DEEKSHA ARUN

Computer Vision PhD Student

@ darun@nd.edu darun
in deeksha-arun +1 (574) 402-8317



EXPERIENCE

Graduate Research Assistant
University of Notre Dame
May 2022 – Present Notre Dame, IN

- Developing recognition systems agnostic to low quality videos taken from UAVs considering different body poses and angles.
- Leveraging query strategies in active learning techniques to meticulously identify and analyze key frames, effectively extracting crucial information about events in video content to reduce and optimize the gallery sizes for recognition systems
- Analysed data-driven strategies, including OSS with sample mean estimation (OSSM) and multi-class SVM, to optimize gallery size for recognition in video-to-video matching scenarios.
- Achieved substantial performance gains on 2 Datasets: TAR increased from 86.65% to 93.66% on PaSC and Ranks 1 and 5 values on IJB-S improved from 23.53% to 67.16% and 36.87% to 74.41%, respectively.
- Collected 165,000 human trials for facial similarity comparisons, extracted features from human face morph images and modeled the features using Gaussian and Extreme Value Theory models, followed by a detailed analysis to identify outputs closely mirroring human responses.

Graduate Teaching Assistant
University of Notre Dame
Jan 2022 – May 2022 Notre Dame, IN

- Assisted in teaching Data Structures principles to 80 students, held weekly office hours and advised 3 undergraduate project groups as a 'Preternship Manager'.

Data Engineer
OptM Media Solutions Private Limited
Sept 2021 – Dec 2021 Bengaluru, India

- Explored different pipelines for steam leakage detection using various TensorFlow transfer-learning based neural network architectures.
- Performed object detection and tracking using yolov5 to develop a real-time multi object tracking system.

Deep Learning and Computer Vision Intern
OptM Media Solutions Private Limited
Sept 2020 – Aug 2021 Bengaluru, India

- Trained, deployed and tested Tensorflow biometric identification algorithm for automated real-time employee attendance verification.
- Developed a secured SQL database to process and store registration information.

Machine Learning Intern
VSIX Analytical Labs Private Limited
Jul 2020 – Aug 2020 Bengaluru, India

- Implemented a regression model to predict the Flame Ionization Detection Response Factor with 98% accuracy.
- Built, deployed a Django web application on the Heroku cloud for seamless integration for client data collection/processing.

EDUCATION

Ph.D. in Computer Science and Engineering
University of Notre Dame
Jan 2022 - Present Notre Dame, IN

Advisor: Patrick J. Flynn **Research Fields:** Computer Vision, Deep Learning, Biometrics, Machine Learning
Cum. GPA: 4.00/4.00

B.E. in Computer Science and Engineering
SJB Institue of Technology
Aug 2017 - Jul 2021 Bengaluru, IN

SKILLS

PyTorch | Python | OpenCV | TensorFlow | Keras | scikit-learn | Git | Matplotlib/Seaborn | Jupyter Notebook | Spark | Pandas | Django Web framework | Flask | Linux | Unix | macOS | Windows | Cloud | Edge Computing | Web communication | C++ | C | SQL | PostgreSQL | No-SQL | Statistical techniques | Classification | Clustering | Quantitative methods | Object detection | Object recognition | Segmentation | Deep Neural Network | Video analytics | Image, video classification | Software development | Data Science | Responsible Machine Learning | Generative AI | Artificial Intelligence

AWARDS

First Place, National Robotics Competition
e-Yantra, Indian Institute of Technology, Bombay

PUBLICATIONS

- Arun, Deeksha and Patrick Flynn (2024). "Data-Driven Approaches for Gallery Editing in Face Recognition". In: *Submitting to Conference on Computer Vision and Pattern Recognition workshop (CVPR)*.
- Huang, Jin, Deeksha Arun, and Walter Scheirer (2024). "Examining Facial Morph Perception: Insights into Human Perception". In: *Submitting to Journal of Vision*.