MICAH BAKER

Software Developer in Vancouver, BC

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Website: https://micahdb.com, LinkedIn: https://linkedin.com/in/micahdbak/

Skills

Programming Languages: C, C++, Go, JavaScript, HTML, CSS, X86, Python, Shell Scripting (bash, zsh).

Cloud Experience: AWS (EC2, Lambda, RDS, IoT Core, IAM, System Manager, CloudWatch), DigitalOcean (Databases, Droplets), GitHub Actions.

Misc. Experience: Git, GitHub, Firmware Development (Particle), SQL (MySQL, PostgreSQL), CI/CD (Travis CI, GitHub Actions), Linux (Arch, Debian, Ubuntu), Networking (TCP/UDP Sockets, WebSockets, WebRTC), Node.js (npm, Express, React), Twilio.

Education

BSc Computing Science, *Simon Fraser University*, (3.77/4.33 CGPA)   September 2022 - Present
TCPS 2: Certificate of Completion, *Panel on Research Ethics*   February 2023

Experience

Firmware and Software Developer (Co-op)   September 2023 - April 2024 (8 Months)
Brave Technology Cooperative (https://brave.coop), Vancouver

- Developed firmware and software deployed to hundreds of IoT devices in use internationally.
- Programmed firmware using C++, and server infrastructure with Node.js and PostgreSQL.
- Coordinated various DevOps services from AWS, DigitalOcean, and GitHub.
- Engaged in SCRUM development practices, asynchronously completing tasks during weekly sprints.

Jr. Research Assistant   January 2023 - September 2023
Computing Science Education Research (CSER) Lab, SFU

- Researched the influence of AI tooling such as ChatGPT on university course curricula.
- Wrote Python scripts to scrape University curricula for mention of AI tooling.
- Created a web portal for educators to learn about existing AI tooling (see *AI-ED* project).

Projects

droppr: WebRTC File Transfer Service   March 2024 - Present
https://github.com/micahdbak/droppr, https://droppr.net (deployed)

↪ Won **2nd place** at the CSSS Mountain Madness 2024 Hackathon (191 participants).
- Peer-to-peer file transfer service utilising WebRTC capabilities of modern internet browsers.
- Implements a signal channel written in Go to route requests and facilitate peer connections.
- React front-end utilizes browser WebRTC and IndexedDB APIs to transmit, collect, and reconstruct files.
- Presently deployed to a Debian server on DigitalOcean, served at https://droppr.net.

CSSS Website: React Front-End and FastAPI Back-End   January 2024 - Present
https://github.com/csss/csss-site-frontend, https://github.com/csss/csss-site-backend

- Multi-functional website for the SFU Computing Science Student Society (CSSS).
- Implemented a micro front-end architecture to compile multiple React apps and a component library to static files.
- Wrote authentication middleware in Python to wrap SFU's central authentication system and manage sessions.

PacMacro   June 2023 - September 2023
https://github.com/csss-pacmacro/pacmacro-2023

- PacMan played in real life using a web application to collect and display player locations.
- Leverages GPS location capabilities and WebSocket connectivity of mobile browsers.
- Location information is distributed by a server written in Go through live WebSocket connections.

GAOL: Graphics and Objects Library August 2023

https://github.com/micahdbak/cpp-gaol

- Object-oriented C++ graphics library for visualizing physics simulations.
- Utilizes the cross-platform C library SDL2 for windowing and elementary graphics.

AI-ED January 2023 - August 2023

https://github.com/ai-ed/ai-ed.github.io

- Worked with a team of developers as a *Jr. Research Assistant* for the CSER lab at SFU.
- Static website for educators to learn about existing AI tooling implementing rudimentary JavaScript.

Yell: P2P Networking Library February 2023 - April 2023

https://github.com/micahdbak/yell

↪ Awarded **Best Paper Honourable Mention** at the SFU Undergraduate Research Symposium.
- C library implementing decentralized and distributed network structures for applications.
- Messages are received and broadcast (yelled) to connected nodes over TCP socket connections.
- Utilizes the BSD sockets library of POSIX-compliant operating systems.

qsim: Particle Physics Simulator November 2021 - January 2022

https://github.com/micahdbak/qsim

- Approximates the position and velocity of a particle through time using gravitational and electromagnetic formulae.
- Program is written in C, and multi-threaded using the pthreads library of POSIX-compliant operating systems.

Volunteering

Webmaster January 2024 - Present

Computing Science Student Society, SFU

- Create and maintain the various software and website projects used by the CSSS.
- Co-chair the inaugural W3 Committee, providing software development opportunities to undergraduate volunteers.

Director of Educational Events April 2023 - April 2024

Computing Science Student Society, SFU

↪ Taught **Beginner Git Workshop**, and organised $2 \times$ **Quantum Computing Workshop** at SFU.
- Organised technical workshops, and acted as an Executive of the CSSS.

Frosh Chair April 2023 - September 2023

Computing Science Student Society, SFU

- Organised the largest welcome week (Frosh Week) for first-year students at SFU, drawing over 300 attendees.
- Programmed a web-based video game for part of Frosh Week (see *PacMacro* project).

Exeirus Alternative Reality Game Organiser October 2022 - January 2023

Computing Science Student Society, SFU

- Prepared and led a puzzle competition where contestants solved cryptographic puzzles spanning multiple websites.

First Year Representative September 2022 - April 2023

Computing Science Student Society, SFU

- Represented first-year CS students at SFU by organising fun events.

Volunteer July 2019 - September 2020

FreeGeek, Vancouver

- Recycled old computers by separating useful hardware and disposable material.