

# Ambati Swechcha

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## Education

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**New Jersey Institute of Technology** — Master of Science in Computer Science

- GPA: 3.83/4.0
- Recipient of the Graduate Provost Scholarship
- **Coursework:** Operating Systems Design, Database Management Systems, Python for Web API Development

**Mahindra University** — Bachelor of Technology in Computer Science and Engineering

- GPA: 7.82/10
- **Relevant Coursework:** Data Structures, Algorithms, Operating Systems, Database Systems, Software Engineering, Machine Learning, Deep Learning, Quantum Computing

## Technical Skills

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**Programming Languages:** Python, Java, C

**Backend:** FastAPI, REST APIs, JWT Authentication

**Frontend:** React, HTML, CSS

**Databases:** PostgreSQL, SQLAlchemy

**Machine Learning:** PyTorch, TensorFlow, NLP, Transformers (BERT, BART)

**DevOps & Tools:** Docker, GitHub Actions, CI/CD, PyTest, Playwright, Git

## Experience

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**Summer Research Intern**, QMatter Labs LLC

- Enhanced a hybrid quantum genetic algorithm
- Integrated real-world datasets and redesigned fitness functions
- Developed performance metrics to analyze algorithm convergence and scalability
- Tools: Python, Optimization Algorithms, Quantum Computing

## Projects

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**AI-Powered Lesson Generator**

- Built a full-stack platform generating structured programming curricula from topic descriptions
- Integrated GPT-4/3.5 with fallback logic and automated testing via GitHub Actions
- Tools: Python, FastAPI, React, TypeScript, Docker, SQLAlchemy

**BREAD Calculator with JWT Authentication**

- Developed a FastAPI application with JWT authentication implementing full BREAD operations
- Implemented CI pipelines and automated tests using GitHub Actions and Playwright
- Tools: Python, FastAPI, PostgreSQL, Docker

**Breast Cancer Classification using Deep Equilibrium Models**

- Implemented a multi-scale Deep Equilibrium Model for mammogram classification
- Applied explainable AI techniques for model interpretability
- Tools: Python, PyTorch, TensorFlow

**Cricket Commentary Analysis using NLP**

- Performed sentiment analysis and summarization on sports commentary transcripts
- Leveraged Transformer-based NLP models for text understanding
- Tools: Python, BERT, BART, NLTK, PyTorch

## Leadership

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**President**, Qubit — Quantum Computing Club

Oct 2023 – Jun 2024

## Certifications

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IBM Qiskit Quantum Explorers — **Advanced Badge**

Quantum Machine Learning (Qiskit) — **Excellence Certificate**

Introduction to Quantum Computing — IBM Quantum & The Coding School