **20+ hours of work** weekly, by using VBA to download, process, and present data in detailed spreadsheet reports and ready-to-send emails for clients.
- Improved efficiency by **1 hour per day** by integrating **Google Maps API** to automate mileage cost calculation.

PROJECTS

Wildfire Simulation with AI Agents | *GitHub*
- Created a cellular automata model of wildfire spread to act as a training environment for UVic AI's reinforcement learning project to be presented at CUCAI this March using **Python** and **OpenAI Gymnasium.**
- Developed a novel wildfire simulation approach, including AI firefighter agents within the simulation itself.
- Parallelized all calculations using **NumPy** vector operations to improve scaling runtime.
- Employed convolutions using an elliptical kernel to accurately model wind's effect on fire spread.

Interactive Hackathon Visualizer | *GitHub* | *Website*
- Created a visualization tool used by UVic AI in their 2024 February UTTT Hackathon, by using **React** and **MongoDB** to broadcast the tournament results to participants in real-time.
- Designed a **base-81 encoding scheme** to effectively represent game positions as strings.

Virtual Rubik's Cube | *GitHub* | *Website*
- Built an interactive Rubik's cube with **JavaScript** to explore the inner workings of my favourite puzzle.
- Used **CSS** rotations and mouse input tracking to make a 3D cube responsive on mobile and desktop.