Education

I am currently pursuing a Master's in Computer Science at North Carolina State University (August 2023 – May 2025) with a GPA of 3.6/4. During my time here, I have gained expertise in algorithms, database management, and cloud computing, with a strong focus on AI, big data, and full-stack development. Previously, I earned my Bachelor of Engineering in Computer Engineering from Mumbai University (August 2016 – May 2020), where I built a strong foundation in data structures, cybersecurity, and distributed systems. I have also obtained a professional certification from Microsoft for Azure Data Fundamentals (DP-900) and Azure AI Fundamentals(AI-900).

Experience

I have a strong background in software engineering, with experience spanning database management, cloud computing, and AI-driven applications. My work has included developing scalable systems, optimizing data pipelines, and automating workflows across industries like telecom and genomics.

Teaching Assistant for CSC 540 – Database Management Systems

As a Teaching Assistant for CSC 540 – Database Management Systems, a graduate-level course at NCSU (August 2024 – December 2024), I worked under Professor Kemafor Ogan. My responsibilities included evaluating assignments and exams for 148 graduate students, providing feedback on SQL query optimization and relational database design. I also conducted study sessions and helped design hands-on database projects, ensuring students gained practical experience in database management.

Software Development Engineer Internship

During my Software Development Engineer Internship at the U.S. Department of Agriculture (USDA) (June 2024 – August 2024), I worked closely with Dr. Taner Sen, a biologist and lead scientist at the GrainGenes team, based in Albany, California. Dr. Sen is also an assistant professor at UC Berkeley. My primary responsibility was to develop a unified genomic data search platform, reducing manual data retrieval efforts by 88%. I designed and optimized a MongoDB schema for genomic data, ensuring fast query performance and seamless integration of multiple BrAPI endpoints. I also implemented automated cron jobs for incremental data updates, ensuring 100% data consistency, and deployed the application using Docker for portability and scalability.

GrainGenes is a key USDA-funded database that serves as a central repository for wheat, barley, oat, and rye genetic data. It provides researchers with access to curated genomic information, marker maps, trait analysis, and breeding resources. The platform integrates diverse data sources, enabling breeders and geneticists to study genetic variations, improve crop yields, and enhance disease resistance. By contributing to the GrainGenes database, I helped improve data accessibility for scientists worldwide, advancing genomic research and agricultural innovation.

Software Engineer

I began my journey at Reliance Jio Infocomm Limited as a Software Engineer in the Research and Development (R&D) team under the guidance of Manager Amol Kolhe and Team Leader Ramkumar Ranganathan (November 2020 -July 2023). Both were excellent mentors who provided me with invaluable learning experiences that shaped my technical and problem-solving skills.

One of my key projects was the Rover Application, a large-scale data aggregation and processing system. The challenge was to streamline manual data handling processes, which were time-intensive and prone to errors. Action: I leveraged Python, MongoDB, and PySpark to automate data ingestion, transformation, and integration. I optimized query processing and reduced response time by 97%. Result: This automation significantly improved operational efficiency and enabled real-time data access across multiple departments.

Another major responsibility was automating Tableau administrative processes. The manual approach to managing user groups and access rights was inefficient. Situation: The analytics team struggled with managing thousands of users, leading to frequent delays in project execution. Task: I designed and implemented an API-based automation system for bulk user management within Tableau. Action: By integrating Tableau REST APIs with Python, I developed a script to automate user provisioning, role assignments, and access control. Result: The new system reduced the administrative workload by 91% and improved security by ensuring proper access control policies were enforced.

One of my most impactful projects was the Azure Cloud Migration of 16+ Python applications. The organization was shifting from on-premises infrastructure to cloud-based deployment to improve scalability. Situation: The challenge was to migrate legacy applications without disrupting operations. Task: I was responsible for planning and executing the migration process. Action: I collaborated with the DevOps team, implemented Docker and Kubernetes, and used Azure DevOps pipelines for CI/CD automation. Result: The migration reduced deployment time by 35%, improved application reliability, and enhanced system scalability.

Additionally, I worked on ETL pipeline development, where I built over 12 data workflows integrating Kafka streams, Hive databases, and MongoDB collections. Situation: The team needed real-time data ingestion for business intelligence reporting. Task: I had to create an efficient, scalable solution. Action: I implemented a distributed processing architecture using Apache Airflow to schedule and orchestrate ETL jobs. Result: This improved data freshness, reduced latency, and eliminated 66% of manual monitoring efforts.

For my contributions, I received the Spotlight Award for Outstanding Performance and Project Delivery in 2022. This recognition was a testament to my problem-solving abilities, leadership in driving key projects, and commitment to efficiency and automation. Each project at Jio presented a new challenge, and each solution I developed was a significant growth opportunity, deepening my expertise in scalable system design and automation.

Publication

I co-authored a peer-reviewed research paper titled *"Land Registration System Using Blockchain"*, published in the IEEE Xplore Digital Library (DOI: 10.1109/ACCESS.2020.9299606). Our research proposed a blockchain-based alternative to India's traditional land registration process, leveraging smart contracts and Hyperledger to create a decentralized, tamper-proof, and transparent property transaction system. I contributed to the design of the system architecture, smart contract logic, and documentation of comparative analysis between traditional and blockchain-enabled systems. This project strengthened my skills in translating technical work into formal research and emphasized the importance of applying emerging technologies to real-world governance problems.

Portfolio-

https://nehasjportfolio.vercel.app/

Awards-

Hackathon Wins

1. PearlHacks 2025 – Winner (Top Project)

   Project: HerCare – AI-Powered Menstrual Health Assistant

   Developed a GenAI-driven assistant to support menstrual health tracking, symptom analysis, and virtual consultations.

   Integrated Gemini LLM with a custom Retrieval-Augmented Generation (RAG) pipeline to deliver 93% accurate, personalized health insights based on user symptoms and medical knowledge.

   Built end-to-end functionality using React, Node.js, Flask, and WebRTC for live doctor chat, cycle tracking, and nearby pharmacy recommendations.

   Recognized for its social impact and innovative use of GenAI in healthcare accessibility.

2. DiamondHacks 2025

   Project: WasteWise – Garbage Segregation System

   Designed a machine learning-based system to automatically classify and segregate waste into recyclable, compostable, and landfill categories using image recognition.

   Trained a custom image classification model using TensorFlow and OpenCV, achieving high accuracy on diverse waste samples.