Ambati Swechcha

Newark, NJ | sa3323@njit.edu | 862 214 1954 | linkedin.com | github.com | website

Education

New Jersey Institute of Technology Master of Science in Computer Science — Sept 2025

- Recipient of the Graduate Provost Scholarship
- GPA: 3.83
- **Coursework:** Operating Systems Design, Database Management System Design, Python for Web API Development

Mahindra University Bachelor of Technology in Computer Science and Engg — Aug 2021 - Jun 2025

- GPA: 7.82/10
- **Relevant Coursework:** Design and Analysis of Algorithms, Data Structures and Algorithms, Operating Systems, Database Management Systems, Software Engineering, Object-Oriented Programming, Microprocessors and Interfacing, Medical Image Analysis using Deep Learning, Machine Learning with Python, Artificial and Computational Intelligence, Optimization Techniques for AI, Quantum Computing.

Experience

Summer Research Intern, QMatter Labs LLC. — Jun 2024 - Aug 2024

- Worked on improving a hybrid quantum genetic algorithm to optimize the placement of charging stations.
- Collected and integrated data with an improved fitness function.
- Worked on developing metrics to analyse the performance of the algorithm.

Projects

AI-Powered Lesson Generator

- Built a full-stack platform that converts topic descriptions into structured programming curricula with automated tests runnable via GitHub Actions.
- Implemented FastAPI backend, React frontend, and AI integration using OpenAI GPT-4/3.5 with fallback mechanisms.
- Tools: Python, FastAPI, React, TypeScript, SQLAlchemy, Docker, GitHub Actions, PyTest

BREAD Calculator with JWT Authentication and CI/CD

- Built a FastAPI application with JWT-based authentication and full BREAD functionality.
- Implemented automated testing and CI pipelines using GitHub Actions and Playwright.
- Tools: Python, FastAPI, PostgreSQL, JWT, Docker, GitHub Actions

Breast Cancer Classification using Multi-Scale Deep Equilibrium Model

- Implemented a Deep Equilibrium Model for multi-scale mammogram image classification with integrated XAI techniques.
- Tools: Python, PyTorch, TensorFlow

Cricket Commentary Analysis using NLP

- Analyzed cricket commentary transcripts to identify interesting overs and generate summaries using sentiment analysis and NLP models.
- Tools: Python, Transformers (BERT, BART), NLTK, Word2Vec, PyTorch

Research Lab Management System

- Developed a modular Python-based GUI system for managing research lab equipment, members, projects, and reports.
- Tools: Python, PostgreSQL

Extra-curricular Activities

President, Qubit, the Quantum Computing Club	Oct 2023 – June 2024
Completed IBM Qiskit's *Quantum Explorers*, a self-paced educational program conducted as a Qiskit community event; received an **Advanced level badge**.	July 2023 – February 2024
Completed an online course on *Quantum Machine Learning* by Qiskit and received an **Excellence Certificate** for scoring above 80% in all assignments.	June 2021 – July 2021
Completed an online two-semester course on *Introduction to Quantum Computing* by The Coding School and IBM Quantum.	October 2020 – May 2021