

# Fereydoun Memarzanjany

Caldwell, ID • (347) 620-0418 • F\_Memarzanjany@outlook.com • GitHub: Thraetaona • LinkedIn: in/thraetaona

## Profile

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Systems engineer focused on secure, high-performance embedded systems for mission-critical applications.

## Education

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**The College of Idaho** — *B.Sc., Dual Major in Physics-Mathematics & Computer Science* | **GPA 4.00 / 4.00** Feb 2024 – Present

- Accelerated path—60.5 credits earned in first year; on track to graduate in 2.5 years (May 2026);
- Independent Studies: FPGA Neural Networks (Innervator), TCP/IP & Embedded SW (Blitzping), MIMO Radar Imaging (TECTOR); and
- 2x SRC and 1x NSM conference presenter.

**Simon Fraser University** — *B.Sc. Computing Science* | **GPA 4.33 / 4.33**

**Sep 2023 – Dec 2023**

## Selected Technical Projects

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**TECTOR** — mmWave radar imaging firmware (Ada/C) **2025**  
Customized TI IWR1843BOOST (77 GHz) with safety-critical Ada firmware; streams real-time reflectometry at 15 fps with deterministic timing and memory usage. Achieves sub-millimeter resolution suitable for secure perimeter applications.

**Innervator** — FPGA neural-network hardware compiler (VHDL) **2024**  
Generates vendor-agnostic RTL from DNN metadata; Artix-7 implementation: 7.1 GOP/s at <0.3 W with <1  $\mu$ s latency. Enables AI acceleration in power-constrained, secure embedded systems. Paper DOI 10.36227/techrxiv.172263165.56660174.

**Blitzping** — High-speed packet-crafter (C) **2024**  
Outperforms standard network testing tools by >15 $\times$  on embedded platforms; achieves 3.15M PPS (120 MiB/s) on quad-core ARM and 420K PPS (16 MiB/s) on single-core MIPS. Capable of CIDR-range source IP randomization ideal for cyber-range and network resilience testing. 80 GitHub stars; listed in the FSF Free-Software Directory.

**EXACT** — Bare-metal Intel 8086 emulator (WebAssembly) **2020**  
Single-file .wat boots compiled binaries in-browser; 35 stars; zero-JavaScript runtime. Demonstrates low-level architecture knowledge and optimization techniques.

## Experience

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**IT Accessibility Auditor (Intern)** *Jan 2025 – May 2025* College of Idaho DALE & IT Depts. Caldwell ID / Hybrid

- Built a 6 k-LOC Python engine that scanned ~11,000 pages for WCAG 2.2 AA & Section 508 issues;
- Discovered & responsibly disclosed two PII data-leak vulnerabilities; coordinated patches within 48h; and
- Authored an authoritative 40-page legal analysis on ADA obligations for the Provost's office.

**Computer Science II Learning Assistant** *Sep 2024 – Dec 2024* The College of Idaho Caldwell, ID / On-site  
**Paralegal & Pro Se Litigator** *Aug 2022 – Sep 2023* Canada / Remote

- Drafted 450+ page immigration-law cases with technical precision; achieved favorable settlements in all cases.

## Leadership & Service

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- IEEE P1076 (VHDL) Working Group — EDA-TWIKI admin & contributor (2024 – Present);
- Secretary, Coding Club (3CI) at The College of Idaho (2024 – 2025);
- Secretary, Math Club at The College of Idaho (2025 – Present); and
- Senator, Associated Students of The College of Idaho (Apr 2024 – May 2024; Oct 2025 – Present).

## Skills

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**Programming:** C11, Ada 2022, VHDL-2008, x86 Assembly, Python, SQL, Bash, LaTeX.

**Hardware & EE:** Xilinx 7-Series FPGA, ARM Cortex-M, TI mmWave radar, RF test equipment.

**Tools/Methods:** Git, Gnu/Linux, POSIX, Vivado, Signal processing, Protocol analysis, Embedded optimization.

**Languages:** Persian (native), English (C2), Turkish & Arabic (B1), Russian (A1).

**Other:** Technical writing, Legal drafting, Information security.

**Courses Taken:** Partial Differentials (PDEs), Analytical Physics I & II, Real Analysis, Quantum Chemistry, *et cetera*.

## Honors, Memberships, & Certifications

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- Member, Free Software Foundation (2024 – Present)
- Dean's List (Spring & Fall 2024, 2025)
- Student Member, IEEE (2022 – Present)
- Finalist, Iranian Olympiad in Informatics (2021)
- IELTS C2 (8.5 / 9.0 Reading)
- Jane Street Puzzle Solver (Feb. '25, Apr. '25, Mar. '25)