Goteti Sai Abhinav

Contacts

Email: 22ucc038@lnmiit.ac.in

Mobile No: +91-9392661345

LinkedIn: https://www.linkedin.com/in/goteti-sai-abhinav-729557272/

Github: https://github.com/Abhinav289

Kaggle: https://www.kaggle.com/gsabhinav

Education

B.Tech 2022 - 2026
Communication and Computer Engineering | GPA: 6.75/10
The LNM Institute of Information Technology, Jaipur, Rajasthan

Class 12th CBSE| Percentage: 93.4/100 2022
Sri Prakash Vidya Niketan, Payakaraopeta, Andhra Pradesh

Skills

Programming Languages: C, C++, Python

Frameworks and libraries: PyTorch , Numpy, Pandas, Matplotlib, Seaborn, Qiskit

Concepts: Linear Algebra, Statistics, Machine Learning, Deep Learning, Signal Processing, Basic Quantum Computing

Related coursework: AI(Search algorithms, Logic, Bayesian Networks, Reinforcement Learning), Introduction to Data Science, Digital Signal Processing

Projects

Recognizing lung diseases through Quantum-Inspired CNN

- **Tools Used:** PyTorch, Pandas, Numpy, Matplotlib, Qiskit, Qiskit-machine-learning, TorchAudio
- Developed a hybrid classical-quantum neural network for classification of 6 lung-related diseases (Pneumonia, COPD, URTI,Healthy,Bronchiectasis, Bronchiolitis) using lung sound signals.
- Preprocessed audio data through resampling, baseline removal using Discrete Fourier Transform, and amplitude normalization.
- Applied time-domain augmentation techniques (time stretching, pitch shifting, noise addition) to address class imbalance. Increased the size to 10000 audio samples.
- Converted audio to mel-spectrogram images and used basic CNN layers for feature extraction.
- Encoded features into a quantum circuit (4 qubits, 16 output states) for quantum processing and classification.
- Mapped quantum circuit outputs to class scores using fully connected layers followed by softmax activation to generate final disease predictions.
- Achieved **95.66** % testing accuracy, **96.27 % sensitivity, 98.55 % specificity.**
- **Implementation:** https://github.com/Abhinav289/Spectrogram-classification-using-Quantum-Inspired-CNN

Personal Interests

- Cricket, Badminton, Chess
- Reading research blogs and podcasts on AI, Quantum AI and Hindu Mythological epics.
- Competitive Programming