Alli Khadga Jyoth

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Education

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
M.Tech. (AI)	Indian Institute of Technology, Jodhpur	8.43	2023-Present
B.S (Data Science & Engg.)	Indian Institute of Science Education and Research, Bhopal	8.59	2019-2023
Senior Secondary	TSBIE Board	98.3%	2019
Secondary	TSBSE Board	10.0	2017

Project Experience

- **AmazonMLChallenge: Advanced Product Information Extraction using Vision-Language Models**
  Developing Robust Machine Learning Models for Entity Extraction from Product Images. Github
  - **Won the Amazon ML Challenge 2024** for developing a robust machine learning model to **extract entity values from product images**, implementing a **two-stage learning** process with **Qwen2VL-7B** to tackle challenges with noisy data. Achieved **40% performance improvement** from 0.617 (baseline) to **0.865 (final) f1-score**
  - Engineered a robust data preprocessing pipeline and leveraged **QLora-8bit quantization for efficient fine-tuning**, creating a scalable solution for large-scale automation with **0.6 sec inference time**.
  - **Demonstrated Expertise:** Vision-Language models, NLP, and Efficient Model fine-tuning techniques.
  - **Tools & Technologies used**: Python, PyTorch, Hugging Face Transformers, Qwen2VL, QLoRA, LLaMA-Factory

- **Multilingual Speaker Identification and Verification System**
  Developing Robust Speech Models for Multilingual Speaker Recognition Across Indian Languages Github
  - Led a team project developing a **multilingual speaker recognition system**, achieving **98% accuracy in identification** and a low **Equal Error Rate (EER) of 0.0176%** in verification across **English, Hindi, Telugu, Bengali, and Marathi languages.**
  - Created and analyzed a **multilingual audio dataset** from **20 participants**, incorporating code-switching scenarios, and applied classical speech processing techniques with machine learning models for high-accuracy speaker recognition.
  - **Demonstrated Expertise:** Data Creation, Data Processing and Data Analysis
  - **Tools & Technologies used**: Python, numpy, Jupyter notebook, Scikit-Learn, librosa, spafe

- **Advanced Eye Disease Detection using Knowledge Distillation and Masked Vision Transformers**
  Enhancing Model Efficiency and Accuracy with Sample-Wise Distillation Loss Github
  - Developed an advanced eye disease detection system using **Knowledge Distillation**, achieving **84.4% accuracy** with a **Resnet18 student model**, approaching the **87.5% accuracy** of the Resnet50 teacher model on the ODIR dataset of 7,000 images across 8 disease categories.
  - Implemented a novel Sample-Wise Distillation (SWD) loss function and integrated a **Masked Vision Transformer (MViT)** as a co-teacher, reducing model loss from **0.73 to 0.63**, enhancing model confidence and overall performance.
  - **Demonstrated Expertise:** Knowledge distillation, Model Optimization, and Data Processing and Analysis.
  - **Tools & Technologies used**: Python, numpy, Jupyter notebook, Pytorch

Key Courses Taken

- Deep Learning, Computer Vision, Speech Understanding, Dependable AI, ML & DL Ops, Starting New Venture

Technical Skills

- **Programming:** Python, C, SQL
- **Tools & OS:** Jupyter Notebook, Google Colab, Github, Linux, Git, WandB
- **Libraries/Frameworks:** Pandas, Numpy, scikit-learn, Pytorch, Keras, OpenCV, LLaMA-Factory

Positions of Responsibility

- **Teaching Assistant:** AI, Human-Machine Interaction, Intro to ML *Aug 2024 - present*

Achievements

- **Amazon ML Challenge Winner:** Won the Amazon ML Challenge 2024 hackathon hosted on Unstop *2024*
- **Department Topper:** Achieved Departmental Rank 2 in M.Tech AI programme *2024*
- **MHRD Scholarship:** Received Central Government Merit Scholarship in Under Graduation *2019*