Madhusudan Agarwal

amadhusudan1601@gmail.com | LinkedIn | GitHub | +1 (617) 959-0067 | San Diego, CA

Education

University of California, San Diego Sept 2024 - Dec 2025
M.S. in Computer Science GPA : 4/4
Relevant Coursework: Deep Learning, Parallel Computation
Algorithms, Software Engineering

Indian Institute of Technology, Kharagpur Jul 2019 - Jun 2023
B.Tech in Electronics and Electrical Communication GPA : 3.91/4
Minor in Computer Science

Work Experience

- *Software Development Engineer I, DealShare* Aug 2023 - Sept 2024
  - Built distributed microservices in Java (Spring Boot) and Amazon SQS to handle 1M+ monthly requests, achieving high throughput and low latency for core services.
  - Led unit testing initiatives, improving code quality and reducing bug reports by 15% within 3 months.
  - Integrated Keycloak to secure access for 100+ internal users, eliminating unauthorized access.
- *Software Engineering Intern, Becton Dickinson* Jun 2023 - Jul 2023
  - Automated web application tests using Cypress to ensure 100% cross-browser compatibility, improving test coverage.
  - Executed thorough cross-browser testing scripts, reducing UI-related bugs by 40% during QA cycles.
- *Software Developer Intern, Citrix Systems* May 2022 - Jul 2022
  - Built and optimized backend services using **Golang and MongoDB**, improving data filtering speed by 20% and reducing API latency by 30%.
  - Replaced Excel workflows with a web portal, cutting manual effort by 50% and improving accuracy.

Projects

- *Trajectory Prediction, GitHub* Mar 2025 - May 2025
  - Trained a Social LSTM on the Argoverse 2 dataset to predict ego agent trajectories using custom social pooling over 10,000+ multi-agent scenes.
  - Achieved **7.98 MSE** on validation and 8.67 MSE on test set with dynamic batching and padded input handling.
- *CUDA Matrix Multiplication, UCSD* Sept 2024 - Dec 2024
  - Implemented a high-throughput matrix multiplication kernel using C++ with CUDA, leveraging shared memory tiling, loop unrolling, and instruction-level parallelism.
  - Achieved 4000 GFLOPS for N=2048 over 30× faster than a naive global memory-based kernel.
  - Focused on low-level performance tuning and memory coalescing under NVIDIA GPU architecture.

Skills

- **Programming Languages:** C, C++, C#, Java, Go, Python, Objective-C
- **Technology Stack:** SQL, MongoDB, Git, gRPC, Docker, Cypress, Kafka, AWS, CI/CD
- **Software:** Distributed Systems, AI/ML, Multi-threading, OOP

Achievements

- Secured Global rank **375** out of more than 8,000 participants in **Google Kickstart** Round E.
- Secured **All India Rank 844** in **JEE Advanced 2019** among 0.2 million candidates.