

Atharva Pandhare

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EDUCATION

Rutgers University

M.S. Electrical and Computer Engineering - Computer Engineering Specialization

B.S. Electrical and Computer Engineering

Expected: Jan 2026

New Brunswick, NJ

- **GPA:** 3.9/4.0
- **Graduate Certificate:** Socially Cognizant Robotics
- **Relevant Coursework:** Embedded Systems 1 & 2 - Hardware & Software Design, Parallel and Distributed Programming, Mobile Embedded Systems and on-device AI, Deep Learning, Socially Cognizant Robotics, Cloud Computing, VLSI Design, Computer Graphics

EXPERIENCE

Calix

FPGA Design Intern (AI/ML Hardware Integration Focus)

Jan 2024 — Present

Plymouth, MN

- Researched and tuned small language models using SFT and distillation techniques for deployment on edge hardware platforms
- Prototyped multi-agent AI workflows for network management automation using LangGraph, LangChain, and Model Context Protocol
- Evaluated LLM performance and capabilities on compute-constrained edge devices for hardware team integration
- Prototyped edge AI system to process network data locally instead of in centralized cloud infrastructure

Rutgers University

Teaching Assistant for Embedded Systems

Jan 2024 — Present

New Brunswick, NJ

- Oversaw student demonstrations ensuring alignment with learning objectives and engineering fundamentals
- Graded and provided feedback on C and VHDL assignments for 40+ students across two course sections
- Tested lab materials to ensure compatibility with school resources
- Held regular office hours to reinforce and fill gaps in student learning

YodaTrader

Software Engineering Intern

Jun 2023 — Aug 2023

Remote

- Designed functions in python to automate order placements using the Interactive Broker REST API.
- Designed and backtested algorithms over two years of market OHLC data collected using Polygon's REST API.
- Containerized the application for cross-platform deployment using Docker and Compose
- Established an in-memory backend using Redis for request handling and queuing.

PUBLICATION

Cloud-Connected Human-Drone Interface for Intuitive Navigation

ieeexplore.ieee.org/document/10791117

IEEE International Symposium on Consumer Technology 2024

- Designed an innovative interface enabling intuitive drone navigation through digital mapping.
- Wrote a lightweight protocol to encode and transmit flight data over Long-range Radio (LoRa) communication.
- Designed system architecture using Redis for real-time command queuing and direct LoRa communication to eliminate gateway dependencies
- Programmed custom flight controller in C for Raspberry Pi Pico, implementing PWM motor control and UART instruction processing

PROJECTS

- **CUDA-Accelerated Image Classification:**
Achieved 98% accuracy on MNIST dataset using parallelized K-Nearest Neighbors with 48x speedup (75 seconds vs 1+ hour on CPU)
- **Embedded AI Chatbot:**
Configured PetaLinux to support Ethernet, SSH, Python runtime, and package management for GPT API integration on FPGA-based embedded system
- **Formula-Style Active Rear Wing:**
Developed real-time control system on Raspberry Pi for automated spoiler deployment based on speed and braking inputs, integrating servo motors and sensor feedback
- **FPGA Communication Systems:**
Implemented VGA display controller and UART protocol in VHDL on Zynq-7000, achieving reliable 115200 baud serial communication

LEADERSHIP

Rutgers IEEE

eCTF Lead Developer

Sep 2024 — Present

New Brunswick, NJ

- Co-lead Rutgers University's first-ever team in MITRE's Embedded Capture-the-Flag Competition.
- Ran crash course sessions in topics ranging from Linux CLI and scripting to C/C++ for 15+ team members

Collaborative Solutions LLC Rutgers Externship Exchange

Jun 2022 — Aug 2022

Team Lead (Outstanding Team Lead Award)

Remote

- Led and facilitated communication and collaboration among nine advisors and team members.
- Created ten deliverables using Research and analysis facilitated by PowerPoint, Excel, and Python.

SKILLS

- Programming Languages: C/C++, Python, Rust, VHDL/Verilog, Bash, RISC-V Assembly, Java, MATLAB, JavaScript
- Hardware & Embedded: FPGA/RTL Design (Xilinx, Terasic), Baremetal Programming, Petalinux, Vivado, Vitis
- Machine Learning & AI: PyTorch, TensorFlow, LangChain/LangGraph, Ollama, Unsloth, Huggingface, CUDA, NumPy, Pandas
- Development Tools: Linux, Docker, Git, GDB, Conda/venv, uv, QuestaSim, Redis, MongoDB
- Hardware Tools: Oscilloscope, Signal Generator, Soldering, 3D Printing, SolidWorks