Mallika Chouhan

Curriculum Vitae

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Final Year, M.Tech
Department of Computer Science and Engineering, IIT Gandhinagar

Education

2024–Present **M.Tech in Computer Science and Engineering**, *Indian Institute of Technology Gandhinagar*, CPI: 9.16

2020–2024 **B.Tech in Electronics and Instrumentation Engineering**, *Banasthali Vidyapith*, CPI: 9.63 (Gold Medal)

2018–2019 **Class XII**, *Kendriya Vidyalaya*, 94.0%

2016–2017 **Class X**, *Kendriya Vidyalaya*, 10.0 CGPA

Research Interests

Quantum Computing | Quantum Simulations | Quantum Sensing
Computer Architecture | Embedded Systems Optimization

Thesis

2024–Present **M.Tech**, *Indian Institute of Technology Gandhinagar*
(Supervisor: Prof. Sameer G Kulkarni)
Title: *Benchmarking Quantum Simulators for Low-fidelity Quantum Sensing Use-cases. (Ongoing)*

- Development of noise-adapted quantum sensing models and benchmarking pipelines for low-fidelity AC signal detection.
- Evaluation of robustness and applicability across quantum hardware platforms and simulators.

Publications

[1] **Mallika Chouhan**, Sameer G. Kulkarni, *"Benchmarking Quantum Simulation Frameworks on Classical Computing Platforms," (Manuscript under preparation.)*

[2] **Mallika Chouhan** and Meenakshi Pareek (2022). *A Brief Review of Image Classification Techniques for Alzheimer's Disease Detection*. Book Chapter in *Healthcare Research and Related Technologies - Proceedings of NERC 2022*, Springer Nature.

[3] **Mallika Chouhan** and Meenakshi Pareek. *A Brief Review of Image Classification Techniques for Alzheimer's Disease Detection*. Poster presented at North-East Research Conclave, May 2022, Guwahati, Assam.

Internships

Jan–Jun 2024 **Intern**, *Indian Institute of Technology Delhi*, New Delhi

Implementation and Optimization of Keyword-Spotting model on Raspberry Pi 4 using Transformer architecture. (Supervisor: Prof. Kolin Paul)

- Optimized and configured the keyword-spotting model to work within Raspberry Pi 4's hardware constraints, focusing on inference latency and accuracy.
- Gained hands-on experience with Transformer models, hardware optimization, and embedded ML.
- Applied pruning, quantization, and ONNX framework conversion techniques.
- Achieved latency reduction: 4.15× speed-up for smaller models and 2.77× for larger models (10× size of smaller).

May–Jun 2023 **Summer Intern**, *Indian Institute of Technology Delhi*, New Delhi

Implementation of keyword-spotting model on Raspberry Pi 4 using Transformer architecture. (Supervisor: Prof. Kolin Paul)

- Developed and deployed model to detect keywords from real-time audio input.

Projects

Jul–Nov 2021 **Image Restoration with Neural Networks**, *Banasthali Vidyapith*, Designed and compared CNN-based models with traditional image processing for image restoration.

Skills

Operating Systems:	Windows, Linux
Programming Languages:	Python, C, C++, Assembly
Simulators & SDKs:	Qiskit, PennyLane, Qulacs, Cirq, Qibojit, Intel Quantum SDK, SquidASM
Engineering Tools:	AutoCAD, LabVIEW, MATLAB
Documentation & Drawing:	LaTeX, Microsoft Office, Xfig

Leadership Qualities & Extra Curricular Activities

2018–2019 **Head Girl**, *Kendriya Vidyalaya IIT Guwahati*, Led the student council, organized events, and increased student participation through effective leadership and innovative programs.

2021–2022 Diploma in Medical Image Processing, Banasthali Vidyapith (with Distinction).

2021–2022 Advanced Diploma in Sanskrit, Banasthali Vidyapith (with Distinction).

2012-2016 Sattriya Classical Dance – Achieved Distinction at Madhyama Level

Achievements

2024 Branch topper in B.Tech. (Gold Medalist)

2020 99.15 percentile in Paper-2 (B. Planning), JEE (Main).

2018 First position in solid waste management awareness campaign, WMR Group IIT Guwahati.

2013 Second prize in All India Talent Search Examination (AITSE).

Top three positions multiple times in extempore speech, debates, and story recitation.