Ariharasudhan

https://arihara-sudhan.github.io

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Education

Einstein College of Engineering — Tirunelveli, India
Bachelor of Engineering, Computer Science and Engineering (CGPA: 8.83) — *2019 - 2023*

Government Hr. Sec. School — Tenkasi, India
Tamil Nadu Higher Secondary School Examination (Score: 87%) — *2019*

Programming Skills

Deep Learning Frameworks: PyTorch, NumPy

Languages: Python, Java, JavaScript, C

Databases: MySQL, MongoDB

Web Development Frameworks: FastAPI, ReactJS, NodeJS, Express JS

Operating Systems: Windows, MacOS, Linux (mainly Ubuntu)

Version Control Systems: Git

Interests

- Deep Learning Systems
- Image Processing
- General Purpose Programming
- Web Development
- Information Systems

Work Experience

Zoho Corporation — Tenkasi, India
Member Technical Staff, Zoho Desk — *April 2024 - Now*

- Working on The UI Part Currently
- *In Zoho Desk, I write production-level JavaScript and ReactJS code to implement new features. Additionally, I mentor my team on JavaScript internals, the functional programming paradigm, ReactJS, and TypeScript. I occasionally help the Zia (AI) Team by suggesting some solutions*

Zoho Corporation — Trichy, India
Member Technical Staff, ZLabs Speech Profiling — *Jan 2024 - April 2024*

- Learned about Audio Feature Extraction
- *I conducted audio classification using CNNs, achieving peak accuracy. I addressed challenges with varying sampling rates and gained valuable insights into audio engineering and feature extraction.*

Zoho Corporation — Tripur, India
Member Technical Staff, ZLabs Intelligent Document Processing — *Jun 2023 - Dec 2023*

- Developed A Fewshot Doc2Vec Model
- *I began my research with ResNet-50 and then transitioned to DiT, a vision transformer pretrained on a document dataset. We extracted document embeddings and performed few-shot training using Triplet Loss. With well-labeled data, we achieved a similarity search accuracy of 100%. Later, in my research, I discovered interesting insights, such as classification models sometimes performing like few-shot models and vice versa. Finally, I conducted multimodal training by combining visual features from ResNet and textual features from BERT, resulting in strong generalization.*

Zoho Corporation Coimbatore, India
Project Trainee, ZLabs Intelligent Document Processing *Jan 2023 - Jun 2023*

- Learned Deep Learning Computer Hardwares, Backend Frameworks and Revised Python
- *I meticulously learned deep learning, which sparked my interest in creating small books (https://arihara-sudhan.github.io/books). I successfully trained small neural networks and tackled a few-shot classification task, which I resolved using contrastive loss.*

Projects

AI Powered MediKit

- The AI-Powered MediKit enhances medical analysis with several advanced features. Most of its functionalities are classification-based, but instead of relying on conventional CNNs, we've incorporated Vision Transformers (ViTs) for model training. While CNNs and CNN-based networks like ResNet excel in detecting simple features, they struggle with the subtle details often present in medical images. Vision Transformers, however, excel at capturing these delicate features. Additionally, the MediKit offers Heartbeat Analysis using MFCC to classify heartbeats, which helps in identifying abnormalities. We also provide few-shot classification for tablets, minimizing the need for retraining the network with new data. The project includes a herbal solution feature where users can inquire about herbal remedies.

Fewshot Classify Anything Model

- The "Classify Anything" model performs similarity searches on stored embeddings of Images. We use a Swin Transformer as the backbone and train the embeddings using triplet loss. With a few extracted embeddings saved in an index, the model classifies all inputs effectively.

Thirukkural - AI Similarity Search

- The Thirukkural AI Similarity Search utilizes paraphrase transformer embeddings to perform searches based on queries entered by users. It is served using FastAPI, with the frontend currently implemented in ReactJS.

Achievements/Activities

- Helping a social team at Zoho achieve their goals, as I have a good understanding of plants and animals
- Also assisting a startup called Yash in automating 3D texture application using Python and training simple ML models
- Teaching full-stack development (MERN) to a group of expert students from my college every weekend
- Teaching machine learning to a group of expert students from colleges in Coimbatore, Tirunelveli, and Madurai every night
- Qualified for the final round of Medecro.ai's Hackathon - Built AI Powered MediKit
- Qualified for the final round of Atheneum Hackathon, conducted by IGDTUW, New Delhi - Built Smart Education System
- Secured first positions in Hackathons, Code Debugging, Web Development and more competitions conducted by colleges in south such as Rohini College of Engineering, Thamirabarani Engineering College, PSN College of Engineering
- Best Project Presentation in Project Expo at Einstein College of Engineering - Smart Attendance System
- Secured first position for exposing skills in Mathematics in Talent Search Examination conducted by JP College of Engineering, Tenkasi
- Secured Yuva Shri Kala Bharathi Award, Bharathi Yuva Kenthra, Madurai - For good performance in education and arts