# A T Abbilaash

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## About Me

Innovative ML Engineer and emerging Quantum Computing researcher, passionate about integrating classical machine learning with quantum algorithms to solve complex problems more efficiently. Driven by curiosity and a deep commitment to advancing cutting-edge technologies across AI, computer vision, data science, and web development. Constantly exploring and applying hybrid techniques at the frontier of intelligent systems and quantum-enhanced computing.

## Education

**PSG College Of Technology**, BE in Computer Science and Engineering(AI ML) Aug 2023 – Present

- CGPA: 8.005/10
- **Coursework:** Computer Architecture, Data Structures and Algorithms, Python, C, Database Management System, Operating System, Foundations of Optimization Techniques, Software Engineering, Machine Learning, Computer Vision, Image processing.

**Vidhya Niketan Public School**, Mathematics, Computer Science June 2021 – March 2023

- Score: 88/100
- **Coursework:** Computer Science, Mathematics, Organic Chemistry, Physics, Language

## Experience

**Research Intern**, IISER, Bhopal May 2025 – Present

- Will be working on the project titled 'Machine Learning and Quantum Computations' under guidance of prof Dr. Kuntal Roy. Experimenting A Quantum Framework for Cryptographic Attacks on Fingerprint Based Authentication

**Python Development Intern**, CodeSpaze Aug 2024 – Sept 2024

- Developed an Interactive stock market dashboard and a prediction bot which helps trading easy for beginners.
- Built a automatics certificate printing web app which can convert name list to aesthetic certificates and integrated it with certificate verification system.

## Skills

**Languages:** Python, SQL, HTML, CSS, C

**Technologies:** Quantum Field Theories, Quantum Computing, Edge Computing, Computer Vision, Cloud Computing, Natural Language Processing, Prompt Engineering, Machine Learning, Neural Networks, Raspberry Pi, Web Development, Desktop app Development, Git and GitHub, DBMS, Application Programming Interfaces, UI/UX Designing

## Projects

**A Quantum Framework for Cryptographic Attacks on Fingerprint Based Authentication** GitHub repo

- Developed and implemented a scalable quantum simulation framework based on Shor's algorithm to analyze vulnerabilities in RSA-encrypted biometric systems. Demonstrated end-to-end RSA encryption of fingerprint templates and successful recovery of RSA private keys via simulated quantum period-finding circuits.
- Tools Used: IBM Qiskit, QiskitRuntimeService

**SnapClass** GitHub repo

- On-device edge AI system for zero-internet, crowded classrooms, leveraging Snapdragon's Hexagon NPU and

their 12 Core X Elite processor to run open-source LLMs , image captioning , and audio transcription - automating personalized learning by transcribing lectures, analyzing textbooks, and generating adaptive quizzes to bridge educational gaps where teachers and connectivity are limited.

- Tools Used: LLM, Dead Networks, Qualcomm Hexagon NPU, Hugging Face models, AnythingLLM, ONNX, Snapdragon X Elite processor

**Library Feedback System** GitHub repo

- Implemented the Alpha version of a feedback loop-based library feedback system to address the issue of incomplete feedback cycles. Leveraged NLP-based text classification to intelligently categorize user concerns for efficient resolution. Introduced continuous feedback status updates to keep users informed and engaged throughout the process.
- Tools Used: Flask (Python3), ReactJs, CSS, MongoDB, File system database, Transformer based pre-trained Text classification model

**Quantum Database Model** GitHub repo

- Proposed a quantum computing-based search optimization system using Grover's Algorithm in Qiskit, IBM Quantum Experience Simulator. Designed a quantum circuit for efficient retrieval of target records in unordered, unorganized big data, enhancing Relational Database search performance.
- Tools Used: Qiskit (Python), IBM Quantum Experience, Relational Database

**VLC Media Player Fuzzing Framework** GitHub repo

- This project is a fuzzing framework designed to identify vulnerabilities in VLC Media Player's media parsing and playback functionalities. The framework utilizes Python to generate and test malformed media files against VLC Media Player (version 3.0.16 or later) on Windows, logging crashes and errors encountered during playback.
- Tools Used: Python, Automated Testing and Crash Detection

## Participations and Certifications

- **Hackathons** - Impairathon '24-National Assistive Tech Expo-Finalist, Qualcomm Edge AI Hackathon, SRM Hackathon 8.0, ReCode '23 - 4th Place, NexTech Hackathon - 5th Place, SOCIO-TECH Hackathon, ImagineerX
- **Organizer** - PSG HackSphere '25, Cyber Hygiene awareness campaign, Pixel-To-Prototype (PSG Tech), Ideathon '24, HackToLearn, Code Rush, OrionPAX
- **Certification** - Python for Data Science (NPTEL, IIT Madras), Quantum Computing (IIT Madras,Techobyte), Software Engineer Intern (HackerRank), UI/UX Designing (InternEzy), Deep Learning (Udemy), Natural Language Processing (Udemy), GUI Development with Python (LinkedIn), Metaverse (Technook), Problem Solving Certification (HackerRank), SQL Basic to Advanced (HackerRank)
- **Member** - GitHub Campus Club, Google Developer's Group Coimbatore, Coding Club PSG Tech, CSEA PSG Tech, IEEE Students Chapter Web Development Team
- NCC 'A' Certificate Holder