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

stufail110@gmail.com | tufail.sajjad@ist.edu.pk | Web Portfolio | 92-333-9968108

Tufail Shah Tufail Sajjad Shah Hashmi Tufail Sajjad Shah Hashmi Tufail Sajjad Shah Hashmi

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

March 2022 – July 2022 | **Deputation Lecturer | Pakistan Institute of Engineering & Applied Sciences (PIEAS), Islamabad**
> Undergraduate Teaching
> Data Structure and Algorithms (DSA)

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)
> Software Engineering (SE)
> Mobile Application Development (MAD)
> Computer Vision (CV)
> 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 DetectionModel 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

- **Faculty Patron** ACM at IST
- **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.** ***"Multimodal Weapons Detection for Surveillance System"*** ***"Eye Care with Refractive Error Detection"*** ***"Vehicle detection, navigation, and tracking through UAV's"***
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, SSDAnnotation 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 aboutselection 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.

REFERENCE(S)

Dr. Khurram Khurshid

Professor & Head, Department of Electrical Engineering & Computer Science, Institute of Space Technology, Islamabad.

Director | AI & Computer Vision lab (iVision)Email:
khurram.khurshid@ist.edu.pk

Web: https://ist.edu.pk/khurram-khurshid

Dr. Muhammad Moazam Fraz

Senior Head of Department & Associate Professor, Department of Computing, School of Electrical Engineering and Computer Science (SEECS), National University of Science and Technology (NUST), NUST Campus H-12, Islamabad.

Email: moazam.fraz@seecs.edu.pk Web:
http://vision.seecs.edu.pk/