Tufail Sajjad Shah Hashmi

Lecturer (Computer Science) and Researcher (AI & Computer Vision - iVision Lab), Institute of Space Technology, Islamabad, Pakistan.

Research interests: Computer Vision, Deep Learning, Machine Learning, AI & Data Science

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EDUCATION

2018 - 2021	**MS.,** National University of Sciences and Technology, Islamabad, Pakistan Major: Computer Science., **First Class Honors** Thesis title: Automated Detection of Weapons in Surveillance Data
2013- 2017	**BS.,** COMSATS University, Abbottabad, Pakistan Major: Software Engineering., **First Class Honors** Undergraduate Final Project: Image Steganography

WORK EXPERIENCE

Sept 2021	**Researcher | AI & Computer Vision - iVision Lab | Institute of Space Technology (IST), Islamabad**
	> **Conducting Research Projects**
	   > Supervising funded projects from different organizations & industries
	> **Mentoring Graduate Students**
	   > Mentoring BS and MS students

Sept 2021	**Lecturer | Institute of Space Technology (IST), Islamabad**
	> **Undergraduate Teaching**
	   > Introduction to Information Technology (IIT)
	   > Programming Fundamentals (PF)
	   > Object Oriented Programming (OOP)
	   > Data Structure and Algorithms (DSA)
	> **Administration**
	   > Batch Coordinator for BS Computer Science Program

March 2021 August 2021	**Computer Vision Engineer | Apptrick, Islamabad** > Implementation of OpenCv related tasks > Training of real-time object detection models > Evaluation of Platform compatibility with AI applications
March 2020 March 2021	**Researcher | Machine Vision & Intelligent Systems Lab, NUST Islamabad** > Conduction research and developing prediction models for real world scenarios > Supervising the Research Assistants and MS students in research conduction > Developing tools to address the models
Dec 2019 Feb 2020	**Android Developer | Vyro, NSTP, NUST, Islamabad** > Developed Android Applications

Sept 2018
 	
Feb 2019
	Software Developer | Erudite Solutions
	   > Testing and validation
	  > Play Store Management

Research Publications

> Published/Accepted:

1. N. U. Haq, M. M. Fraz, **T. S. S. Hashmi** and M. Shahzad, "Orientation Aware Weapons Detection in Visual Data: A Benchmark Dataset" in Springer Computing, 2022. **(IF: 2.42)**

2. **T. S. S. Hashmi**, N. U. Haq, M. M. Fraz and M. Shahzad, "Application of Deep Learning for Weapons Detection in Surveillance Videos," 2021 IEEE International Conference on Digital Futures and Transformative Technologies (ICoDT2), 2021, pp. 1-6, doi: 10.1109/ICoDT252288.2021.9441523. **(WoS indexed conference)**

3. N. U. Haq, **T. S. S. Hashmi**, M. M. Fraz and M. Shahzad, "Rotation Aware Object Detection Model with Applications to Weapons Spotting in Surveillance Videos," 2021 IEEE International Conference on Digital Futures and Transformative Technologies (ICoDT2), 2021, pp. 1-6, doi: 10.1109/ICoDT252288.2021.9441538. **(WoS indexed conference)**

4. Osama Rasheed, Adam Ishaq, Muhammad Asad and **T. S. S. Hashmi**, "Multiplatform Surveillance System for Weapon Detection using YOLOv5," 2022 IEEE International Conference on Emerging Technologies (ICET). **(WoS indexed conference)**

HONORS/ACHIEVEMENTS

- **Senior Member** at "Saddle Club" NUST
- **Awarded** Certificate of participation in 1ST National Artificial Intelligence Seminar
- **Awarded** Certificate of participation in International Conference (ICoDT2)
- **Organizer** at "Techno Moot" NUST (2018)
- **USHER** at "Vision ICT 15" Comsats University (2015)
- **USHER** at "Vision ICT 14" Comsats University (2014)
- **Event Coordinator** at "Soft Society" Comsats University (2015-2017)
- **Winner** of 2nd All D.I.Khan Declamation Contest (2012)
- **Awarded** Certificate for "First Aid Training" from Red Crescent Society.
- **Event Coordinator** at WENSAM College D.I.Khan (2010-2012)

RESEARCH PROJECTS

Present	**Area:** Computer Vision & Machine Learning/Deep Learning. "*Forgery Detection in Exams using Machine Learning/Deep Learning*". This project work focuses on different types of forgeries detection in exams using the deep or machine learning technique. Different models will be trained for different types of forgeries.
MS Thesis	**Area:** Computer Vision & Deep Learning "*Automated Detection of Weapons in Surveillance Data*". This research work focuses on the detection of weapons in CCTV and other real time surveillance systems. Algorithms: YOLO, Faster-RCNN, SSD Annotation Tool: roLabelImg

FYP	*"Image Steganography"*. This project was an android application that hides the data in an image. To solve the problem, we use the LSB (least Significant Bit) technique. Take the image pixels and encrypt the message with these pixels and decrypts the message. HW/SW used: Android device, Android Studio, Java.
Sem III	*"Voting Application"*. This project was a desktop application used for vote casting. In this application users access the system through their username and password and cast the vote after given time the system count the vote and show the result. HW/SW used: NetBeans, JAVA.
Sem I	*"Army Recruitment and Selection Process"*. This project contains the information about selection process. HW/SW used: C++.

SKILLS & CERTIFICATIONS

Python, Image processing, Opencv, Data Annotation, Data format conversion, Image scraping, Matplotlib, Jupyter Notebook, Anaconda, C++, Java, Android Development, HTML, CSS, MSOffice.

International Certification Includes:

➢ Computer Vision - Image Basics with OpenCV and Python, Coursera Project Network.
➢ Computer Vision - Object Detection with OpenCV and Python, Coursera Project Network.
➢ Computer Vision - Object Tracking with OpenCV and Python, Coursera Project Network.
➢ Computer Vision: Neural Transfer Style & Green Screen Effect, Coursera Project Network.

66 REFERENCE(S)

Dr. Khurram Khurshid
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Dr. Muhammad Moazam Fraz
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