Paul Nieves

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EDUCATION

Rensselaer Polytechnic Institute, Troy, NY — **Expected Graduation:** May 2025
M.S. Electrical Engineering (Concentration: Computer Systems Design) — **GPA:** 3.33
Rensselaer Polytechnic Institute, Troy, NY — **Graduation:** May 2024
B.S. Electrical and Computer Systems Engineering Dual — **GPA:** 3.48

EXPERIENCE

Green Action Studio Schenectady, NY — **Sep 2022 – Dec 2022**
Embedded Hardware Engineer

- Engineered PCB modules for an electric vehicle charger and designed a UL-approved ground fault detection circuit.
- Optimized ARM-based microcontroller firmware and assembled EV chargers from schematics

Claro Puerto Rico Guaynabo, Puerto Rico — **May 2024 – Aug 2024**
Network Technician

- Maintained demarcation points for residential and commercial clients (Demarcation points: Tmarc, ASR 9k/920, Cisco 3000)
- Diagnosed and resolved signal loss and connectivity issues for fiber optics, copper, and coaxial networks

PROJECTS

Pipelined RISC-V Processor Implementation Troy, NY
ECSE 4770 - Computer Hardware Design

- Designed a 5-stage pipelined processor supporting key RISC-V instructions with hazard detection
- Extended datapath and control logic to implement Load Upper Immediate (lui)
- Verified functionality through SystemVerilog testbench, RTL schematics, and waveform analysis

Static CMOS Logic Design & Layout for VLSI (65 nm) Troy, NY
ECSE 4220 – VLSI Design

- Optimized a CMOS circuit using Karnaugh maps, minimizing transistor count for efficiency
- Developed a compact, DRC-compliant layout with minimal interconnects
- Verified through Layout vs. Schematic (LVS) and performed parasitic extraction (PEX)

Deep Q-Learning for CartPole Control Problem Troy, NY
ECSE 6965 – Reinforcement Learning

- Implemented a Deep Q-Network (DQN) to balance a pole using reinforcement learning
- Designed a neural network from scratch with experience replay and a target network for stable learning
- Tuned hyperparameters, achieving an average reward of 200 over 100 episodes

Modular Synth Troy, NY
ECSE 6980 - Masters Project

- Designed PCBs for VCO, VCA, MIDI-to-CV, ADSR, and a ±15V/±20V DC power supply for a modular synthesizer
- Programmed firmware for Arduino Nano (ARM) to interface with 16-bit DACs through SPI for 1mV precision analog note

RESEARCH

LESA Florescence Tool Research Troy, NY — **Sep 2023 – Dec 2023**
Software Engineer/Embedded Hardware Engineer

- Built, integrated, and tested Fluorescence tool hardware for plant health analysis
- Debugged and enhanced Lock-in Amplifier Circuit by adding filters to better detect fluorescence wavelength from plants

Photonics GUI Research Troy, NY — **Sep 2023 – Dec 2023**
Software Engineer/Embedded Hardware Engineer

- Automated Tektronix oscilloscope, multimeter, and function generator with Python via GPIB (py-visa)
- Developed a GUI for streamlined test execution and result storage. (Integrated cloud saving into GUI)

SKILLS

Programming: C++, C, Python, Java, SystemVerilog, MIPS, VHDL
Hardware Design: PCB Design (Altium, KiCAD, EAGLE), FPGA Design, VLSI Layout, CAD
Software & Tools: MATLAB, Quartus Prime, Vivado, ModelSim, Cadence, LTSpice, LabVIEW, Fusion 360, Arduino IDE
Languages: Fluent in English & Spanish
Coursework: Reinforcement Learning, Advanced VLSI Design, Advanced Computer Hardware Design, Embedded Control, Digital Signal Processing, Microelectronics Technology, Electrical Energy Systems, Mechatronics, Linear Algebra, Multivariable Calculus