Jeet Vora

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Research Interests

Computer Vision, Deep Learning for Multi-camera systems, Generalization, Creative AI

Education

Master's By Research in Computer Science *IIIT Hyderabad* **CGPA: 8.2/10.0** *2019-2023*
(Specialization in Artificial Intelligence and Robotics)
Bachelor of Engineering in Computer Science *University of Mumbai* **CGPA: 8.96/10.0** *2015-2018*
Diploma in Computer Science *Shri.Baghubhai Mafatlal Polytechnic* **CGPA: 8.2/10.0** *2012-2015*

Publications

1. **Jeet Vora**, Dutta, S., Jain, K., Karthik, S. & Gandhi, V. Bringing Generalization to Deep Multi-View Pedestrian Detection in *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) Workshops* Paper Link (Jan. 2023), 110–119.

Research and Work Experience

Research Engineer *Animaker India Pvt. Ltd.* *July, 2022 - Present*

- Conducting AI-ML (CV/NLP) research to enhance various Animaker products, including Animaker, Steve.ai, Picmaker, and Vmaker.
- Leading research and development of AI-ML solutions, ensuring seamless integration, CI/CD, and scalable deployment within Animaker's ecosystem.
- Collaborating with Product Development, DevOps, Marketing, and Sales teams to drive the success of AI-enabled features and services.
- Key projects and features:
  - **Picmaker AI** – Image and video matting, template search optimization.
  - **Vmaker AI** – Transforming raw footage into polished videos.
  - **Steve.ai** – Automating script-to-animation/live video and text-to-GenAI video creation.
  - **Animaker AI** – AI-powered moment search and the next-gen Animaker AI 2.0.
  - **Talking Head AI** – Advanced lip-sync for animated characters.

Research Student *IIIT Hyderabad* *Jan, 2020 - May, 2023*

- **Advisor:** Dr. Vineet Gandhi; **Thesis:** Towards Generalization in Deep Multi-View Pedestrian Detection and Tracking.
- Specialized in multiple object detection and tracking across multiple views.
- Proposed and evaluated a model incorporating generalization for multi-camera detection across varying camera setups and new scenes.
- Achieved a 20% improvement in MODA and MODP metrics over benchmarks.
- Created synthetic datasets for multi-camera detection using GTA-V and Unity game engines.
- Developed post-processing tools for joint calibration and synchronization of multiple cameras.
- Demonstrated strong generalization from synthetic to real-world scenarios (Sim2Real).

Research Student *Star Sports* *Jan, 2020 - May, 2023*

- **Project Supervisor:** Dr. Vineet Gandhi; **Blog:** IIITH's Player Tracking Tech Drives Asia Cup's Narrative For Viewers.
- Developed **Real-Time Player Tracking** at 30fps with 4K/FullHD live streaming.
- Formulated player merging from multiple cameras in bird's eye view as a linear assignment problem.
- Worked on camera calibration and homography for cricket grounds to enable multi-camera player tracking, bird's-eye view transformations, and real-world trajectory analysis.
- Set up infrastructure using Blackmagic Design products for 4K live streaming and processing.
- Deployed and broadcasted technology for live matches at:
  - Asia Cup 2022 (UAE, Dubai)
  - Asia Cup 2023 (Sri Lanka)
  - Tamil Nadu Premier League (TNPL)

Research Collaboration *Apple* *Jan, 2022 - Mar, 2022*

- **Project Supervisor:** Dr. Vineet Gandhi.
- Developed a proof of concept (PoC) for **Video Classification and Action Recognition** to analyze assembly operations in an industrial production line.

Software Engineer *Vistaar Technologies, Inc.* *Jun, 2018 - Aug, 2019*

- Worked as part of the Reimbursement Solution Team, analyzing and providing technical solutions.
- Directly involved in development, delivery and onboarding of Vistaar's Saas based Reimbursement product for clients.
- Designed and implemented tailored solutions for Diageo, E. & J. Gallo Winery, and Brown-Forman, improving and streamlining processes, maximizing recovery, and enhancing customer success.

Teaching and Mentorship

AI-ML Mentor *InLustro Learning* *July, 2024 – Present*

- Providing industry-relevant AI-ML training and mentorship to students, professionals, and faculty members through lecture sessions and hands-on workshops.
- Mentored 14 AI-ML projects, guiding teams in model development, optimization, and deployment.
- Collaborated with clients, including L&T Madh Training Academy and MLR Institute of Technology, to deliver tailored AI-ML solutions.

Teaching Assistant *IIIT Hyderabad* *Jan, 2022 - May, 2022*

- **Lecturer:** Dr. Vineet Gandhi, **Course:** Statistical Methods in AI (SMAI), Spring 2022.
- Prepared assignments, conducted lab sessions/tutorials, and guided students through projects.

AI-ML Mentor *TalentSprint* *Oct, 2021 – Oct, 2022*

- **Supervisor:** Dr. Anoop Namboodiri.
- Mentored AI-ML projects as part of the AI/ML program by IIIT Hyderabad and TalentSprint.
- Provided guidance on AI-ML projects and conducted lab sessions.
- Supervised 4 teams working on Image Tagging and Road Object Detection.

Technical Skills

Languages: Python, C, C++, SQL
Deep Learning: PyTorch
Model Optimization: ONNX, TensorRT, AWS Inferentia
Vision & ML Tools: OpenCV, Open3D, PIL, Pandas, etc.
Model Deployment & Serving: Flask, Docker, AWS Sagemaker, AWS EC2, Torchserve
NLP & LLM Frameworks: Hugging Face, LangChain, OpenAI API
Big Data & Analytics: ElasticSearch, Kibana
Game Engines: GTA-V Scripthook, Unity
Other Tools: Git, LaTeX

Courses

- Statistical Methods in AI
- Digital Image Processing
- Computer Vision
- Mobile Robotics
- Optimization Methods
- Topics in Applied Optimization

Course Projects

3D Reconstruction and Motion Estimation *Oct, 2020 – Nov, 2020*

- Generated a dense 3D point cloud reconstruction from stereo image pairs.
- Estimated motion by recovering camera pose using the iterative PnP algorithm.

Pose Graph Optimization for 2D SLAM *Sep, 2020 – Oct, 2020*

- Implemented pose graph optimization for a robot using RGBD sensors and wheel odometry to correct trajectory drift.
- Formulated the problem as a graph optimization task and solved using the Levenberg-Marquardt Algorithm.

Metric Learning for Face Identification *Feb, 2020 – Apr, 2020*

- Implemented MkNN (Marginalized kNN) for face identification on the LFW dataset using LMNN (Large Margin Nearest Neighbor) with the Mahalanobis metric.
- Improved accuracy by 10% using PCA as a dimensionality reduction technique.

Bilateral Image Inpainting *Sep, 2019 – Nov, 2019*

- Implemented convolution-based inpainting using a bilateral averaging kernel that preserves both geometric (spatial) and photometric (range) information.
- Enhanced structure and texture retention in images compared to traditional convolution methods.