Mallika Chouhan

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Education

M.Tech, Computer Science and Engineering, IIT Gandhinagar 2024–Present
- CPI: 9.16

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

Research Interests

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

Thesis

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

Publications

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

Mallika Chouhan and Meenakshi Pareek, *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. 2022

Mallika Chouhan and Meenakshi Pareek, Poster, North-East Research Conclave, Guwahati, Assam. May 2022

Internships

Intern, IIT Delhi (Supervisor: Prof. Kolin Paul) Jan–Jun 2024
- Implementation and optimization of keyword-spotting model on Raspberry Pi 4 using Transformer architecture.
- 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).

Summer Intern, IIT Delhi (Supervisor: Prof. Kolin Paul) May–Jun 2023
- Deployment of keyword-spotting model on Raspberry Pi 4 for real-time audio detection.

Projects

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

Skills

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