

# Pratyay Rudravaram

[pratyay.org](http://pratyay.org) | [pratyay2@illinois.edu](mailto:pratyay2@illinois.edu) | [linkedin.com/in/pratyaygopal](https://linkedin.com/in/pratyaygopal) | 9452680041 | US Citizen

## EDUCATION

### University Of Illinois Urbana Champaign

Bachelor of Science in Computer Engineering, Minor in Mathematics

GPA: 3.67/4.0

December 2026

**Relevant Coursework:** Computer Organization and Design, FPGA, Operating Systems, VLSI Design, Logic Synthesis, Parallel Programming, Data Structures, Electronics, Analog Signal Processing

## EXPERIENCE

### RTL Verification Intern, Deepgrid Semi

June 2025 - July 2025

- Developed a testing strategy to verify 5 modules of an open-source hardware accelerator using executed SystemVerilog UVM-esque testbenches while ensuring 100% functional correctness and simulation coverage.
- Implemented 4 self-checking testbenches with scoreboard mechanisms and functional coverage models.
- Integrated Vivado-based synthesis and implementation flow to validate FPGA compliance and performance.

### PCB Design Intern, Apollo Computing Laboratories

June 2024 - Aug 2024

- Developed a 2-layer 8-channel power delivery board to enable high availability data-center applications.
- Designed and implemented hardware to control power supply to a server, ensuring precise control.
- Documented design process, BOMs, and test procedures for future manufacturing and certification.

### Computer Architecture [ECE411] Course Assistant

Aug 2025 – Present

- Hosted office hours for class projects like the pipelined processor and multicycle set associative cache.
- Clarified doubts during office hours, conducted exam review sessions and proctored exams for 150+ students.

### Digital Systems FPGA [ECE385] Course Assistant

Jan 2025 – Present

- Hosted office hours for course's FPGA projects including VGA text controller and RISC processor.
- Moderated the 1000+ members class discord server and clarified student questions on SV and FPGA testing.
- Conducted demos, reviewed SystemVerilog testbenches, and facilitated hardware debugging and verification.

### President, ACM SIGARCH@UIUC

Aug 2024 - Present

- Officer and Workshop Lead for UIUC's premier computer architecture student organization. ([sigarch.net](http://sigarch.net))
- Designing workshops to introduce students to RTL design and simulation, computer architecture and ISAs.

## PROJECTS

### WRAITH: A Resource-Efficient Dataflow Accelerator | [pratyay.org/docs/wraith.pdf](http://pratyay.org/docs/wraith.pdf)

- Working on the RTL, Verification and Layout of the CGRA mesh and preiperal in order pipeline processors.
- Targeting tapeout of a preliminary architecture on TSMC's 65nm process node in Fall 2025.

### Superscalar Out-of-Order RISC-V CPU | [pratyay.org/docs/ooo.pdf](http://pratyay.org/docs/ooo.pdf)

- Created a speculative out-of-order RISC-V CPU with an ERR architecture, implementing the RV32IM spec.
- Supports upto 2 instruction commits per cycle, multiple integer execution units, parametric multiplier/div, etc.
- Synthesized dual-issue/commit core with L0+L1 cache on FreePDK's 45nm process node at 525MHz

### FPGA-Based Video Game – Spartan-7 Board | [pratyay.org/docs/fnaf.pdf](http://pratyay.org/docs/fnaf.pdf)

- Developed a modified port of Five Nights at Freddy's on a Spartan-7 FPGA, achieving real-time gameplay.
- Implemented and integrated an SPI-based keyboard interface supporting up to six simultaneous key presses.
- Designed game logic, randomized seed selection and optimized scalable graphics within 270 KiloBytes of RAM.

### External Electrical Neuron (N.E.R.V.E) | [pratyay.org/docs/nerve.pdf](http://pratyay.org/docs/nerve.pdf)

- Developed a system that uses an STM32 microcontroller to send electrical signals to muscles via a TENS unit.
- Programmed a muscular contraction in a user by spiking brain wave intensity using a portable EEG.

## TECHNICAL SKILLS

**Languages:** SystemVerilog, Verilog, Bash, Assembly, C, C++, VHDL, TCL, CUDA, Python, Java

**Tools:** Git, Intel Quartus, Xilinx Vivado, VS Code, Verdi, VCS, Verilator, Linux

**Protocols:** AXI-4, AXI Stream, SPI, TCP, UDP, UART, I2C

**Lab Tools:** Falstad, Arduino, Oscilloscopes, Raspberry Pi, KICAD, ORCAD, PADS, GPUS