

# MUHAMMAD HUZAIFA

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## EDUCATION

### Mohamed Bin Zayed University of Artificial Intelligence (MBZUAI)

Abu Dhabi, UAE

Master of Science (M.Sc.) in Machine Learning, GPA - 3.73/4.00

Aug 2022 – May 2024

- Advisor: [Prof. Fahad Khan](#) Co-Advisor: [Prof. Salman Khan](#)
- Thesis title: Resilience of Vision-Language Models on Object-to-Background Compositional Changes ([link](#))

### National University of Science and Technology (NUST)

Islamabad, Pakistan

Bachelor of Science (B.Sc.) in Electrical Engineering, GPA - 3.26/4.00

Sept 2017 – Aug 2021

- Advisor: [Prof. Latif Anjum](#) Co-Advisor: [Prof. Mansoor Asif](#)
- Thesis title: Gesture to speech recognition system for specially-abled people

## RESEARCH INTERESTS

- Representation Learning of discriminative and generative Multimodal models (VLMs, LMMs), Efficiency
- Zero-Shot and few-shot adaptation, Semi-Supervised, Self-Supervised Learning, Continual Learning

## PUBLICATIONS

\* indicates Equal Contribution

- P Gavrikov, W Lin, M.J Mirza, S Jahagirdar, [Muhammad Huzaifa](#), S Doveh, J Glass, H Kuehne **VisualOverload: Visual Reasoning in Complex Scenes** | *under review*
- [Muhammad Huzaifa](#), Y. Kementchedjhieva. **EFSA: Episodic Few-Shot Adaptation for Text-to-Image Retrieval.** *ICCV 2025 Workshop on Closing the Loop between Vision & Language* | [Paper](#)
- [Muhammad Huzaifa](#)\*, HS Malik\*, M Naseer, S Khan, FS Khan, **ObjectCompose: Evaluating Resilience of Vision-Based Models on Object-to-Background Compositional Changes** *ACCV-2024 (Oral, Top 5.6%)* | [Paper](#) [Code](#)
- R Imam, H Ghani\*, [Muhammad Huzaifa](#)\*, K Nandakumar, **Test-Time Low Rank Adaptation via Confidence Maximization for Zero-Shot Generalization** *WACV-2025* | [Paper](#) [Code](#)
- [Muhammad Huzaifa](#)\*, R Imam\*, MEA Azz, **On enhancing the robustness of Vision Transformers: Defensive Diffusion** *MIUA 2023* | [Paper](#) [Code](#)
- R Imam, [Muhammad Huzaifa](#), N Mansour, SB Mirza, F Lamghari, **Domain Adaptable Fine-Tune Distillation Framework For Advancing Farm Surveillance** | [Paper](#) [Code](#)

## RESEARCH EXPERIENCE

### Tubingen AI Center, University of Tubingen

Mar 2025 – Aug 2025

Researcher

Tubingen, Germany

- Advisor / Line Manager [Prof. Hilde](#): Worked on Large Vision Language Models

### Vision and Language Lab, MBZUAI

May 2024 – Mar 2025

Research Associate II

Abu Dhabi, UAE

- Advisor / Line Manager [Prof. Yova](#): Proposed a few-shot adaptation strategy to tackle hard negatives in text-to-image retrieval for vision-language models under both open-domain and closed-domain settings (ICCV-W 2025)

### Intelligent Visual Analytics Lab, MBZUAI

Aug 2022 – May 2024

Graduate Research Assistant

MBZUAI, Abu Dhabi

- Advisor / Line Manager [Prof. Fahad](#): Proposed a novel defense against attack-agnostic adversarial attacks using the denoising capabilities of diffusion models (MIUA 2023)
- Developed a new benchmark to systematically evaluate the robustness of vision-language models against object-to-background compositional changes (ACCV 2024)

### Fujairah Research Center

May 2023 – Aug 2023

Visiting Researcher

Fujairah, UAE

- Proposed a two-stage framework combining automated annotation and knowledge distillation to develop a lightweight YOLOv8 model for real-time camel farm monitoring using surveillance video data.

## WORK EXPERIENCE

### Techlogix

Mar 2022 – June 2022

*Application Consultant*

*Lahore, Pakistan*

- Assisted in customer query resolution through a streamlined tracking system, generated MIS reports based on business requirements, and supported the deployment and maintenance of core banking applications.

### ProntoDigital

Nov 2021 – Feb 2022

*Digital Data Analytics Consultant*

*Lahore, Pakistan*

- Implemented website tracking using Google Analytics and Tag Manager, delivering custom reports that empowered clients to optimize strategies and drive sales growth.

## TEACHING & ACADEMIC SERVICES

**Teaching Assistance** | *MBZ University of Artificial Intelligence (MBZUAI), Abu Dhabi*

- Deep Learning (AI702) Spring 2024 with [Prof. Haris Khan](#)
- Introduction to Machine Learning (ML701) – Fall 2023 with [Prof. Rao Anwar](#)
- Foundations of Artificial Intelligence – Fall 2023 with [Prof. Samuel Horvath](#)

**Conference Reviewing** | *Reviewer*

- ECCV'24, WACV'25, CVPR'25, WACV'26

**Conference Volunteer** | *EMNLP 2022, Abu Dhabi, UAE*

- Volunteered at the EMNLP 2022 conference, assisting with on-site logistics and coordination tasks.

## HONOURS & AWARDS

- Honorable mention by MBZUAI for my research contributions during masters degree ([link](#))
- [ObjectCompose](#), my master's thesis, received the **Best Student Paper Honorable Mention Award** at **ACCV**. **2024**
- [Defensive Diffusion](#) nominated for the best Paper award, under Abstract Category, at 27<sup>th</sup> Conference on MIUA **2023**
- Secured **Fully Funded Scholarship** for Graduate School at MBZUAI for MS program in Machine Learning **2022**
- Recognized as 2<sup>nd</sup> best undergraduate project in Electrical Engineering at NUST **2021**
- Finalist of [Crossroads Emerging Leadership](#) Program, organized By Harvard University **2021**

## SKILLS

**Programming Languages:** Python(Advanced), C/C++ (basic), C# (basic), Java (Basic)

**Machine Learning Frameworks:** : PyTorch, TensorFlow, Keras, Scikit-Learn, OpenCV, HuggingFace

**Development Tools:** Git, VS Code, Visual Studio, PyCharm, Linux

**Languages:** English (Expert), Hindi (Native), Urdu (Native)

## EXTRACURRICULAR AND SOCIAL ACTIVITIES

**Crossroads Emerging Leaders Program (CELP)** | *Finalist, Harvard Business School*

- A Harvard-led global initiative aimed at empowering college students through academic development, mentorship, and exposure to entrepreneurial thinking. Worked in a diverse team to design scalable solutions for underdeveloped economies, applying principles of entrepreneurship learned through the program..

**Walee** | *Campus Ambassador*

- Led university seminars to promote platform awareness, ran social media campaigns to drive engagement and sales, and collaborated with the product team to inform feature improvements based on user experience.

## REFERENCES

- ✉ [Fahad Khan \(MBZUAI, Linkoping university\)](#)
- ✉ [Muhammad Haris Khan, \(MBZUAI\)](#)
- ✉ [Salman Khan \(MBZUAI, Australian National University\)](#)
- ✉ [Yova Kementchedjhieva, \(MBZUAI\)](#)