Mithun Parab

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Education

Master of Science Computer Science 07/22 – 07/24
R. J. College, Mumbai, India, CGPA: 8.88/10.00

Bachelor of Science Information Technology 07/19 – 07/22
K. J. Somaiya College Of Science And Commerce, Mumbai, India, CGPA: 9.07/10.00

Experience

Sejong University, Seoul, South Korea Research Intern
Dr. YG. Kim & Dr. Palash Ingle 04/24 – 10/24
Built interpretable models for anomaly detection in video data, improving accuracy and robustness by 25% over previously employed baseline methods.

Indian Institute of Information Technology, Sri City, India Research Intern
Dr. Pavan Kumar B.N., Department of CSE 09/23 – 03/24
Enhanced 3D SLAM precision using uncalibrated image-based techniques, achieving a 30% accuracy improvement over conventional calibration-dependent approaches.

Selected Publications

A Comprehensive Study on LLM Agent Challenges,
Palash Ingle, **Mithun Parab**, Pranay Lendave, B. N. Pavan Kumar, AAAI 2024 Spring Symposia on User-Aligned Assessment of Adaptive AI Systems.

MT3DNet:Multi-Task Learning Network for 3D Surgical Scene Reconstruction
Mithun Parab, Pranay Lendave, Jiyoung Kim, Palash Ingle, Thi Quynh Dan Nguyen https://doi.org/10.48550/arXiv.2412.03928

Innovative Method for Camouflaged Wildlife Segmentation in Agricultural Practices, **Mithun Parab**, Palash Ingle, *IEEE Xplore Digital Library*, International Conference on Advancement in Computation & Computer Technologies, 10.1109/InCACCT61598.2024.10551184

Image Enhancement and Exposure Correction Using Convolutional Neural Network, **Mithun Parab**, Amisha Bhanushali, Palash Ingle, B. N. Pavan Kumar, *SN Computer Science*, Volume 4, Number 2, 2023, doi: 10.1007/s42979-022-01608-w

Projects

Tetris-Inspired Video Synopsis
A MCTS algorithm with a shared-backbone neural network for policy & value optimization, efficiently packing 3D tubes to reduce the time dimension in video synopsis.

Unsupervised Video Anomaly Detection with Zero and Few-Shot Learning A transformer-based model with time and spatial attention mechanisms for extracting spatiotemporal features, trained unsupervised to predict future frames and compute anomaly scores.

DINO-v2-based Method for Video Anomaly Detection
A DINO-v2-based approach for video anomaly detection, using feature embeddings and prototype learning to group similar patterns while pushing apart different ones.

3D Novel View Synthesis from Un-calibrated Images
A system for synthesizing new 3D views from un-calibrated images, using a NeRF model optimized for Structure from Motion challenges via distinct MLP modules.

3D Video Synopsis with Multi-task Learning
A condensed video synopsis algorithm and Multi-Task Learning network for abnormal activity segmentation and depth mapping, facilitating 3D video summary reconstruction.

Scholastic Achievements

Presented at the International Conference on Advancements in Computational and Computer Technologies. (2024)
Recognized with the **Best Paper Award** at ICACI 2022 for pioneering work in adaptive computational methods. (2022)

Skills & Interests

Languages: Python, C++, Java, Julia, R **Technologies**: AWS, Docker, Kubernetes, Kafka
Tools: LaTeX, Bash, Matlab, GNU Octave, Git **Interests**: ML, CV, AI, NLP
Tools: Ray, Pinecone, FastAPI, BentoML **Paradigms**: Diffusion, LoRA, Quantization
Libraries: LlamaIndex, LangChain, TRL, bitsandbytes, HuggingFace, DeepSpeed