

# Javed Ahmad

Rome, Italy

+39(348)-244-0058  
✉ javed.sial91@gmail.com  
🌐 javi-99.github.io  
🔗 javed-ahmad-4692384a/

## Expertise & Research Focus

- **Core:** 3D computer vision | deep learning | multimodal scene understanding
- **3D Vision & Mapping:** SLAM | SfM | NeRF | 3D Gaussian Splatting | large-scale 3D reconstruction
- **Robotics:** robotic-arm motion planning | autonomous micro-UAV systems

## Experience

09/2025 – Present	<b>Computer Vision Researcher, DeepPlants, Rome, Italy</b>	
	<ul style="list-style-type: none"><li>○ Developing SLAM and 3D reconstruction pipelines for agricultural field analysis.</li><li>○ <b>ModelAI micro-UAV (development platform):</b> Designing ground-station and onboard pipelines for VOXL 2 (MAVSDK/MAVLink, PX4), enabling fully autonomous flight and real-time RGB data streaming for backend SLAM integration.</li><li>○ <b>DJI Mavic 3 (commercial platform):</b> Conducting large-scale field-scanning missions to generate high-resolution imagery used for SLAM benchmarking and as reference data for development.</li></ul>	
02/2024 – 08/2025	<b>Postdoctoral Researcher, Italian Institute of Technology (IIT), Italy</b>	02/2025 – 08/2025
	<b>Advanced Robotics (ADVR), IIT Genova</b>	
	<ul style="list-style-type: none"><li>○ Developed real-time SLAM pipelines using 3D Gaussian Splatting for immersive teleoperation (RIAP Project).</li></ul>	
	<b>Center for Cultural Heritage Technology (CCHT), IIT Venice</b>	02/2024 – 01/2025
	<ul style="list-style-type: none"><li>○ Built an autonomous 3D artefact-scanning system using UR5e/UR3e manipulators and Artec3D.</li><li>○ Delivered and deployed the scanning system at <a href="#">CTE-Genova</a>.</li><li>○ Developed 6-DoF pose-tracking algorithms for complex cultural-heritage artefacts.</li></ul>	
11/2020 – 12/2023	<b>Doctoral Researcher, PAVIS Lab, IIT, Italy</b>	
	<ul style="list-style-type: none"><li>○ Developed a LiDAR-camera fusion framework enhancing 3D scene perception for autonomous vehicle applications.</li><li>○ Worked on multi-view 3D object localization as part of the cultural-heritage augmented-reality <a href="#">MEMEX Project</a>.</li></ul>	
07/2017 – 10/2020	<b>Research &amp; Teaching Assistant, Information Technology University, Pakistan</b>	
	Worked on 3D reconstruction and applied machine learning, and served as a teaching assistant for graduate Machine Learning and undergraduate Calculus and Power Systems courses.	

## Technical Skills (including but not limited to)

Python	NumPy   SciPy   Pandas   Matplotlib   Multiprocessing   PyTest
Deep Learning	PyTorch   Transformers   DINO   U-Net   2D/3D model training
3D Vision	OpenCV   Viser   Open3D   Nerfstudio   MMCV   NeRF   3D Gaussian Splatting
Robotics SW	ROS 2   Pinocchio   PyRoboplan   MoveIt 2   UR-RTDE
Robotics Hardware	UR5e   UR3e   Raspberry Pi   RDK-X5   Artec3D   Zivid   ZED   RealSense
3D Mapping	COLMAP   MASt3R/VGGT-SLAM   ViPE   DepthAnything 3   MMDetection3D
Drones	ModelAI   PX4   MAVSDK   MAVLink   VOXL 2   Gazebo SITL
GPUs	NVIDIA V100/A100   RTX A6000/4090/5090

## Education

- 2020 – 2023 **Ph.D. in Computer Vision and Machine Learning,**  
*Italian Institute of Technology (IIT) & University of Genoa (UniGe), Italy*  
**Thesis:** *Multimodal 3D Scene Perception*
- 2017 – 2019 **Master of Science in Electrical Engineering,**  
*Information Technology University, Pakistan*
- 2013 – 2017 **Bachelor of Science in Electrical Engineering,**  
*University of Central Punjab, Pakistan*

## Selected Publications

- arXiv 2025 **Ahmad, J.**, et al. *From Fields to Splats: A Cross-Domain Survey of Real-Time Neural Scene Representations.* [arXiv:2509.23555](#)
- arXiv 2025 **Ahmad, J.**, et al. *Hands-Free Heritage: Automated 3D Scanning for Cultural Heritage Digitization.* [arXiv:2510.04781](#)
- IEEE/ASME MESA 2024 **Ahmad, J.**, et al. *Automated Artifacts Position and Orientation Estimation in Cultural Heritage.* 2024 IEEE/ASME International Conference on Mechatronic and Embedded Systems and Applications (MESA). [\[Teaser\]](#) [\[Presentation\]](#) [\[IEEE Xplore DOI\]](#)
- arXiv 2023 **Ahmad, J.**, Del Bue, A. *mmFUSION: Multi-modal Fusion for 3D Object Detection.* [\[arXiv Link\]](#) [\[Presentation\]](#)
- ICIP 2022 **Ahmad, J.**, Toso, M., Taiana, M., James, S., Del Bue, A. *Multi-view 3D Object Localization from Street-level Scenes.* International Conference on Image Analysis and Processing (ICIP), 2022. [\[Springer DOI\]](#) [\[GitHub Code\]](#) [\[Presentation\]](#)
- Machine Vision and Applications 2022 Castro, E., ..., **Ahmad, J.**, et al. *Fill in the Blank for Fashion Complementary Outfit Product Retrieval.* Journal of Machine Vision and Applications, 2022. [\[DOI: 10.1007/s00138-022-01359-x\]](#)

## Awards & Prizes

- 1<sup>st</sup> Prize Winner at VISUM 2021 and EEML 2020  
Merit-based Master's Fellowship, ITU Pakistan

## Reviewer Activity

- IEEE RA-L, ICRA 2025, and IROS 2025

## Summer Schools

- 2023 **ICVSS, Sicily**, poster on 3D scene perception [\[Poster\]](#)
- 2022 **Vision and Sports, Prague**
- 2021 **VISUM, Porto**, competition winner [\[Project\]](#)
- 2020 **EEML, Poland**, proposal winner [\[Proposal\]](#)
- 2020 **OXML, London**, Fully sponsored based on academic profile

## Community Service

Former member of Akhuwat Foundation, Pakistan, contributed to charity fundraising initiatives.