

Javed Ahmad

Research Interests:

- o 3D Computer Vision, Deep Learning, Multimodal 3D Scene Perception
- o Robotic Manipulation and 3D Reconstruction

Education

- 11/2020 – 12/2023 **Ph.D in Computational Vision, Automatic Recognition and Learning**
Thesis Title: Multimodal 3D Scene Perception
Research Lab: Pattern Analysis and Computer Vision (PAVIS), IIT, Italy
University: University of Genoa (UniGe), Italy
- 2017 – 2019 **Master of Science in Electrical Engineering**
University: Information Technology University (ITU), Pakistan
Major Subjects: Advanced Mathematics, Machine Learning, Control System Theory, Digital Signal Processing
- 2013 – 2017 **Bachelor of Science in Electrical Engineering**
University: University of Central Punjab, Pakistan
Major Subjects: Signal Processing, Image Processing, Control Systems, Electronics

Experiences

- 02/2024 – present **PostDoc**
Research Lab: Center for Cultural Heritage Technology, IIT, Italy
 - o Collaborating with [CTE-Genova](#) for 3D artifact reconstruction via robotic manipulators
 - o Developing algorithms for precise 3D object understanding and reconstruction
- 11/2020 – 12/2023 **Doctoral Researcher**
Research Lab: Pattern Analysis and Computer Vision (PAVIS), IIT, Italy
 - o Developed novel LiDAR-Camera fusion scheme, improving accuracy and reliable 3D perception
 - o Contributed to 3D object localization for [MEMEX Project](#) from crowd-sourced images
 - o Performed LiDAR-Camera calibration procedures
- 07/2017 – 10/2020 **Research Assistant**
Research Lab: CACTUS, ITU, Pakistan
 - o Worked on SfM 3D reconstruction
 - o Worked on vibration signal processing via machine learning for fault diagnosis in rotating machinery
- 2017 – 2019 **Teaching Assistant**
University: Information Technology University (ITU), Pakistan
 - o **Graduate Course:** Machine Learning
 - o **Undergrad Courses:** Calculus & Analytical Geometry, Power System Analysis

IIT - Center for Cultural Heritage Technology, Venice, Italy

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Programming and Skills

Python: Advanced (Pytorch, Numpy, Pandas, Scipy)
Computer Vision: Expert (OpenCV, Open3D, bpy, Torchvision)
Robotics: Intermediate (UR-RTDE, Pyroplan, ROS2, Moveit2, NVIDIA-Omniverse)
3D Perception: Proficient (mmdetection3D, LiDAR-Camera fusion techniques)
Parallel Computation: Experienced (Franklin-HPC: NVIDIA Tesla V100, A100)
Other: Knowledge of Blender, C++, MATLAB

Publications

- 2024 **Ahmad, J.**, Frascella, S., Dassiè, F., et al. Automated Artifacts Position and Orientation Estimation in Cultural Heritage. IEEE/ASME Conference on Mechatronic, Embedded Systems and Applications.
- 2023 **Ahmad, J.**, Del Bue, A. mmFUSION: Multi-modal Fusion for 3D Object Detection. [[arxiv link](#)]
- 2022 **Ahmad, J.**, Toso, M., Taiana, M., James, S., Del Bue, A. Multi-view 3D Objects Localization from Street-level Scenes. [[Springer DOI](#)] [[GitHub code](#)]
- 2022 Castro, E., ..., Ahmad, J., et al. Fill in the Blank for Fashion Complementary Outfit Product Retrieval. Journal of Machine Vision and Applications. [[Springer DOI](#)]
- 2020 **Ahmad, J.**, Shamshad F., et al. Deep Unsupervised Deblurring Approach for Improving Crops Disease Classification. Poster at CVPR Workshop on Agriculture-Vision.

Summer Schools

- Jul 2023 **International Computer Vision Summer School (ICVSS), Sicily**
Poster: 3D Scene Perception from Single to Multi-modalities [[Poster link](#)]
- Jul 2022 **Vision and Sports Summer School (VS3), Prague**
Focused on advanced computer vision techniques in 2D and 3D object recognition, multi-modal learning, 3D neural rendering.
- Jul 2021 **Vision Understanding and Machine Intelligence Summer School (VISUM), Porto**
Winner of project competition on fashion product retrieval using deep learning. [[Presentation link](#)]
- Jul 2020 **Eastern European Machine Learning Summer School (EEML)**
Winner of 3D historic landmark reconstruction proposal in unconference research competition.

Awards & Prizes

1st prize in VISUM 2021 and EEML 2020 competitions
MS Fellowship granted by ITU, Pakistan

Community Service

Former member of Akhuwat Foundation, Pakistan, involved in charity fundraising. Currently exploring more community engagement opportunities.