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*

- Designing **machine learning pipelines** for large-scale spatiotemporal mobility data (anonymous cellphone trajectories) to enable predictive modeling of urban travel behavior
- Implementing and benchmarking **algorithmic trajectory reconstruction** methods (map-matching) as preprocessing for downstream ML models
- Developing **predictive and graph-based learning models** to forecast neighborhood-level mobility changes during extreme heat events

No-HEAT (Vertically Integrated Project) · **Atlanta, GA**
Research Group Member · *Aug 2025 – Present*

- Engineered a **geospatial data processing pipeline** to generate high-resolution urban microclimate features (building height, canopy, elevation)
- Integrated **LiDAR-derived features** with physics-based thermal models using Google Earth Engine and SOLWEIG
- Implementing **UTCI-based thermal exposure models** and route-optimization logic, identifying pedestrian paths that reduce heat exposure by **approximately 12°C** without increasing distance

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

- Led deployment of **large language models** on an embedded humanoid robot (Zeus2Q), optimizing **on-device inference pipelines** using Ollama
- Reduced inference latency through **model selection, quantization, and system-level optimizations**

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

- Founded and scaled an **international hackathon**, designing technical tracks focused on AI, web, and systems programming
- Authored and delivered **hands-on technical workshops**, lowering entry barriers for first-time developers

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 micro-meteoroid impacts with **PyBullet Physics Engine**
- Implemented **graph-based path optimization** with weighted Dijkstra's algorithm, reducing dust exposure by **approximately 50%** vs shortest-path routing

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*

- Built a **computer vision system** using MediaPipe to model defensive boxing movement and predict opponent exploitability
- Designed quantitative metrics including a **Predictability Score**, reducing user vulnerability by **approximately 70%** during training

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