
CONTACT INFORMATION	Homepage: mishra077.github.io Email: mishraab@usc.edu Github: github.com/mishra077
EDUCATION	University of Southern California , Viterbi School of Engineering 2021 - 2022 <ul style="list-style-type: none">M.S in Computer Science GPA: 3.57/ 4.0<i>Relevant Courses:</i> Foundations of Artificial Intelligence, Applied NLP, Machine Learning, Information Retrieval, Parallel and Distributed Computing. Manipal University Jaipur , School of Computing and Intelligent System 2016-2020 <ul style="list-style-type: none">B.Tech in Computer and Communication Engineering GPA: 9.19/ 10.0<i>Relevant Courses:</i> Bio-statistics, Artificial Intelligence, Machine Learning, Social Network Analysis, Regression Analysis and Forecasting.
PUBLICATIONS	<ol style="list-style-type: none">Mandal, Murari, Vansh Dhar, Abhishek Mishra, Santosh Kumar Vipparthi, and Mohamed Abdel-Mottaleb. “<i>3DCD: Scene independent end-to-end spatiotemporal feature learning framework for change detection in unseen videos.</i>” IEEE transactions on image processing 30 (2020): 546-558.Mandal, Murari, Vansh Dhar, Abhishek Mishra, and Santosh Kumar Vipparthi. “<i>3DFR: A swift 3D feature reductionist framework for scene independent change detection.</i>” IEEE Signal Processing Letters 26, no. 12 (2019): 1882-1886.
RESEARCH EXPERIENCE	RespAI Lab , KIIT, IND Aug 2024 - Present <i>Researcher</i> under Murari Mandal <ul style="list-style-type: none">Developing methodologies in Machine Unlearning and Copyright protection in Stable Diffusion, enabling removal of target concept while balancing between retention of similar information and maximizing the efficacy of target concept. AiBEE Inc , Palo Alto, CA May 2022 - Aug 2022 <i>Deep Learning Intern</i> under Jinghao Shi <ul style="list-style-type: none">Collaborated with Airport and Shopping Mall Tracking team to enhance human Re-identification pipeline by incorporating person’s appearance features, pose-estimations and temporal data as inputs.Integrated Vision Transformer (ViT) in the pipeline to address the challenge of person-id split, resulting in 54% less fragmentation and improved Re-identification of shoppers and passengers by a remarkable 2x margin on f-score. iLab USC , Hedco Neuroscience Building, USC May 2021 - Aug 2021 <i>Research Intern</i> under Dr.Laurent Itti <ul style="list-style-type: none">Implemented state-of-the-art object trackers, including SiamRPN, SiamRPN++, and ATOM, to establish benchmarks for evaluation.Enhanced tracker performance by 15.6% by integrating spatio-temporal blocks within the RPN (Region Proposal Network) blocks. Vision Intelligence Lab , MNIT, Jaipur May 2018 - July 2020 <i>Research Intern</i> under Dr.Murari Mandal <ul style="list-style-type: none">Designed novel Deep Neural Networks to detect change in motion (Motion Segmentation). Leveraged Spatio- temporal features to generate background models from consecutive frames, ensuring accurate identification of dynamic elements within the scene.

WORK
EXPERIENCE

Cansera & IMSC Lab, USC Los Angeles, CA
Software Engineer, Backend team under Dr. Luciano Nocera

Feb 2023 - Jan 2024

- Designed an **interactive diagnostic web app** for oncologists, utilizing Kinect 4K recordings to analyze cancer patient movements. Generated a detailed skeleton map, time series graph, and Performance Scale (PS) calculations, providing a comprehensive health status assessment.
- Engineered informative dashboards for cancer patients and oncologists, leveraging wearable device data to monitor current health trends with **10K** daily users.

TEACHING
EXPERIENCE

Grading Assistant, Machine Learning (CSCI-567)
University of Southern California

Spring 2022

Grading Assistant, Applied Natural Language Processing (CSCI-544)
University of Southern California

Fall 2022

KEY
PROJECTS

GPT-2

- Implemented a GPT-2 (124M) language model from scratch, optimized model training for high-performance computing, utilizing techniques such as distributed data loading, mixed precision training (BF16), and gradient accumulation to efficiently leverage multi-GPU setups

Stable Diffusion

- Coded complex components of the Stable Diffusion pipeline, including the CLIP text encoder, U-Net denoiser, and variational auto-encoder from scratch.

MLOPS

- Implemented batch-serving architecture with Hopsworks feature store integration. Developed streamlined feature engineering pipeline utilizing API data sources. Utilized Weight & Biases ML Platform for experiment tracking, model management, and metadata.

SKILLS

Programming Languages: Python, C++, Bash script, JavaScript, SQL, HTML, CSS

Libraries & Frameworks: Pytorch, TensorFlow, HuggingFace, Spark, CUDA C++, OpenCV, \LaTeX

Cloud & Databases: AWS, GCP, ChromaDB, PostgreSQL

REFERENCES

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Dr. Laurent Itti

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Dr. Mohammed Rostami

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Dr. Murari Mandal

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