

Education**Texas A&M University**

College Station, TX, USA

Master of Science, Computer Science GPA: 3.5

Aug 2024 – May 2026

- Coursework: Artificial Intelligence, Machine Learning, Deep Reinforcement Learning, Software Engineering, Analysis of Algorithms, Computer and Network Security, Operating Systems, Cybersecurity Risk

Maulana Abul Kalam Azad University of Technology

Durgapur, WB, India

Bachelor of Technology, Computer Science Engineering - GPA: 3.75

Aug 2019 – Aug 2023

- Coursework: Database Management System, Object Oriented Programming, Data Structure and Algorithms

Work Experience**Texas A&M University, Mays Business School**

College Station, TX, USA

Research Assistant

May 2025– Present

- Built and maintained scalable ETL and backend services processing 4M+ healthcare records, improving data pipeline throughput and reliability for downstream analytics systems.
- Engineered a graph-based data representation layer and optimized data retrieval paths, reducing query latency and supporting high-throughput workloads.
- Added observability tooling (logging, metrics, debugging hooks) to improve reliability and developer visibility into data pipeline behavior.

Roboioitics Services

Ghaziabad, UP, India

Software Development Intern

Nov 2022 – Apr 2023

- Developed backend REST APIs for the company's learning management system, optimizing the codebase and leveraging AWS for cost-effective performance.
- Enhanced system efficiency by implementing client-side caching (14% latency reduction), database indexing (20% throughput improvement), and a dynamic document retrieval system (28% faster than legacy).
- Increased software release efficiency by 30% by creating reusable Python scripts for web scraping/crawling using BeautifulSoup and Selenium modules and writing comprehensive API test cases.
- Built internal automation utilities that reduced manual debugging and deployment steps, improving engineering productivity and system maintainability.

Ardent Computech Pvt Ltd

Kolkata, WB, India

Software Development Intern

Jul 2022 – Aug 2022

- Contributed to a tourism management system by reengineering database queries, improving customer satisfaction (CSAT) by 15% and increasing data transfer efficiency by 20% compared to the legacy application.
- Designed and deployed asynchronous APIs that reduced server-side errors by 8%, strengthened security against denial-of-service (DoS) attacks, and optimized operational costs.
- Collaborated in an Agile development team, participating in sprint planning, daily stand-ups, and code reviews to deliver production-ready features on schedule.

Projects**Clinical Referral AI Assistant (RAG + LangChain + FastAPI + FAISS)**

Overview: Built an LLM-powered clinical decision support assistant that provides context-aware specialist referral recommendations using healthcare records.

- Developed a backend service (FastAPI + Python) providing low-latency lookup, search, and reasoning capabilities over high-volume structured data.
- Implemented vector indexing (FAISS) to support efficient retrieval operations, enabling sub-second responses under concurrent load.
- Designed modular internal APIs used by multiple downstream components; integrated robust error handling, logging, and metrics.
- Containerized and deployed the service using Docker, optimizing startup and data-loading time and reducing cold-start latency by 31%.

Autonomous Overtaking in CARLA

Overview: Enhanced a proprietary lane-keeping autonomous driving model, based on deep Q-learning, within the CARLA simulator, to perform lane changing and overtaking maneuvers in dynamic traffic environments.

- Designed a custom reward function for DDQN in the CARLA simulator to enable safe overtaking and lane changes, improving overtaking success by 17% and lane-change accuracy from 83% to 89%, with real sensor data integration for real-world applicability.

Technical Skills**Programming & Backend:** Python, Java, C++, Go (learning), Swift (learning), REST APIs, Object-Oriented Programming**Systems & Infrastructure:** Linux (x86), Distributed Systems, Networking Concepts, Monitoring & Logging, Load Optimization, High-Availability Systems**Cloud & DevOps:** AWS, GCP, Docker, Kubernetes, CI/CD (GitHub Actions), Infrastructure Automation, Containerized Deployments**Data & Backend Services:** SQL, MySQL, Oracle, SQL Server, MongoDB, Caching, ETL Pipelines, Apache Kafka, BigQuery, Hadoop, Airflow**Developer Tools & Collaboration:** Git, GitHub, Jira, Confluence, Agile/Scrum, Unit & Integration Testing, TDD