MUNSIF ALI

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Sex Male | Date of birth 10 Apr 1991
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SUMMARY I am a Researcher at Stazione Zoologica Anton Dohrn Napoli - Italy, specializing in underwater object detection using AI. I completed my Ph.D. at the University of Parma, Italy, focusing on continual learning, few-shot learning, and Generative Models. Awarded a Gold Medal for my Bachelor's and a fellowship for my M.Phil. academic performance.

EDUCATION AND TRAINING

May 2025–May 2027 **Researcher (Stazione Zoologica Anton Dohrn Napoli - Italy)**

The objective of this project is to develop an advanced **underwater object detection and tracking system** using **deep learning** and **artificial intelligence**. The goal is to create a robust model capable of accurate real-time detection, tracking, and classification of various underwater objects, with applications in marine biology, underwater robotics, and environmental monitoring.

Apr 2022 – Apr 2025 **PhD in Information Technology (Continual and few-shot learning for GANs)**

University of Parma, Italy https://www.unipr.it/

The focus of my PhD studies is continual and few-shot learning for generative adversarial networks (GANs). Continual and few-shot learning is a way to make deep learning model generalize instead of task specific with a few training samples. Particularly, I have applied teacher student technique and efficient low rank parameters for continual few-shot GANs to overcome catastrophic forgetting and overfitting problems.

Feb 2016–Jun 2018 **Master of Philosophy in Electronics**

Quaid-i-Azam University, Islamabad (Pakistan) https://qau.edu.pk/

CGPA 4.10/5.0 (M.Phil Fellowship)

Master research studies focused on different strategies for reliable, stable, and fast data delivery in underwater wireless sensor networks by using different techniques such as cooperation, sink mobility, data broadcasting, network designing, and parameter selection. Also learned image processing, object detection, and computer vision.

Sep 2012–Mar 2015 **Master of Science in Electronics**

University of Peshawar, Peshawar (Pakistan) http://www.uop.edu.pk/

Percentage= 76.9% (With Honor)

Specialized in communication networks and electronics. Worked on wireless sensor and mobile ad hoc networks as a final year project. Participated in many projects as a team leader and active member in many other projects.

Oct 2010–Sep 2012 **Bachelor of Science**

Abdul Wali Khan University, Mardan (Pakistan) https://awkum.edu.pk/

Percentage= 68.18%

Studies focused on Mathematics, Electronics, and Physics. Learned basics and advanced concepts in these subjects. Individually designed a project based on logic gates for hall entrance counter.

PUBLICATIONS

Conference

1. **Munsif Ali**, Leonardo Rossi, and Massimo Bertozzi. " *CoLoR-GAN: Continual Few-Shot Learning with Low-Rank Adaptation in Generative Adversarial Networks*." **Accepted**.
2. **Munsif Ali,** Leonardo Rossi, and Massimo Bertozzi. "*CFTS-GAN: Continual Few-Shot Teacher Student for Generative Adversarial Networks*." In International Conference on Pattern Recognition, pp. 249-262. Springer, Cham, 2025**.**

Journal

3. **Munsif Ali**, Anwar Khan, Massimo Bertozzi, Ubaid Ullah, Saleh M. Altowaijri, Ihsan Ali, and Salman Iqbal, *Energy and Path-Aware-Reliable Routing in Underwater Acoustic Wireless Sensor Networks,* Underwater Wireless Communications and Networks, 14, September 2022, ISSN: 1530-8669, PDF, doi:10.1155/2022/8535244.
4. **Munsif Ali**, Sahar Shah, Mahnoor Khan, Ihsan Ali, Roobaea Alroobaea, Abdullah M. Baqasah, Muneer Ahmad, "*MuLSi-Co: Multilayer Sinks and Cooperation-Based Data Routing Techniques for Underwater Acoustic Wireless Sensor Networks (UA-WSNs)",* Wireless Communications and Mobile Computing, vol. 2022, Article ID 4840481, 16 pages, 2022. https://doi.org/10.1155/2022/4840481
5. **Munsif Ali**, Anwar Khan, Hasan Mahmood, & Naeem Bhatti, (2019). *Cooperative, reliable, and stability-aware routing for underwater wireless sensor networks.* International Journal of Distributed Sensor Networks. https://doi.org/10.1177/1550147719854249
6. **Munsif Ali**, Anwar Khan, Khursheed Aurangzeb, Ihsan Ali, Hasan Mahmood, Syed Irtaza Haider, Naeem Bhatti: *CoSiM-RPO: Cooperative Routing with Sink Mobility for Reliable and Persistent Operation in Underwater Acoustic Wireless Sensor Networks*. Sensors 03/2019; 19(5):1101., DOI:10.3390/s19051101 (IF: 2.475)
7. Ubaid Ullah, Anwar Khan, Saleh M. Altowaijri, Ihsan Ali, Atiq Ur Rahman, Vijay Kumar V, **Munsif Ali**, Hasan Mahmood: *Cooperative and Delay Minimization Routing Schemes for Dense Underwater Wireless Sensor Networks*. Symmetry 02/2019; 11(2):195., DOI:10.3390/sym11020195 (IF: 1.256)
8. Jie, Yang; Leonidas, Lilian Asimwe; Mumtaz, Farhan; **Ali, Munsif**. 2021. "*Ship Detection and Tracking in Inland Waterways Using Improved YOLOv3 and Deep SORT*" Symmetry 13, no. 2: 308. https://doi.org/10.3390/sym13020308

PROFESSIONAL EXPERIENCE

Jun 2023- Oct 2023 — International Student Tutor University of Parma, Italy.

Activity to support European and international students requesting specific information for admission to a course of study of the University of Parma of the a.y. 2023/2024.

Aug 2018–April 2022 — Visiting Researcher

Sensor and Communication LAB, University of Peshawar (Pakistan)

I worked as a visiting researcher at the sensor and communication lab. I worked on cooperative communication, mobile sink algorithm, reliability, and stability enhancement for underwater acoustic wireless sensor networks. During this period, I have published research articles.

Aug 2017 – July 2019 — Senior Instructor

Barah Kaho Polytechnic College, Islamabad (Pakistan)

Taught subjects of digital electronics, analog electronics, mathematics, and the principle of electric circuits to the students to associate engineering students.

ADDITIONAL INFORMATION

Projects

- **Continual Image Generation**

  Deep leaning models are not able to retain the previous learned knowledge when learning a new

task. I have used an efficient adapter architecture for continual learning to avoid forgetting.

- **Object detection and recognition using MATLAB**

  I worked on object detection and recognition during M.Phil course work. I extracted different feature and used distance classifier for improving object detection and classification.

- **Solar tracking system using 8051 Microcontroller.**

  The 8051 Microcontroller with a stepper motor is used for tracking the solar panel to increase the electrical energy production.

Meetings and presentation

- **International Conference on Pattern Recognition (ICPR),** India, Kolkata, December 2024 – Poster presentation (remotely) on " *CFTS-GAN: Continual Few-Shot Teacher Student for Generative Adversarial Networks*."
- **Research Mobility** (November 2023 – January 2024) at SZABIST Islamabad, Pakistan.
- **Annual PhD research defence**, University of Parma, Italy April 2023 – Presenter
- **Annual PhD research defence**, University of Parma, Italy April 2024 – Presenter
- **PhD Seminar**, University of Parma, Italy March 2024 – Presenter
- **ACDL 2024**, 7th Advanced Course on Data Science & Machine Learning - 10 to 14 June 2024 – Attendee
- **DLCV** Deep Learning and Computer Vision School 2023 – 5th to 9th June 2023 – Attendee

Honours and awards

- Italian Government PhD scholarship April 2022 – April 2025
- M.Phil fellowship from Aug 2016 – Feb 2018
- Distinction award on securing the first position in bachelor program at the University of Peshawar, Pakistan, March 2015
- Awarded laptop through Prime Minister scheme, June 2015
- Fuiji Foundation talent scholarship, August 2015

Certifications

- Microsoft Office Specialist digital certificate of Microsoft Word and Microsoft Excel. (30 Dec 2017)
- Introduction to MATLAB for scientific data analysis certificate. (27 May 2017)
- Certificate of publication for the article titled: Cooperative and Delay Minimization Routing Schemes for Dense Underwater Wireless Sensor Networks. (Feb 2019)
- Certificate of publication for the article titled: Cooperative Routing with Sink Mobility for Reliable and Persistent Operation in Underwater Acoustic Wireless Sensor Networks. (March 2019)
- IEEE reviewer certificate (November 2020)

Languages

English (Advanced), Urdu (Advanced), Pashto (Native), Italian (basics)

Skills

Phyton, Pytorch, Deep Learning, GANs, Git Version, Latex, Research Writing

References

Prof. Dr. Massimo Bertozzi,
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Prof. Dr. Andrea Prati,
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