Tien Li Shen

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Systems Engineer with expertise in C++, Python, and Rust, with strong foundations in algorithms, data structures, debugging, and scalable system design. Background spans defense software safety, SoC design verification, and distributed systems. MS in Computer Engineering. Passionate about building reliable, high-performance, and maintainable software that drives innovation at scale.

PROFESSIONAL EXPERIENCES

RTX | Raytheon Missiles and Defense, Tewksbury, MA
Systems Engineer II, October 2023 - April 2025

- Analyzed 170+ software issues and 110+ critical updates, identifying 30+ hazards and ensuring reliable fixes under mission-critical conditions.
- Authored and delivered a Safety Assessment Report for the Patriot SAM system (radar, guidance, and C2).
- Collaborated with cross-functional engineering teams to ensure end-to-end software quality and compliance.

Intel Corporation, Hudson, MA
DDRIO Pre-Silicon Design Verification Intern, May 2022 - August 2022

- Built SystemVerilog UVM monitors/checkers to validate DDRIO power-optimization logic across 30+ modules, enabling a new performance & energy-saving feature in Intel's next-gen server CPUs.
- Improved CI/CD regression pipelines and reduced runtime by eliminating redundant workloads.
- Developed a Python automation tool that detected 200+ RTL/spec mismatches, strengthening design validation across hardware/software interfaces.

Reconfigurable Computing Group, University of Massachusetts Amherst
Graduate Research Assistant, August 2021 - May 2022

- Applied formal verification (Cadence Conformal LEC) to confirm functional equivalence of 120+ FPGA synthesis benchmarks, improving toolchain correctness.
- Verified consistency between Yosys (open-source) and Xilinx Vivado (commercial) flows across 21 benchmarks, ensuring reliability in hardware-software co-design.

PROJECTS

- **Multi-threaded HTTP Server (C++)** – Designed and implemented a concurrent HTTP server supporting images and error handling; benchmarked against Apache for throughput and latency with thousands of clients.
- **Mechanism of Action Prediction (Python, ML)** – Applied PCA and ML classifiers (Ridge, Logistic Regression, AdaBoost, Random Forest, MLP) for large-scale bioinformatics prediction tasks.
- **Smart Window (Embedded Systems)** – Built a connected IoT system with sensor calibration, custom CAN bus transceiver, and low-power communication for environmental monitoring.

EDUCATION

University of Massachusetts Amherst, Amherst, MA

- M.S. Computer Engineering (2023) - B.S. Computer Engineering (2021)

TECHNICAL SKILLS

- **Languages:** C++, Python, Rust, C, Java, Kotlin, SystemVerilog, Verilog, Bash
- **Core Skills:** AI-assisted software development, Algorithms, Data Structures, Debugging, Multithreading, Distributed Systems, CI/CD, Safety-Critical Systems
- **Tools:** Git, Copilot, UVM, Vivado, ModelSim, Cadence LEC, Design Compiler, Quartus, Symbiflow