Matthew Trent

Ivy League Computer Scientist | Portfolio & Links: links.matthewtrent.me | Email: me@matthewtrent.me

EDUCATION

Columbia University | *M.S. in Computer Science | Track: Machine Learning*   Sep. 2025 – Present
University of Victoria | *B.S. in Computer Science | Distinction & Honors | 4.0 GPA (4.12/4.33)*   Aug. 2024

EXPERIENCE

Software Engineer Intern (Recruited + Return Offer)   Jun. 2025 – Present
Sorce | Go, Python, Lua, GCP, Swift, Redis, PostgreSQL   *San Francisco, CA*

- Core infrastructure.

Software Engineer Intern (Return Offer)   Jan. 2025 – May 2025
Probe | TypeScript, React, Next.js, Node.js, Firebase, Stripe   *Vancouver, BC (Remote)*

- Built OAuth, Stripe payments, user and event feeds, WebSocket messaging, and parallelized web scraping.
- Engineered AI chatbot that engaged with users through 3rd-party chatrooms, connecting disjoint platforms.

Software Engineer Intern (Recruited + Return Offer)   Sep. 2024 – Dec. 2024
Virtual Smart Chain | Go, Rust, TypeScript, React, Next.js   *Mountain View, CA (Remote)*

- Implemented core cryptographic functionality, including Key/Eth DIDs, BLS signatures, JWEs, and JWSs.
- Built a real-time parallelized HIVE blockchain streaming service vastly increasing block throughput.
- Contributed to a Go-based L2 smart contract DEX, featuring swap, store, deposit, and withdrawal functionality.
- Integrated Rust Merkle Tree zk-SNARKS for zero-knowledge network verification and state proofs.

Software Engineer & Academic Researcher   Apr. 2024 – Feb. 2025
Kurlox | Go, React, Next.js, Flutter, PostgreSQL   *Victoria, BC*

- Designed and built a decentralized search engine with node-partitioned indexing and a secure crawler network.
- Implemented BFT, trustless infra using Go, Kademlia DHTs, and public-key consensus protocols.
- Enabled 384D semantic search with dynamic partitioning, shard replication, and density-aware storage protocols.
- Authored an Honors Thesis which remains private to allow for future commercial funding opportunities.

Founding Software Engineer   Mar. 2022 – Aug. 2024
Confesi | Go, Rust, Next.js, TypeScript, Flutter, AWS, PostgreSQL, Firebase, Docker, Redis   *Victoria, BC*

- Led team of 5 in developing a full-stack, cross-platform social media app with infinite feeds, threaded comments, live chat, notifications, authentication, achievements, role-based permissions, leaderboards, campus curations, etc.
- Wrote nearly 300,000 LOC while managing team PRs and GitHub Issues, guided by an alpha-testing community.

Research Lab Software Developer (Asked to Return)   Sep. 2023 – Jun. 2024
Cortex Labs | Vue.js, TypeScript   *Victoria, BC*

- Optimized a big-data visualization tool for brain-injury research by refactoring filter logic and boosting render performance, aiding in its global presentation, while working under the Associate Dean of Research.

Junior Software Developer   Dec. 2021 – Oct. 2022
Stend | C++, Flutter, Dart, MongoDB, TypeScript   *London, Ontario (Remote)*

- Developed mobile app features, including demographically-tailored reviews, user profiles, and API service layer.

Junior Software Developer   Summer 2020
Van Belle Nursery | Flutter, GCP   *Abbotsford, BC*

- Gave 2 hour boardroom presentation to company engineering leadership, resulting in same-day hire.
- Engineered cross-platform Flutter app for time logging, finances, authentication, and data wrangling.

SKILLS

Programming Languages | *Python, Dart, Go, Rust, TypeScript, JavaScript, C, Java, SQL, Bash, C++, Swift*
Frameworks & Tooling | *React, Docker, Next.js, Flutter, Node.js, Express, Git, PostgreSQL, MongoDB, Redis*
Architecture | *System Design, Distributed Systems, Microservices, AWS, GCP, Firebase, REST/GQL/gRPC, APIs*

Published Packages, Libraries, & Tools

Stats: 750+ downloads/week; 50,000+ uses; in 2 international studies; commercial sales; newsletter feature.

- **9 Flutter Packages** | Ranging from React.js hook adaptations to a fully-fledged state management framework.
- **2 Rust CLI Tools** | Including a Homebrew-installable Git enhancement TUI and a Markdown badge API.
- **2 Go Packages** | Covering database model encryption and a vector-math-driven simulation TUI.
- **6 Web Tools** | Spanning animation libraries to an automated tool solving over 1,000 Leetcode problems per hour.
- **1 Python Tool** | A Discord bot actively moderating thousands of users.

Notable Projects (50+ on my website)

Dormside ☐ | *Stripe, Go, Mapbox, Kafka, Docker, Redis, PostgreSQL, GCP, Flutter*　　　Oct. 2024 – Paused

- Architected a robust, performant system that streams user status and location updates to a map in real time.
- Constructed a reliable, secure in-app payment solution, with streamlined server-side consolidation processes.

Transcendental Function Hyper Optimization ☐ | *C, Assembly, Python, Bash*　　　May 2024 – Aug. 2024

- Efficient $\log_2(x)$ implementation on a Raspberry Pi 4B 8GB, supported by 40 pg. software optimization report.
- Achieved a 43% improvement across page faults, branch misses, ASM length, cycles, and instructions.

Quantum Computing Circuit Designer & Simulator ☐ | *Go, Homebrew*　　　Jun. 2024

- TUI implementing 20 quantum gates, allowing simulation of algorithms such as: Bernstein–Vazirani, Quantum Teleportation, Grover's Search, Quantum Phase Estimation, Quantum Fourier Transform, and more.

Real-Time Hockey Match Predictor ☐ | *Python, Pandas, Numpy, Tensorflow, Sklearn*　　　Jan. 2024 – Apr. 2024

- Utilized logistic regression and LSTM neural networks in a time-dimensioned format for mid-game projections.
- Leveraged 1.75 million shot entries across 42 engineered features, implementing robust data pre-processing.
- Includes 45 pg. report on fine-tuning of system to achieve optimal accuracy, precision, recall, and F1-score.

iMessage Clone | *Rust, Flutter, MongoDB, WebSockets*　　　May 2023

- Engineered a real-time WebSocket-based chat app with message backup, reactions, deletions, and caching.
- Implemented activity indicators and state persistence using the Rust Actor framework.

Hackathons

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

Miscellaneous

Master's Offers	*Multiple Ivy Leagues, Carnegie Mellon, Georgia Tech, etc.*	Fall 2025
Engineering Blog	*11 articles & 10,000+ reads*	Jan. 2024 – Present

- **Highlight:** "Someone Copied My GitHub Project, Then Licensed It" ☐
- **Highlight:** "Building an Opinionated, Reactive, State Management Framework For Flutter Apps" ☐

Discord Learn-to-Code Community	*2,500+ members & 250,000+ messages*	Nov. 2022 – Present
Leetcode	*~1,800 solved (view my blog post for details)*	Sep. 2021 – Present
2 Coding Instagrams	*12,000,000+ views & at peak: ~70,000 followers*	Jul. 2020 – Present
Stack Overflow	*3,300+ rep; ~100 answers; 500,000+ people reached*	Mar. 2020 – Present
Volunteering	*Abbotsford Youth Council, soup kitchen, Barnabas Camp*	Intermittent
Certifications	*IBM Containers & Kubernetes; Microsoft Generative AI*	Intermittent
Personal Interests	*Tanks/battleships/warplanes, cross-country running, cooking, & snowboarding*	Continual