

Neel Maddu

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SUMMARY

Computer Science student at Georgia Tech with a strong focus on artificial intelligence, systems, and mobile development. Currently a Software Engineer Intern at GTRI's CIPHER Lab, applying ML and systems architecture to cybersecurity workflows. As a Tech Lead for the Georgia Tech iOS Club, I co-direct a 20+ member cross-functional team to ship production-level iOS applications leveraging Swift, SwiftUI, and Core ML.

EDUCATION

Georgia Institute of Technology

Bachelor of Science in Computer Science | **GPA: 4.0**

Atlanta, GA

Expected May 2027

EXPERIENCE

Georgia Tech Research Institute (GTRI)

May. 2026 – Present

Software Engineer Intern, CIPHER Lab – Threat Analysis Branch

Atlanta, GA

- Build ML R&D solutions and data analytic pipelines supporting cybersecurity and intelligence analysis workflows within GTRI's Threat Analysis Branch, applying NLP techniques – including entity extraction and semantic analysis – to large-scale unstructured data in a national security context.
- Evaluate risk posture of LLM-enabled and agentic systems within secure experimental frameworks, assessing how architectural choices (prompt design, tool permissions, guardrail placement) affect resilience against adversarial and injection-style threats.
- Translate technical AI-model vulnerability evaluations into high-level briefings that inform security assessment and program-level decision-making.

Georgia Institute of Technology – VIP Program

Jan. 2026 – Present

Automated Algorithm Design – AlphaEvolve Subteam

Atlanta, GA

- Contribute to a GTRI-sponsored research program building a multi-objective genetic programming framework that evolves hybrid algorithms from data, outperforming human-designed baselines.
- Extend the LLM-Guided Evolution (LLM-GE) framework – cited as prior work by Google DeepMind's AlphaEvolve – running and validating experiments across 7 generations on Georgia Tech's PACE ICE HPC cluster for C880 circuit optimization.

Georgia Tech iOS Club

Aug. 2025 – Present

Tech Lead

Atlanta, GA

- Co-lead a 20-member project team alongside another Tech Lead and 4 Senior Developers, architecting and shipping production-level iOS applications using Swift, SwiftUI, and Firebase.
- Architect application features using the MVVM design pattern and conduct code reviews across the team's codebase, streamlining onboarding and enforcing mobile development best practices through continuous mentorship.

PROJECTS

MARTA Live Transit Tracker | Python, FastAPI, SQLite, SwiftUI, WidgetKit, GTFS-Realtime

2026

- Built a full-stack transit tracker: a 24/7 FastAPI/SQLite backend polling MARTA's GTFS-Realtime and rail feeds, accumulating **575K+ arrival observations** across 78 routes and 6,200+ stops, feeding a native SwiftUI app tracking ~200 live vehicles at 15-second refresh.
- Resolved feed defects absent from official docs – reconstructed missing bus delays via trip-to-schedule joins against **2.4M GTFS rows** and hand-wrote a protobuf decoder validated byte-for-byte against the reference parser – and integrated OpenTripPlanner for delay-aware trip planning, backed by **59 automated tests**.

LLM Red-Teaming Evaluation Pipeline | Python, Streamlit, Ollama, Anthropic API, pytest

2026

- Built an extensible prompt-injection evaluation framework (pluggable provider/target/classifier/defense layers) testing local and frontier LLMs against 46 attack payloads across 4 categories and 41 techniques, with 35 tests and CI.
- Engineered a dual rule-based + LLM-as-judge scoring pipeline and Streamlit dashboard quantifying a robustness gap of up to 47% breakthrough on local 8B models versus near-zero on a frontier model.
- Surfaced non-obvious failure modes via multi-model, repeated-trial experiments – prompt-hardening defenses that relocated vulnerabilities rather than removing them, and denylist filters defeated by trivial obfuscation.

Multimodal AI Search Engine | PyTorch, FAISS, NumPy, pandas, Streamlit

2025

- Indexed 10,000+ images with CLIP embeddings and FAISS, retrieving semantically relevant results from natural language prompts at an average query time of 2 seconds.

TECHNICAL SKILLS

Machine Learning & AI: PyTorch, TensorFlow, scikit-learn, FAISS, MediaPipe, NLP, LLM Evaluation

Data: pandas, NumPy, Graph Analytics

iOS Development: Swift, SwiftUI, Core ML, MVVM

Backend & Databases: SQL, MySQL, MongoDB, Firebase, FastAPI, Node.js

Programming Languages: Python, Java, C, JavaScript, C++, Next.js, React

Tools: Git, GitHub, CI/CD, Jenkins, GitHub Actions, Docker

Cloud: AWS, Azure