

# Meru Gopalan

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## EDUCATION

### Georgia Institute of Technology

Atlanta, GA

*Bachelor of Science in Computer Science; Threads: Intelligence & Modeling/Simulation*

May 2028

Coursework: Data Structures, Algorithm Design, SAT/SMT Solvers, Computer Organization

GPA: **4.0**

## TECHNICAL SKILLS

**Languages:** Java, Python, JavaScript, TypeScript, HTML/CSS, C/C++, PHP

**Frameworks:** PyTorch, TensorFlow, Git, Unix, Bash, Docker, Flask, React/Next.js, Mastra, Cloudflare, AWS S3, D3.js

## EXPERIENCE

### ML for Linguistics Research, Georgetown University

Washington D.C.

*NERT, Department of Linguistics; Dr. Nathan Schneider*

Apr. 2025 - Jun. 2025

- Created an annotated corpus of the US Code in the CGEL grammar, identifying legal ambiguities.
- Extended on ActiveDOP tree-building software by building a JavaScript UI with jQuery using a Flask backend.
- Designed a Machine Learning syntax parser on the CGEL-Bank corpus to assist judicial interpretive analysis.
- Published results in *Treebanks and Linguistics Theories (TLT)*, part of the SyntaxFest '25 conference.

### Software Development for Gamma-Ray Observatory, University of Maryland

College Park, MD

*High-Altitude Water Cherenkov (HAWC) Observatory; Dr. Jordan Goodman*

Feb. 2023 - May 2024

- Built a web-hosted galactic map visualizer using D3.js and a Python backend.
- Coordinated software for **200+** Observatory researchers to interactively locate high-energy emitters and upload findings.

### System Operations Lead

Silver Spring, MD

*Montgomery Blair SysOps*

Aug. 2022 - Jun. 2025

- Managed school servers and backups with React under Next.js to configure full-stack school software.
- Maintained and developed websites for **10+** Math, Science and Computer Science tournaments hosted on S3.
- Led refactoring the school software in Spanish using React i18n to increase accessibility for over **35%** of the community.

### Swimming Instructor

Silver Spring, MD

*Montgomery County Swim League*

Jun. 2022 - Aug. 2025

- Created and maintained summer-long lesson plans for 2 private students and 20 local pool youth.

## PROJECTS

### Ming Management Training, Personalized L&D Software

Sep. 2025 - Present

- First-place winner of Google Gemini prize at HackGT '25!
- Created an interactive AI-native application via agentic LLM architecture to help managers practice in real-world scenarios.
- Orchestrated backend using Mastra connected to Gemini APIs for LLM response and sentiment analysis.
- Deployed full stack running Next.js, React, Tailwind, and ShadCN on Cloudflare.
- Selected out of **1500** people to demo for Major League Hacking at nationwide hackathons (HackGT, HackTX, etc.)

### LLM Heuristic-patching for SOTA SAT Solvers | CS8803 Semester Project

Sep. 2025 - Present

- Extended the "self-optimizing" AE framework for SAT Solvers by fine-tuning Strategy Generation model.
- Employed GRPO fine-tuning using HuggingFace TRL along with novel Presearch method reducing search space by **75%**.
- Conducted experimental trials comparing our Solver to 2025 SAT Competition winner displaying similar PAR-2 scores.

### Artificial Intelligence Alignment Research | SPAR Fellow

Sep. 2025 - Present

- Applying category theory and graph theory to unify markets, networks, and democratic systems for Collective Intelligence.
- Modeled multi-agent coordination and emergent collective agency, with applications to AI safety and large-scale simulations.

### mbhs.edu Development

Aug. 2023 - May 2025

- Head contributor to website for **4000+** students and staff at MBHS.
- Containerized servers using Docker and Caddy tied to S3 buckets auto-pulling from county databases.

## LEADERSHIP AND COMMUNITY ENGAGEMENT

- Georgia Tech Swim Club;** Won 3rd place in PTC Triathlon '25, ACC swim meets, Friendlies, etc.
- Artificial Intelligence Safety Initiative (AISi);** AISi Technical Fellow, Rapid Upskilling Cohort Fellow (ARENA).
- Eon English Tutoring;** Teach English to Atlanta-native Spanish speakers and extended program nation-wide.
- Grand Challenges Living-Learning Community;** Sensors for Disaster-Relief concept project.

## ADDITIONAL SKILLS

**Languages:** English, Spanish, Kannada, Tamil, Hindi

**Interests:** Triathlons, Sanskrit, Swimming, Linguistics, Vedanta, Carnatic Vocal Musician, Ricing Linux, Jamming with friends