Rohith Pallamreddy

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Education

Georgia Institute of Technology — **Atlanta, GA**
Bachelor of Science in Computer Science, GPA: ***4.00/4.00*** — *May 2027*

Experience

REMAP Lab — **Atlanta, GA**
Undergraduate Research Assistant — *Jan 2025 – Present*

- Analyzed **large-scale spatiotemporal mobility data**, including anonymized cellphone tracking and travel-route records
- Applied and evaluated **map-matching algorithms** to improve trajectory accuracy and analytical usability
- Integrated mobility, census, and environmental data to identify behavioral responses to extreme heat, observing an **approximately 25% reduction in trip volume during heatwave periods**

No Heat (Vertically Integrated Project) — **Atlanta, GA**
Research Group Member — *Aug 2025 – Present*

- Analyzed **high-resolution geospatial datasets** to characterize urban microclimates in Savannah, GA
- Generated raster layers of building height, canopy height, and land elevation using **Google Earth Engine, and USGS LiDAR Explorer**
- Computed **Universal Thermal Climate Index (UTCI)** using SOLWEIG and UROCK to identify pedestrian routes that **reduce thermal exposure by approximately 12°C without increasing route length**

System Technology Works — **Alpharetta, GA**
Computer Science Intern — *May 2024 – Aug 2024*

- Led a team of interns to deploy and optimize **LLMs** on a humanoid robot (**Zeus2Q**) using **Ollama**, improving on-device inference latency
- Enhanced robotic mobility systems to support autonomous cart pushing and robust navigation

Horror Hacks — **Alpharetta, GA**
Chief Organizer — *Oct 2022 – May 2024*

- Organized and coordinated an **international hackathon**, managing logistics and programming for **40+ participants** across two iterations
- Designed and led beginner-focused tutorials and workshops, increasing participant engagement and accessibility

Projects

LADEE Lunar Dust Risk Mapping & Path Optimization — *Nov 2025 – Dec 2025*

- Built predictive models using NASA's **LADEE dataset** to quantify lunar dust hazards, implementing a danger coefficient $(0-10)$
- Simulated terrain-level dust accumulation and micrometeoroid impacts with **PyBullet Physics Engine**
- Computed optimized rover routes using weighted **Dijkstra's algorithm**, reducing dust exposure by **approximately 50%** compared to shortest-path navigation while respecting mission windows

Cosmetics Wizard (Full-Stack Ingredient Analyzer) — *Sept 2025 – Nov 2025*

- Developed an AI/ML system for **cosmetic safety**, leveraging **vector embeddings** to detect hazardous ingredients
- Built a full-stack interface that generates **safety ratings (predicting within 0.3 points)** and identifies the top 5 safest and most hazardous ingredients from ingredient input

CounterPunch AI (Computer Vision Defense Analyzer) — *May 2025 – Sept 2025*

- Used **MediaPipe** and computer vision to analyze boxing defense, revealing that simple back-and-forth head movement is insufficient
- Built an **interactive dashboard** with dynamic graphs and a "Predictability Score," helping beginners improve head movement and reducing their vulnerability score by **approximately 70%** during training drills

Motorcycle Simulator Project — *Aug 2025 – Dec 2025*

- Developed a **motorcycle racing simulator** via Georgia Tech **Create-X** with realistic controls for the gaming industry
- Designed **CAD models** in Fusion 360 and integrated with Arduino-based control system for physical input mapping

Certifications

NVIDIA | AI Infrastructure and Operations Fundamentals — *Dec 2025*
IBM | GenAI and LLMs: Architecture and Data Preparation — *Dec 2025*
Microsoft | Generative AI for Data Science — *Dec 2025*
Google | Bracketology with Google Machine Learning — *Dec 2025*

Skills

Programming & Data Science: Python (Pandas, NumPy, SciPy, Matplotlib, Seaborn, Plotly, TensorFlow, PyTorch, Keras, PyBullet, MediaPipe, OpenCV, Vector Embeddings, AI/ML, CV, NLP), C, C++, Java, SQL, R, Julia, MATLAB, Bash/Shell Scripting, Julia, GeoSpatial Data (LiDAR, Raster, Vector, SOLWEIG, UMEP, QGIS, ArcGIS, Google Earth Engine), APIs/REST, Docker, Kubernetes
Mathematics & Statistics: Descriptive & Inferential Statistics, Probability, Hypothesis Testing, Linear Algebra, Calculus, Multivariable Calculus, Differential Equations, Discrete Math, Graph Theory, Optimization, Numerical Methods, Proofs, Machine Learning Theory, Bayesian Methods, Time Series Analysis
Tools & Platforms: Git/GitHub, GitLab, Jupyter Notebook, VS Code, IntelliJ, Linux/Unix, PACE ICE, VS Code, Docker, Kubernetes, AWS, GCP, Azure, Postman, Tableau, Power BI
Creative & Design: Drawing (8 yrs), 3D Modeling & Animation (5 yrs), Blender, Maya, Photoshop, Illustrator, CAD, Figma