Aashutosh A V

Atlanta, Georgia, 30309
972-918-1130 avaashutosh04@gmail.com linkedin.com/in/aashutosh-av Portfolio

Education

Georgia Institute of Technology **Aug. 2025 – May 2027**
Master of Science in Computer Science (Specialization: Machine Learning) *GPA: 4.0/4.0*

Birla Institute of Technology & Science, Pilani **Aug. 2021 – Jun. 2025**
Bachelor of Engineering in Computer Science (Minor: Data Science) *GPA: 9.08/10*

Experience

Microsoft Research **Jan. 2025 – July 2025**
Research Intern (Advisor: Dr. Ayush Choure) *Bangalore, India*

- Architected **ORBIT**, a placement algorithm leveraging **LUNA (quantile regression forecasts)** to optimize Cosmos DB replica placement across **100,000+ nodes**.
- Developed **LOADSTAR**, a high-fidelity policy simulation framework using non-parametric statistical models to accurately predict error rates for massive-scale production traces.
- Derived **Distressed Resource Volume (DRV)**, a novel user-centric reliability metric to quantify Quality of Service (QoS) hotspots beyond traditional utilization constraints.
- Demonstrated up to a **35% reduction in resource footprints** while maintaining **99.999% QoS**, resulting in potential annual savings of **$100Ms**.

Hays Lab, Georgia Tech **Dec. 2025 – Present**
Graduate Researcher (Advisor: Dr. James Hays) *Atlanta, GA*

- Developing **depth-guided diffusion frameworks** for 3D scene completion under sparse data constraints.
- Enhancing 3D geometry and texture consistency from sparse views using generative priors.
- Working on integrating depth-conditioned score distillation to mitigate structural collapse in complex, large-scale scene reconstructions.

C21U, Georgia Tech **Dec. 2025 – Present**
Graduate Research Assistant (Advisor: Dr. Jeonghyun Lee) *Atlanta, GA*

- Developing **Causal Explainability** frameworks for multi-year Pell Award datasets to identify socio-economic drivers in higher education funding.
- Architecting a virtual teaching assistant for the **Jill Watson/Socratic Minds** ecosystem, focusing on **Cognitive Engagement Analysis** and Human-AI Trust.

Selected Publications & Patents

Analyzing and Optimizing NoSQL Workloads for Cosmos DB | *PVLDB Vol. 19* **2026**
- Developed **ORBIT** and **LOADSTAR** to optimize replica placement and predict error rates in massive-scale NoSQL clusters.

ScenarioCLIP: Visual Language Models for Natural Scene Analysis | *ICML, Under Review* **2026**
- Models compositional scene structures and inter-object relations via text-region alignment for robust zero-shot performance.

Narrating For You: Audio-visual Narrating Face Generation | *WACV 2026* **2026**
- Architected a **multi-entangled latent space** to synchronize speech intonation with facial dynamics.

Workload Distribution Based on Projected Error Counts | *U.S. Patent & Trademark Office (Microsoft)* **2025**
- Invented logic for error-based workload allocation to satisfy **99.999% QoS** selection criteria.

Latent Flow Diffusion for Deepfake Video Generation | *CVPRW 2024* **2024**
- Integrated Vision Transformers into flow diffusion models for precise frame-by-frame structural understanding.

Technical Skills & Achievements

Achievements: **Candidate Master** @ Codeforces (Max Rating: **1930**, Top 4% globally); Winner @ RAISE Workshop, 2024.
AI/ML Skills: PyTorch, Generative AI, 3D Computer Vision, Causal Explainability, Multimodal Learning.
Systems Skills: NoSQL Optimization, Distributed Systems, Time-Series Forecasting, High Performance Computing (HPC).