

Matthew Trent

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EDUCATION

University of Victoria

Sep. 2021 – Aug. 2024

Honors with Distinction BSc in Computer Science (First-Class GPA); on Scholarship (x6)

Victoria, BC, Canada

- 4.12/4.33, 4.0/4.0, or 3.92/4 GPA scale-dependent (translated from 9-scale; includes TRU transfer credits).

RESEARCH EXPERIENCE

Kurlox: Novel Decentralized Peer-to-Peer Search Engine

Apr. 2024 – Feb. 2025

Self-directed R&D with Apr. – Aug. supervisor Dr. Anthony Estey

Victoria, BC, Canada

- Enables node-based partitioning of a decentralized search index, featuring a combinational search ranking algorithm powered by independent, cryptographically secured network crawler nodes.
- Maintains a Byzantine fault-tolerant, trustless infrastructure using Go-based P2P networking, consensus algorithms for persisting authoritative public keys, and the upkeep of general state through multiple Kademlia-based DHTs.
- Facilitates efficient semantic search by storing replicas and shards within a density-focused, dynamically partitioned 384-dimensional vector embedding space.
- Includes a draft paper that remains private due to ongoing efforts to secure funding for commercial development.

Cortex Labs: DECISION-MAP

Sep. 2023 – Jun. 2024

Undergraduate research assistant & developer with PI Dr. Mauricio Garcia-Barrera

Victoria, BC, Canada

- Productionized a big-data visualization tool relating to brain injury, mental health, and addiction. This project has been presented globally at events sponsored by the DEA and Homeland Security, to a Canadian MP, the Canadian Traumatic Brain Injury Research Consortium, and the Global Neuropsychology Congress in Portugal.
- Built under the associate dean of research and graduate studies.
- Additionally, developed their lab's website from scratch.

PROFESSIONAL EXPERIENCE

Probe

Jan. 2025 – Present

Software Engineering Intern

Remote (Vancouver, BC, Canada)

- Developing a full-stack nightlife platform with TypeScript, Node.js, React Native, Next.js, and React.
- Built core features: RSVPs, deep links, business pages, event filtering, curation, and WebSocket messaging.
- Implemented SMS/email reminders, OAuth, onboarding, and web scraping improvements; resolved major crashes.

Virtual Smart Chain

Sep. 2024 – Dec. 2024

Software Engineering Intern

Remote (California, USA)

- Implemented decentralized infrastructure protocols aligned with Ethereum and Bitcoin standards.
- Developed core cryptographic functionality, including Key/Eth DIDs, BLS signatures, JWEs, and JWSs.
- Built a real-time parallelized HIVE blockchain streaming service for block and transaction processing.
- Contributed to a Go-based L2 smart contract DEX, boasting swap, store, deposit, and withdraw functionality.
- Integrated virtualized Rust Merkle Tree zk-SNARKs for network verification.

Confesi

Mar. 2022 – Aug. 2024

Software Engineer & Founder, led team of 5

Victoria, BC, Canada

- I personally wrote almost **300,000 lines of code** while managing team tasks, PRs, GitHub Issues, etc.
- Full-stack social media application for students. Server and client utilize tech such as Dart, Docker, GCP, AWS, Go, PostgreSQL, Redis, Firebase, JavaScript, Flutter, and more to deliver a seamless cross-platform experience.
- Implements: Infinite feeds, threaded comments, live chat, notifications, authentication, hottest daily posts, achievements, profiles, curated content by individual campus, admin/mod role-based permissions, and more.

Stend

Dec. 2021 – Oct. 2022

Software Engineer

Ontario, Canada (Remote)

- Developed Flutter app features, including demographically-tailored reviews, user profiles, and API service layer.
- Oversaw client and server team collaboration, ensuring seamless integration and adherence to best practices.

Van Belle Nursery

Summer 2020

Software Developer

Abbotsford, BC, Canada

- Championed the adoption of Flutter to company leadership for internal use, resulting in being hired that night.
- Developed a POC cross-platform mobile application for use across business verticals: time logging, finances, authentication, efficient data table storage/searching, etc.

NOTABLE PROJECTS (50+ MORE ON MY WEBSITE: [MATTHEWTRENT.ME](https://matthewtrent.me))

Low-Level Hyper Optimization of Transcendental Function <i>Includes large report</i>	May 2024 – Aug. 2024
<ul style="list-style-type: none">Developed an efficient implementation for $\log_2(x)$ calculations on a Raspberry Pi 4 B 8GB with a Broadcom BCM2711 SoC (1.8 GHz 64-bit quad-core ARM Cortex-A72, 1 MB L2 cache).Achieved 43% improvement across 5 key metrics: page faults, branch misses, ASM length, cycles, and instructions.	
Quantum Computing Circuit Designer & Simulator <i>Published on Homebrew</i>	Jun. 2024
<ul style="list-style-type: none">CLI/TUI implementing 20 gates, enabling execution of quantum algorithms, including Bernstein–Vazirani, Quantum Teleportation, Grover’s Search, Quantum Phase Estimation, Quantum Fourier Transform, and more.	
Real-Time Machine Learning Predictor of Hockey Games <i>Includes large report</i>	Jan. 2024 – April. 2024
<ul style="list-style-type: none">Utilized logistic regression and LSTM neural networks in a time-dimensioned format for mid-game projections.Leveraged over 1.75 million shot entries with 42 engineered features, data preprocessing, and predictive modeling.	

HACKATHONS

WECS Engineering <i>3rd; P2P distributed node securing roommate IOUs with asymmetric cryptography</i>	Oct. 2024
COVEHACK <i>Founded, judged, and ran with 50+ RSVPs</i>	Aug. 2024
UVic Engineering Competition <i>2nd; cloud-first CRDT-based collaborative multi-language code editor</i>	Jul. 2024
UVic Artificial Intelligence <i>Developed competitive heuristic-based Monte Carlo tree-search algorithm</i>	Feb. 2024
UVic Engineering Competition <i>1st; cross-platform mobile app connecting students to tutors</i>	Jul. 2023
Island Health Hospital <i>Found serious infrastructure vulnerability pre-event, awarded for disclosure</i>	Mar. 2023

PUBLIC SOFTWARE PACKAGES (500-1,200 WEEKLY DOWNLOADS)

Dynamic Seed-Based Deterministic Random Color Generator <i>Published on Pub.dev</i>	Jan. 2025
Trent State Management Framework <i>Published on Pub.dev</i>	Jan. 2025
React Hover Graphic <i>Published on NPM</i>	Jan. 2025
Flutter Port of useOptimistic Hook <i>Published on Pub.dev & in popular newsletter FlutterTap</i>	Feb. 2024
Remote App Kill Switch <i>Published on Pub.dev</i>	Feb. 2024
Mask/Hash-Based Serializer For Sensitive Struct Fields <i>Published on Pkg.go.dev</i>	Jan. 2024
Rust-Based CLI GitHub Commit LOC Tracker <i>Published on Homebrew</i>	Jan. 2024
UI Alert Overlay Controller <i>Published on Pub.dev</i>	Jan. 2023
App Scrollview Manager <i>Published on Pub.dev</i>	Nov. 2022
Cross-Platform Native iOS View Emulator <i>Published on Pub.dev</i>	Oct. 2022
Core App Utilities & Shortcuts <i>Published on pub.dev</i>	Oct. 2022

SOFTWARE TOOLS (NONE USED NEFARIOUSLY)

Pathfinding Visualizer <i>Visualizes algorithms like Dijkstra’s, A*, BFS, DFS, etc.</i>	Nov. 2024
Menti.com Controller Bot <i>Allows unlimited votes per poll</i>	Mar. 2024
Discord Moderation Bot <i>Serves ~2,000 users</i>	Dec. 2023
University Class Attender & Quiz Solver Bot <i>Solves attendance quizzes</i>	Nov. 2023
GitHub Contribution Graph Painter <i>~4,000 uses; 1st on Google for related searches; 70+ stars</i>	May 2023
Real-Time Markdown Stack Overflow Badge Generator <i>~40,000 uses</i>	Apr. 2023
Leetcode Solver <i>Solves ~2,000+ questions/day; used in Carleton & USC graduate students’ studies</i>	Jan. 2023

MISCELLANEOUS

Custom Coding Blog Site <i>10 technical articles & 10,000+ reads (favorites below)</i>	Jan. 2024 – Present
<ul style="list-style-type: none">Solving 1,782 Leetcode questions in one dayBuilding an optimistic update hook for Flutter apps	
Discord Learn-to-Code Coding Community <i>~2,000 members & ~200,000 messages</i>	Nov. 2022 – Present
Personal Coding Instagram Account <i>~27,000 followers & 11,000,000+ views</i>	Jul. 2020 – Present
Stack Overflow <i>~3,200 reputation & ~100 answers</i>	Mar. 2020 – Present
Non-Personal Coding Instagram Account <i>~43,000 followers & 1,000,000+ views</i>	Nov. 2018 – Present
Volunteer Work <i>Abbotsford Youth Council, Soup Kitchen, & Barnabas Family Camp</i>	Intermittent