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Javed Ahmad

Research Interests:
Computer Vision and Deep Learning | 3D Scene Perception | 3D Object Detection | Multi-modal Fusion

Education

11/2020 –11/2023 **Ph.D in Computational Vision, Automatic Recognition and Learning**
Research Theme: 3D scene understanding with deep learning and geometric reasoning
Research Centre: Italian Institute of Technology (IIT), Italy
University Affiliation: Science and Technology for Electronic and Telecommunication Engineering (STIET), University of Genoa (UniGe), Italy

2017 – 2019 **Master of Science in Electrical Engineering**
University: Information Technology University (ITU), Pakistan
Major Subjects: Adv. 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 system | electronics

Work Experience

Research

11/2020 – present **Doctoral Researcher**
Research Lab: Pattern Analysis and Computer Vision (PAVIS), IIT, Italy
Research Projects:
- **Localization.** 3D objects localization from crowd-sourced images [MEMEX Project]
- **Multimodal Fusion (mmFUSION) and Detection.** A new Camera-LiDAR fusion scheme for better accuracy and reliable 3D perception
- **Current Research Activity.** We configured indoor Ouster LiDAR **(OSDome)** and multi-cameras in PAVIS Lab. We are interested in recording multi-modal data for future projects.

07/2017 –10/2020 **Research Assistant**
Research Lab: CACTUS, ITU, Pakistan
Research Focus:
- **3D Reconstruction.** Improving SFM reconstruction with deep learning
- **Vibration Signal Processing.** Machinery faults diagnosis based on vibration signal processing with machine learning

Teaching

2017-2019 **Teaching Assistant**
University: Department of Electrical Engineering, ITU, Pakistan
- **Graduate Course.** Machine Learning
- **Undergrad Course.** Calculus & Analytical Geometry
- **Undergrad Course.** Power System Analysis

Industry

2011 – 2017 **Associate Engineer**
Organization: SUPARCO (National Space Agency of Pakistan)
- **Anomaly Detection.** Monitoring and trend analysis of telemetries coming from satellite (Paksat-1R) sub-systems. Paksat-1R: first communication satellite of Pakistan

Programming Skills

Python:	Pytorch | Numpy | Pandas | Keras | TensorFlow
CV and DL. Libs.	mmcv | mmdetection3D | mmengine | Open3D | OpenCV | pytorch3D
Large-Scale Data.	KITTI | NuScenes | Mapillary
Parallel Comput.	NVIDIA Tesla V100 | NVIDIA A100
Others:	Blender | C++ | MATLAB

Publications

Pre-print

2023 **Ahmad J.**, Del Bue A. 2023, August 30. mmFUSION: Multi-modal Fusion for 3D Objects Detection. [https://arxiv.org/abs/2311.04058]

Published

2022 **Ahmad, J.**, Toso, M., Taiana, M., James, S., & Del Bue, A. (2022, May). Multi-view 3d objects localization from street-level scenes. In International Conference on Image Analysis and Processing (pp. 89-101). Cham: Springer International Publishing. [DOI 10.1007/978-3-031-06430-2_8] [code]

2022 Castro E., Rebelo A., Rio Torto I., Capozzi L., Ferreira MF, Goncalves T., **Ahmad J.**, Daoudi N., Beco S., Ferreira PM, Moreira G. Fill in the Blank for Fashion Complementary Outfit Product Retrieval: VISUM Summer School Competition. Journal on Machine Vision and Applications, Vol. 34, (no. 1), pp. 1-15 [DOI 10.1007/s00138-022-01359-x] [code]

2020 **Ahmad J.**, Shamshad F., Maqbool J., Ahmed A, 2020. Deep unsupervised deblurring approach for improving crops disease classification. As a poster, in CVPR Workshop on Agriculture-Vision. [workshop link] [slides] [code]

Summer Schools

Jul - 2023 **International Computer Vision Summer School, Sicily -** ICVSS 2023
From Perception to Action. The school aimed to provide an objective, clear, and in-depth summary of the state-of-the-art research in Computer Vision, Machine Learning, and Artificial Intelligence. The lectures have covered theoretical and practical aspects of real problems and examples of their successful commercialization.
Program: The courses (30 hours) have been delivered by world-renowned experts in the field, from both academia and industry.
My Poster: 3D scene perception from single to multi-modalities

Jul - 2022 **Vision and Sports Summer School 2022, Prague -** VS3 2022
Program: The school focused on state-of-the-art computer vision techniques in 2D and 3D such as large-scale specific object recognition, multi-modal learning, 3D deep learning, and 3D neural rendering.

Jul - 2021 **Vision Understanding and Machine Intelligence, Porto -** VISUM 2021
Program: lectures | coding sessions | project competition | panel discussions
Winner of Competition: My team **'Json'** achieved the highest prediction accuracy in project competition; fashion outfit complementary product retrieval.
[presentation link]

Jul - 2020 **Easter European Machine Learning Summer School -** EEML 2020
Program: lectures | coding session | panel discussions | poster presentations
Winner of Competition: My team's unconference research proposal (3D historic landmark reconstruction) received first award. [presentation link]

Aug - 2020 **Oxford Machine Learning Summer School - OxML 2020**
Program: lectures | coding session | unconference sessions

Awards & Prizes

Received 1st prize in the project competition by VISUM 2021 and EEML 2020

Received MS Fellowship granted by Information Technology University, Pakistan

Received 1st prize in BS final year project competition

Received 1st prize in designing soccer ball robot competition

Received Full Scholarship granted by SUPARCO during my college studies

Community Service

I can not stand by if a portion of society around me can not fulfill basic needs. In the past, I was a member of the Akhuwat Foundation, Pakistan, which is dedicated to charity fundraising ideas. Currently, I am looking for more.