

Perry's Résumé - Fintech

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Inventive and pragmatic R&D engineer with 30+ years of experience architecting high-performance, secure software/hardware systems across fintech, energy, and communications. Deep expertise in C++, Rust, Python, distributed systems, cryptography, and embedded design. Trusted to lead complex, mission-critical initiatives, prototype future-facing systems, and mentor engineering teams. (PDF, Text)

Technical Skills

- **Languages:** C++ (25+yrs), Python (15+yrs), Rust (5+yrs), C, Go, SIMD, ...
- **Embedded Systems:** RTOS, microcontrollers, assembly optimization, PCB debug
- **Distributed Systems:** Holochain, Ethereum EVM, CAP/BFT systems, scalable dApps
- **Protocols & Automation:** EtherNet/IP, Modbus, SCADA, Reed–Solomon FEC, Fountain codes
- **Security & Cryptography:** SLIP-39, Shamir secret sharing, PKI, PQC, secure comms
- **Performance:** SIMD (AVX, NEON), real-time SDR processing, lock-free wait-free concurrency
- **DevOps & Infra:** Linux, Docker, CI/CD pipelines, inherently secure and fail-safe auth systems

Experience

R&D Consultant - *Dominion R&D Corp.* (Remote, 2009–Present)

Consulting and R&D for Fintech, Industrial Control, Communications Security, and Blockchain projects.

- Architected blockchain and IoT systems for energy and fintech clients.
- Created multiple widely used public libraries across disparate fields;
 - `cpppo` for industrial EtherNet/IP protocol parsing.
 - `python-slip39` for managing and securing self-custody secrets.
 - `ezpwd-reed-solomon` Reed–Solomon FEC for securing data on lossy channels, used by aerospace and weapons systems developers globally.
- Guide dev teams through cryptographic and distributed systems architecture and implementation.
- Actively share research code and papers (e.g. holofuel-model, many other private repos).
- Authored technical articles on Holochain, consensus, and industrial comms.

Distributed Systems R&D - *Holo Ltd.* (Kelowna, BC 2018–2020)

Architected partition-tolerant mutual credit system with cryptographic finality absent global consensus.

- Implemented agent-centric accounting enabling linear $O(n)$ scaling vs $O(n^2)$ blockchain bottlenecks.
- Designed value-stable unit issuance via wealth attestation, eliminating debt interest requirement.
- Validated simultaneous atomic settlements during network partitions.
- Developed statistical models and PID control systems for economic stabilization across distributed agents.

Software Engineer - *clearGRID Ltd.* (Kelowna, BC 2017–2022)

Implemented distributed telemetry consensus without synchronized state machines.

- Built fault-tolerant SDR system processing 25Mps I/Q signals via commodity hardware.
- Achieved consensus on meter readings across lossy RF channels without global coordination.
- Optimized AVX/NEON vector processing for multi-channel demodulation at network edge

Sr. IT Advisor - *Enbridge Pipelines* (Edmonton, AB 2002–2009)

Deployed partition-resilient SCADA maintaining safety-critical consensus during network splits.

- Architected Reed-Solomon erasure-coded protocols enabling operation through crippling comms failures.
- Implemented multi-path routing maintaining cryptographic integrity across hostile networks
- Achieved <1 defect/10KLOC in mission-critical RTU firmware controlling \$100B+ infrastructure

Software Developer - *Hewlett-Packard* (Calgary, AB 1989–1996)

Pioneered state machine consensus for distributed industrial control systems.

- Architected DFA-based alarm correlation across geographically distributed SCADA nodes.
- Enabled deterministic state transitions without central coordination authority.
- System remains operational continent-wide after 30+ years continuous deployment.

Education

B.Sc. Computer Science - *University of Calgary* (Calgary, AB 1984-1989)