

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/NextJS, 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 for Gamma-Ray Observation, 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+** researchers at the HAWC Observatory to interactively find 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 **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

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

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

- 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.
- Containerized servers using **Docker** and **Caddy** tied to **S3** buckets auto-pulling from county databases.

LEADERSHIP AND COMMUNITY ENGAGEMENT

- 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;** 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