

# SAI RAVI TEJA GANGAVARAPU

Pittsburgh, PA

📞 412-251-7161 ✉️ [sairavig@andrew.cmu.edu](mailto:sairavig@andrew.cmu.edu) 🔗 [linkedin.com/in/sairavig](https://www.linkedin.com/in/sairavig) 🐙 [github.com/sairavig](https://github.com/sairavig) 🌐 [floaredor.vercel.app](https://floaredor.vercel.app)

## Education

### Carnegie Mellon University

Aug 2025 – Dec 2026

*Master of Software Engineering - Scalable Systems*

*Pittsburgh, PA*

### Mahindra University

Aug 2020 – Aug 2024

*BTech in Computer Science*

*Hyderabad, India*

## Relevant Coursework

- Data Structures & Algorithms
- Operating Systems
- High-Performance Computing
- Machine Learning
- Deep Learning
- Distributed Systems
- Design Patterns
- Agile Methodologies
- Product Management
- User Experience

## Experience

### Founding Software Engineer, Tapsta

Jul 2024 – Jun 2025

*Full-Stack & Mobile Development*

*Remote*

- Architected end-to-end full-stack social rewards mobile application using React, React Native, FastAPI, and PostgreSQL (25+ schemas).
- Optimized client-side operations with caching and debouncing (30% faster response times); redesigned onboarding flow, driving 40% user retention.
- Orchestrated Plaid API integration and REST API creation, enabling automated cashback and ACH transfers for 1,500+ users.
- Containerized CI/CD pipeline with Docker, AWS, and ArgoCD, reducing deployment time by 70%.
- Led a team of 3 SDE interns, establishing code review processes that contributed to 30% faster feature delivery.

### SDE Intern, Catalog.fi

Apr 2023 – Dec 2023

*AI & Full-Stack Development*

*Remote*

- Fine-tuned LLaMA/BERT in PyTorch to build a natural-language interface for payroll (90% natural language to API accuracy, 25% API integration time reduction).
- Implemented full-stack crypto analytics platform (React, FastAPI, Postgres, Golang) with real-time monitoring dashboard and leaderboard, boosting user engagement by 30%.
- Improved backend performance using Go and PostgreSQL optimizations, supporting USD150M+ trading volume with 20% faster queries.

### Research Assistant, Fan Lab, University of Florida

Feb 2024 – Jun 2024

*Genomic Modeling & NLP*

*Gainesville, FL*

- Applied transformer architectures for rare disease prediction, processing 15,000+ DNA sequences.
- Developed multi-layer perceptron models using protein embeddings (ESM3) for RNA-binding protein analysis.

### Research Assistant, Mahindra Ecole Centrale

Dec 2022 – Jan 2025

*Machine Learning & Audio Processing*

*Hyderabad, India*

- Published research on emotion-targeted music generation (FFT, differential evolution, F C-means), achieving 85% accuracy in classification (IEEE CEC 24).
- Implemented ALI-GAN model with t-SNE and PCA for clustering analysis on 1000+ samples, achieving unsupervised music genre classification.

## Projects

### CUDA Ray Tracer and Audio-Reactive Visualizer | C++, CUDA, OpenGL

Graphics/HPC

- Built GPU-accelerated ray tracing system achieving 1,600x speedup (7.5s to 0.0045s per frame) over CPU implementation.
- Implemented real-time FFT-based audio reactive 256-agent boids simulation.
- Developed a modular 3D renderer in C++ and OpenGL.

### Project RECON | Raspberry Pi, OpenMPI, GlusterFS, Slurm

Distributed Systems

- Architected an 8-node Raspberry Pi 4B compute cluster with distributed storage, LDAP authentication, and Slurm job scheduling.
- Served 400+ students for coursework, successfully securing USD 2000 in funding.

Technical Skills

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**Languages:** Python, C++, Go, JavaScript, TypeScript, CUDA, SQL, HTML  
**Frameworks/Libraries:** PyTorch, TensorFlow, React, FastAPI, Next.js, Langchain, Pandas, NumPy, OpenGL  
**Databases:** PostgreSQL, MySQL, MongoDB, Redis  
**Tools/Platforms:** Docker, Kubernetes, AWS, Git, ArgoCD, JIRA, VS Code, Linux, HPC  
**Concepts:** Deep Learning, Machine Learning, Distributed Systems, Data Structures & Algorithms, REST APIs, CI/CD, Agile

Leadership & Achievements

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<b>President, Enigma, the Computer Science Club</b>	<b>2021 – 2023</b> <i>Hyderabad, India</i>
<ul style="list-style-type: none"><li>Conducted technical workshops (Gamedev, ML, Linux), increasing club membership by 40% (2000+ students).</li><li>Led successful collaborations with industry partners including Ubisoft and NVIDIA.</li></ul>	
<b>1st Place, WaffleHacks 2024</b> <i>320+ participants</i>	<b>Mar 2024</b> <i>Online</i>
<ul style="list-style-type: none"><li>Built FlashFocus, a Chrome extension blocking distractions and generating AI flashcard quizzes using a RAG system (React, FastAPI, SQL, Groq).</li></ul>	
<b>1st Place, Noderunner Hackathon 2023</b> <i>50 teams</i>	<b>Oct 2023</b> <i>Online</i>
<ul style="list-style-type: none"><li>Engineered a distributed cluster implementing Raft consensus protocol from scratch (Python, Flask, Multithreading).</li></ul>	