PRADEEP RAJASEKAR

DEEPLEARNING ENTHUSIAST

CONTACT

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SKILLS

Python, JavaScript	Pytorch, Tensorflow
OpenCV, Numpy	Transofrmers, Diffusers
Debugging	Hugging Face API
MLOps, Pruning	Multi-Model
Convolutional Neural Network	Recurrent Neural Network
GAN	Difussion Models
Vision Transformers	LLM
Classification, Object Recognition	Conditional image generation
Feature Extraction	Attention Mechanism

PROFILE

A researcher with proven skills in Conditional Generative Models and feature extraction methodologies. Leveraging a solid foundation in software development and a deep understanding in Computer Vision applications

Expected Gratuation: July 2023

WORK EXPERIENCE

Software Developer May 2017 – Sep 2021

AIBS Software Solutions | Coimbatore, India

Expertise in developing robust ERP applications for manufacturing companies and specializing in custom applications within Tally software. My contributions include improving inventory management, tax tracking, and delivering efficient, user-friendly software solutions through collaborative teamwork. with a strong track record in debugging software issues using methodical approaches

Technical Associate Jul 2014 – Apr 2017

Aircel Pvt.Ltd. | Coimbatore, India

Proficient in managing mobile SIM card activation and resolving technical issues with accurate troubleshooting. Collaborated with a multidisciplinary team to enhance operations and achieve superior proficiency, showcasing diligence and exceptional attention to detail.

EDUCATION

Master's in Electrical Engineering and Computer Science 2021- 2023

National Taipei University of Technology | Taipei, Taiwan

Research-Focused learning into AI and ML techniques. Propose and develop a novel deep learning approach for conditional image generation, specifically targeting scenarios with a low data regime.

Bachelor of Science in Information Technology 2011-2014

Sri Ramakrishna Mission Vidyalaya College | Coimbatore, India

Built a robust foundation in diverse programming languages and platforms.

AWARDS &EXTRA-CURRICULAR ACTIVITIES

First Place in Paper presentation at National Technical symposium | 2014

Member of National Service Scheme | 2011-2014

Executive Member, International Student Association | 2022 - 2023

PERSONAL PROFILE

D.O.B : April 29th 1994

Nationality : India

Hobbies: Books, Anime, Movies

Personality: Detail-oriented, Self Motivated, Team PLayer, Logical Thinker

RESEARCH & PROJECTS

EXPERTISE

- **Deep Learning and Computer Vision**: Proficient in designing and implementing algorithms for solving complex problems in image processing.
- **Generative Models**: Skilled in developing generative models for working with limited datasets. Specific expertise in Generative Adversarial Networks (GANs), Attention Mechanism and Feature Extraction
- **Feature Extraction and Attention Mechanisms**: Deep understanding of feature extraction methodologies in Computer Vision tasks, especially using attention mechanisms, improving model accuracy and performance.
- **Software Development**: Experienced in software development,in building ERP applications. Proven ability to work with various programming languages and platforms.
- **Machine Learning Libraries and APIs**: Proficient with HuggingFace libraries and the Inference API, which has been instrumental in implenting and reproducting large ML Models
- **Vision Transformers**: Building knowledge in the fundamentals of NLP, an increasingly important field in AI, supplementing my primary expertise in Computer Vision.
- **Research**: Gained indepth understanding of core knowledge in neural network principles , as well as architectural and algorithmical aspects in deeplearning through my research in Feature extraction based improved generevite model.
- **Project Management**: Demonstrated ability to lead and manage complex AI projects from inception to completion, ensuring they meet the quality standards and being user friendly

REFERENCES

Shih-Hsuan Yang

Vice President at National Taipei University of Technology

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Content and Spatial Aware Generative Model for Inpainitng

Research - Thesis

- Proposed architectural and algorithmical improved approach in **GAN for image inpaiting while presented with low data.**
- Addressed limitations of GANs in understanding data distribution by **incorporating content and spatial attention layers in the discriminator**.
- Implemented **contextual attention block** in the generator to over come the limited receptive field while generating from reference pixels
- By the cabapility of unique feature understanding this **model overcomes the overfitting, Mode collapse and memorization** issues of generative models trained with small data.

From using gated convolutions to optimized loss functions, everything has done in context to efficiency and performance improvment in inpainting tasks. And improve model's cabapility of feature understanding.

Object Detection Projects

Projects : Live counting & Protective Equipemt Detection

- Utilized YOLO algorithm for real-time object detection in car counting, people counting, and PPE detection.
- Integrated **SORT algorithm for object tracking** and association across frames, improving counting accuracy.
- Leveraged **pre-trained YOLO weights** for real-time PPE detection and analysis.
- Demonstrated YOLO for **object detection on static images and real-time webcam detection**, highlighting its versatility and practical applications.

Gesture Control Presentation

- Utilized **MediaPipe library for accurate hand tracking** and gesture interpretation in controlling presentation slides.
- Employed **OpenCV (cv2) for video processing** tasks, including camera feed manipulation and overlaying graphical elements on slides.
- Utilized numpy for numerical computations, calibrating half of the camera view to map pointer movement across the entire presentation.
- Integrated **gesture threshold mechanism** to eliminate unintended triggers, from certain portions of the video, improving precision and reliability of gesture recognition.

Touchless Motor Control

- Integrated **HC-SR04 ultrasonic sensor** for touchless control based on hand proximity.
- Utilized **servo motor to adjust gas stove fire level** based on ultrasonic sensor readings.
- Implemented **conditional logic in Arduino code** to determine servo motor states and rotation angle using distance thresholds. allowing for precise control of the fire level
- Utilized serial communication and monitor for real-time display of debug information, distance readings, and servo position for troubleshooting and analysis.

Other Projects

github.com/Ajishpradeep

Visual Transformer Projects

- Utillized HuggingFace Transformers Library and Pretrained Models

1. Visual Question Answering 2. Depth Estimation

*EARLIEST AVAILABITLITY TO WORK : IMMEDIATE *OPEN TO RELOCATE WORLDWIDE