

Rishabh Garg

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SKILLS

Languages : Python | C/C++ | Javascript | R | HTML | CSS

Technologies : Tensorflow | Keras | Pytorch | Sci-kit learn | Wireshark | IxNetwork | Docker | ReactJS | NodeJS | ExpressJS | SQL | No-SQL | MongoDB | MySQL | OracleDB | Django | Django REST Framework

Concepts : Machine Learning | Neural Networks | Natural Language Processing (NLP) | Speech Processing | Word & Wave Vector Embeddings | Transformers | BERT | Sequential Models | Data Structures & Algorithms | Operating Systems | Database Management Systems | L2/L3 Protocols | Packet Routing | Network Virtualization | Computer Architecture

PROJECTS

Hybrid Speech Emotion Recognition (SER) Pipeline [🔗 Link](#)

Python, TensorFlow/Keras, PyTorch, Qwen2-Audio-7B-Instruct, LoRA, Librosa

- Built a two-stage Speech Emotion Recognition system using a CNN on Mel Spectrograms and Qwen2-Audio-7B for speech-based emotion classification.
- Pre-processed the RAVDESS dataset into 128-band Mel Spectrograms and trained a 4-layer CNN, achieving ~82.9% validation accuracy.
- Fine-tuned Qwen2-Audio-7B using LoRA on an NVIDIA A40 and evaluated the model on emotion classification using speaker-independent data splits.

Hardware Feature Validation: SSU & Dynamic-CoPP | Arista Networks

Strata Devices (Trident/Tomahawk), Arista EOS, Hardware TCAM, IxNetwork (Ixia)

- Validated Smart System Upgrade (SSU) and dynamic Control Plane Policing (CoPP) features on Strata-based network switches to ensure high availability and hardware security.
- Programmed and scaled TCAM entries to test CPU queue protection from overwhelming traffic, and measured packet loss during route scaling to verify SSU workflow efficiency.

ArogyaAI: AI-Powered Telemedicine & Intelligent Health Triage Platform | [🔗 Link](#)

MERN (MongoDB, ExpressJS, ReactJS, NodeJS), WebRTC, STUN servers

- Built an AI-assisted telemedicine platform for symptom-based triage and image-based skin severity classification, with confidence scoring and emergency referral safeguards.
- Developed the end-to-end doctor-patient workflow including JWT authentication, appointment scheduling, real-time WebRTC consultations, and digital prescription generation.
- Designed a scalable backend and structured medical-record system covering assessments, consultations, prescriptions, and transaction tracking.

EXPERIENCE

Arista Networks | System Test Engineering Intern

- Tested and validated Smart System Upgrade (SSU) functionality on Strata-based hardware (Trident/Tomahawk) by scaling network routes and analyzing packet-loss durations during high-availability transitions.
- Validated Dynamic Control Plane Policing (CoPP) to protect CPU queues from traffic flooding, scaling and programming TCAM entries on hardware to verify system behaviour and workflow.
- Analyzed the internal architecture and functionality of Arista EOS agents, leveraging Ixia and Wireshark for traffic generation, packet-processing verification, and L2/L3 protocol testing.

Indian Society for Technical Education (ISTE) | Web Developer & Event Head

Colloquium – Flagship Tech Event | Jan 2025 – Feb 2025, Thapar Institute of Engineering and Technology

- Worked in a team to develop the official Colloquium event website and led event execution, contributing to a significant increase in online registrations.
- Event head for Tech events and was the main designer of the most successful tech event 'OverThrone'.

EDUCATION

Thapar Institute of Engineering and Technology

| BE/BTECH in Computer Science | 9.62 CGPA |

St. Edward's School

| CBSE Board Delhi | 12th Board – 93.2% | 10th Board – 94% |

ORGANISATIONS

Indian Society of Technical Education (ISTE) | Executive Committee

Team September 2024 - 2026