Ryan Dang

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EDUCATION

Brown University, *B.S. Computer Engineering, GPA 4.0* Expected Graduation May 2027

- Relevant Courses: Dynamics and Vibrations, Design Engineering, Calculus II and III, Object Oriented Design, Data Structures and Algorithms, Electricity and Magnetism, Material Science, Linear Algebra, Circuits, Computer Systems

EXPERIENCE

Wright State University Research Experience for Undergraduates (REU) June 2025 - Present

Hardware Security Research Intern Dayton, OH

- Implementing a ring oscillator physically unclonable function (PUF) on a **Basys 3** FPGA using **Vivado**, integrating 16 oscillators, dual 8-to-1 multiplexers, counters, and a comparator for secure challenge-response authentication
- Applying **machine learning** (SVM and Random Forest) to detect hardware Trojans using ring oscillator frequencies

Brown University Engineering Department January 2025 - May 2025

Dynamics and Vibrations Teaching Assistant Providence, RI

- Led office hours for **20+** students to clarify concepts in kinematics, force balance, and harmonic motion

AA Technology May 2024 - July 2024

PCB Manufacturing Engineer Intern Ronkonkoma, NY

- Increased production speed by **1.5x** by optimizing programming for a newly acquired conformal coating robotic arm
- Converted schematic drawings into **PCBs** using pick-and-place machines and **automated optical inspection (AOI)**
- Achieved a **~5%** reduction in lead time by interpreting PCB schematics, developing a bill of materials in **Excel,** and cross-referencing customer part specifications with datasheets to ensure accuracy with design requirements

PROJECTS

UDP Packet Processor Present

- Developing a packet processor on an FPGA, enabling line-rate parsing, checksum verification, and header extraction

Dual-Clock FIFO May 2025

- Designed and simulated a dual-clock FIFO in **Verilog** to safely transfer data between asynchronous 100 MHz and 25 MHz clock domains using Gray-coded pointers and CDC-safe synchronizers

FPGA Pong Game December 2024 - January 2025

- Implemented a fully functional Pong game on a **Lattice ICE40** FPGA board, utilizing Verilog to create modular components for paddle control, ball movement, VGA display synchronization, score tracking, and game state tracking

Tetris and Custom Controller January 2024- February 2024

- Developed Tetris from scratch in **Java** with custom game logic, collision detection, scoreboard, and a physical controller using a custom PCB (**Altium**) and 3D-printed housing (**Fusion 360**)

ACTIVITIES

Engineering Department Undergraduate Group Providence, RI

Events Coordinator October 2024 - Present

- Increased student engagement in Engineering Week by over **30%** through targeted outreach and events such as brunch with professors, engineering-themed trivia night, badminton with a professor, and Lego building challenges

Brown Formula Racing Providence, RI

Electrical Engineer January 2024 - Present

- Redesigned the power distribution system to reduce weight and simplify wiring via a PCB designed in **Altium**
- Assembled a custom wiring harness for the car using DTM and ring connectors, wire strippers, and crimpers

SKILLS

Technical: FPGA, PCB Design, I2C, UART
Languages/Tools: Verilog, C/C++, Python, Java, Vivado, Lattice Diamond, Altium, LTSpice, Linux, Docker, Git
Instruments: Oscilloscope, Signal Analyzer, Waveform Generator, Multimeter
Interests: Club Volleyball, Piano, Guitar, Biking