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# Javed Ahmad

**Research Interests:**
Computer Vision and Deep Learning | 3D Scene Perception | 3D Object Detection | Multimodal 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:** A new LiDAR-Camera fusion scheme for better accuracy and reliable 3D perception
- **Perception Data Toolkit:** Calibration of ouster LiDAR and multiple cameras, and multi-modal data for desired instances.

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.** Telemetry monitoring and trend analysis of Paksat-1R subsystems. Paksat-1R: Pakistan's first communication satellite.

## 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.