Faisal Hussain

ABOUT ME

Computer Engineer, Distinguished young researcher having 19 publications, h-index of 14, 850+ citations, 5+ years of experience and passion to work and teach in areas of artificial intelligence (AI), cybersecurity and, healthcare systems.

CONTACT INFORMATION

Phone: +92-314-6190979 **Email:** *faisal.hussain.engr@gmail.com*

Present Address: Street # 8, Niaz Town, near Bilal Chowk Old Shuja Abad Road, 60000, Multan, Punjab, Pakistan

Google Scholar Profile *1 **LinkedIn Profile** *2

WORK EXPERIENCE

Software Engineer Feb 2022 – Sep 2022

at: SOCO Engineers GmbH, Lahore, Pakistan

Key Responsibilities:

- Worked on Python-based Desktop Applications Development for the Automotive Industry.
- Designing and coding unit tests and mock tests to validate the working of software applications.

Senior Research Officer July 2020 – Jan 2022

at: Al-Khawarizmi Institute of Computer Science (KICS), University of Engineering and Technology (UET), Lahore, Pakistan

Key Responsibilities: Planning, Working and Managing the Research and Development tasks regarding Internet of Things (IoT) Security, Intrusion Detection System and Artificial Intelligence.

- Developed and improved Machine Learning Models for detecting cyber-attacks on IoT devices mainly worked on Intrusion detection system.
- Integrated the developed Machine Learning Models in Firewall deployed in real-time network.
- Manual & Automated Testing of Firewall (Stress Testing, Features Testing).
- Writing, reviewing, and presenting research papers.
- Writing research proposals for future projects.

Research Officer Sep 2018 – June 2020

at: Al-Khawarizmi Institute of Computer Science (KICS), University of Engineering and Technology (UET), Lahore, Pakistan

Key Responsibilities: Research and Development regarding Artificial Intelligence, IoT Security, Intrusion Detection System, and Healthcare Systems' Security.

*1 https://scholar.google.com/citations?user=yQ0pnKEAAAAJ&hl=en

*2 https://www.linkedin.com/in/imfaisal/

- Developed Machine Learning and Deep Learning Models for the detection of IoT attacks like Botnet, DoS, and DDoS attacks.
- Integrated the developed Machine Learning Models in Firewall deployed in real-time network.
- Worked on writing security rules for intrusion detection systems (IDS).
- Developed IoT Traffic Generator Tool for generating IoT Use Case based device traffic over a real-time network.

Teaching Assistant Aug 2018 – Aug 2020

Computer Engineering Department, University of Engineering and Technology, Taxila, Pakistan

Courses: Digital System Design, Micro Computer Systems, Computer Architecture, Introduction to Computers, & Computer Programming

EDUCATION AND TRAINING

Google Data Analytics Professional Certificate (8 Courses) Dec 2022 - Jun 2023

from: Google offered through Coursera

Machine Learning Specialization (3 Courses) Nov 2022 - Jan 2023

from: DeepLearning.AI & Stanford University offered through Coursera

MSc Computer Engineering 2016 - 2018

from: University of Engineering and Technology, Taxila, Pakistan

CGPA: 3.50 / 4.00

Thesis: *"Activity-Aware Fall Detection and Recognition Using Wearable Sensors"*

Summary: Applied various Machine Learning Techniques to detect fall incidents and recognize the falling pattern associated with daily life activities of elderly people.

Published a conference paper in UbiComp'18 and a journal article in IEEE Sensors.

BSc Computer Engineering 2012 - 2016

from: University of Engineering and Technology, Taxila, Pakistan

CGPA: 3.26 / 4.00

Final Year Project: *"Falling Detection Device for Elderly People"*

Summary: Designed and developed a wearable device prototype to detect fall activity of elderly people using an Accelerometer, Gyroscope, GSM, and AVR microcontroller.

AWARDS & HONORS

Distinguished Young Scholar (H-index: 14, Citations: 850+) 2018 - 2023

published 19 Research Articles (10 journal articles & 9 conference papers) in prestigious international Conferences and Journals including IEEE, ACM, Elsevier, and MDPI.

TPC Member & Reviewer 2019 - 2023

at Mobiquitous 2021, EAI PervasiveHealth 2021, IEEE ICTS4eHealth 2021, IEEE ICECE 2022, IEEE ICECE 2021, IEEE ICOSST 2023, IEEE ICOSST 2022, Elsevier CIBM Journal, IEEE Access Journal

Best Paper Award 2018

at International Conference on Sensor Device Technologies and Applications, SENSORDEVICES 2018, Italy

Fully funded Scholarship to pursue MSc in Computer Engineering at UET Taxila 2016 - 2018

RESEARCH INTERESTS

Artificial Intelligence, Internet of Things (IoT) Security, Intrusion Detection Systems, Healthcare Systems

SELECTED PUBLICATIONS

Hussain, Faisal, et al. "A Two-fold Machine Learning Approach to Prevent and Detect IoT Botnet Attacks." IEEE Access (2021).

Hussain, Faisal, et al. "A Framework for Malicious Traffic Detection in IoT Healthcare Environment." Sensors 21, no. 9 (2021): 3025.

Abbas, S. G., Vaccari I., **Hussain F.**, et al. "Identifying and Mitigating Phishing Attack Threats in IoT Use Cases Using a Threat Modelling Approach." Sensors 21, no. 14 (2021): 4816.

Hannan, Abdul, **Faisal Hussain**, et al. "A decentralized hybrid computing consumer authentication framework for a reliable drone delivery as a service." Plos one 16, no. 4 (2021): e0250737.

Ali, Z., **Hussain, F.**, et al. "A Generic Machine Learning Approach for IoT Device Identification." 2021 International Conference on Cyber Warfare and Security (ICCWS). IEEE, 2021.

Hussain, Faisal, et al. "Towards a universal features set for IoT botnet attacks detection." 2020 IEEE 23rd International Multitopic Conference (INMIC). IEEE, 2020.

Hussain, Faisal, et al. "IoT DoS and DDoS attack detection using ResNet." 2020 IEEE 23rd International Multitopic Conference (INMIC). IEEE, 2020.

Abbas, S. G., **Hussain, F**., et al. "IoT-flock: An open-source framework for IoT traffic generation." 2020 IEEE International Conference on Emerging Trends in Smart Technologies (ICETST). IEEE, 2020.

Abbas, S. G., Zahid, S., **Hussain, F**., et al. "A threat modelling approach to analyze and mitigate botnet attacks in smart home use case." 2020 IEEE 14th International Conference on Big Data Science and Engineering (BigDataSE). IEEE, 2020.

Hussain, Faisal, et al. "Activity-aware fall detection and recognition based on wearable sensors." IEEE Sensors Journal 19, no. 12 (2019): 4528-4536.

PROFESSIONAL AFFILIATIONS

Member of Pakistan Engineering Council (PEC) 2016 - Present
Registration # COMP/13274

COMPUTER SKILLS

Software Programming Languages	• Python (Libraries: numpy, pandas, matplotlib, sklearn, tensorflow) • C++, Java, R (Basic) • PostgreSQL, SQL, SQLite, BigQuery • HTML, CSS, Javascript, PHP (Basic)
Technical Skills	• Machine Learning & Deep Learning • Exploratory Data Analysis (EDA), Data Wrangling, Data Visualization • Research Articles Writing
Tools & OS	• VS Code • Spyder, Jupyter Notebook • MATLAB • Eclipse • SQL Server • Overleaf/Latex • Pycharm • Git, GitHub • Arduino IDE • Ubuntu, CentOS, Windows • Microsoft Office • RStudio, Tableau

COMMUNICATION AND INTERPERSONAL SKILLS

Transferable Skills

- **Active team player** as I was involved in a team of 20 people in a research center.
- Gained sufficient **leadership skills** while I was leading my research project.

Scientific Communication Skills

- **Scientific Writing:** I had the opportunity to write several reports, research articles, and critical reviews which developed my critical thinking.
- **Oral Presentation:** I had the opportunity to present research work at several conferences communicating through oral presentations.

Collaborative Skills

- During my job, I had the opportunity to collaborate with my team and other teams.
- Also, I have a research collaboration with a team of international researchers in Portugal.

LANGUAGE SKILLS

Urdu: Native Language

English: Proficient

Listening: B2 **Reading:** C1 **Writing:** C1

Spoken Production: C1 **Spoken Interaction:** B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user