

# Meru Gopalan

(240) 893-4613 | [mgopalan6@gatech.edu](mailto:mgopalan6@gatech.edu) | [in](https://www.linkedin.com/in/merugopalan) merugopalan | [m3ru](https://github.com/m3ru) | [m3ru.org](https://m3ru.org) | Atlanta, GA

## EDUCATION

### Georgia Institute of Technology

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

Coursework: Data Structures, Algorithm Design, SAT Solvers, Machine Learning

Atlanta, GA

May 2028

GPA: **4.0**

## TECHNICAL SKILLS

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

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

## EXPERIENCE

### ML for Linguistics Research, Georgetown University

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

Washington D.C.

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 for Gamma-Ray Observation, University of Maryland

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

College Park, MD

Feb. 2023 - May 2024

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

### System Operations Lead

*Montgomery Blair SysOps*

Silver Spring, MD

Aug. 2022 - Jun. 2025

- Managed school servers and backups with **React** under **NextJS** 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

*Montgomery County Swim League*

Silver Spring, MD

Jun. 2022 - Aug. 2025

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

## PROJECTS

### LLM Heuristic-patching for SOTA SAT Solvers

Sep. 2025 - Present

- Extended the "self-optimizing" AE framework for SAT Solvers by fine-tuning Strategy Generation model.
- Employed **GRPO** fine-tuning using the Hugging Face **TRL** along with novel **Presearch** method to reduce 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

- Building mathematical foundations for Collective Intelligence using graph theory.

### Peer-to-Peer Messaging Application

Jun. 2025 - Sep. 2025

- Implemented chat features with Gun.js and End-to-End Encryption using SEA API.
- Created a relay network on participating devices to connect clients without using Wi-Fi.

### mbhs.edu Development

Aug. 2023 - May 2025

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

## LEADERSHIP AND COMMUNITY ACTIVITIES

- **Georgia Tech Swim Club;** Active in Triathlons, ACC swim meets, Friendlies, etc.
- **Artificial Intelligence Safety Initiative (AISi);** AISi Technical Fellow, Rapid Upskilling Cohort Fellow (ARENA).
- **Marine Robotics Group - Georgia Tech;** RoboSub Project
- **Georgia Tech Salsa Dance Club**
- **Eon English Tutoring;** Teaching English to native Spanish speakers in weekly meetings from students in Atlanta and across the U.S.
- **Grand Challenges Living-Learning Community;** Sensors for Disaster-Relief Concept Project

## SKILLS/INTERESTS

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

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