

# Wasi Hussain

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## EDUCATION

### Vanderbilt University

*Bachelor of Science in Computer Science and Applied Math*

Nashville, TN

May 2028

### Rochester Institute of Technology

*Coursework towards B.S. in Computer Science, GPA: 4.0*

Rochester, NY

Aug 2023 – May 2025

## EXPERIENCE

### Research Assistant

*Vanderbilt Institute for Software Integrated Systems (ISIS)*

May 2026 – Present

Nashville, TN

- Automated a scenario-generation pipeline for the DARPA CASTLE program, deploying network assets and 50+ real-world vulnerabilities to reduce setup time by 70% for reinforcement-learning agents.
- Built validation routines and engineered tooling to generate standardized benchmark datasets, measuring cyber-agent performance across 10+ emulated environments.

### Cloud Developer

*Vanderbilt University Cloud Innovation Lab*

Aug 2025 – May 2026

Nashville, TN

- Designed and engineered AI video segmentation pipelines on AWS (Transcribe, EC2), utilizing Pydantic and prompt engineering for automated news segment labeling.
- Engineered commercial segment detection by integrating image mosaicing and black frame analysis, combining approaches to achieve 95% accuracy across all segment types.
- Designed AWS Lambda pipelines and deployed Infrastructure-as-Code solutions to automate 10TB media analysis, reducing costs by 80% and time by 90%.

### Research Assistant

*National Science Foundation*

July – Aug 2025

Fargo, ND

- Researched AI for Sustainable Energy Systems under the NSF REU program at North Dakota State University.
- Evaluated LLM energy footprints and developed a highly efficient 2B parameter 1-bit LLM using FeFETs, achieving a 100x energy reduction over conventional models.
- Achieved 2nd Place recognition out of 30+ research projects for the comprehensive analysis of energy-efficient AI systems.

### Teaching Assistant

*Rochester Institute of Technology*

Feb 2025 – May 2025

Rochester, NY

- Graded assignments and provided weekly problem-solving support and debugging assistance to 30+ students for CS2 (Data Structures).

### Machine Learning Intern

*Mpower Social Enterprises*

May 2023 – July 2023

Dhaka, Bangladesh

- Built a GPT-3.5-powered nutrition chatbot using PDF-based knowledge retrieval with chunk loading.
- Engineered a TensorFlow-based model to predict miscarriage risk, cleaning a UN dataset of 600,000+ patients and improving accuracy by 60%.

## PROJECTS

### AnchorExchange | \$150,000 in Funding for 1st Place in Vanderbilt Greenathon

February 2026

- Architected P2P marketplace for 7,000+ students, securing \$150k in seed funding for sustainability.
- Developed full-stack application using React and Firebase, cutting user onboarding to 30 seconds.
- Led pilot across 6 residence halls, facilitating 300+ transactions and diverting 1000+ lbs of waste.

### Hush-Mesh | Won \$15,000 for 2nd Place in AWS Mission Autonomy Hackathon

October 2025

- Engineered real-time maritime convoy system via AWS Kinesis and Lambda for autonomous threat detection.
- Deployed CNN-LSTM model with 92.86% accuracy to IoT edge devices, reducing response latency by 45%.
- Implemented A\* path planning for 4-drone formations using ECS/Fargate to avoid 500+ dynamic obstacles.

## TECHNICAL SKILLS

**Languages:** Python, C, JavaScript, Java, HTML/CSS

**ML & AI:** PyTorch, TensorFlow, Reinforcement Learning, LLMs (GPT), RAG, Computer Vision

**Frameworks/Tools:** React, Flask, Firebase, AWS (EC2, Lambda, Kinesis, ECS/Fargate, Transcribe)

**Libraries:** Pandas, NumPy, Matplotlib, Seaborn