

# Muhammad Furqan Zia

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## Work Experience

**Antalya Bilim University- WISLAB for Wireless Research (Antalya, Turkey)    Researcher    (Oct 2018– June 2021)**

- Worked on a research project funded by Scientific and Technological Research Council of Turkey "TÜBİTAK" to enhance the security and reliability of future communication networks.
- Devising novel Physical Layer Security (PLS) Techniques for 6G and Beyond Communication Networks.
- Invented multiple new advanced small-scale NOMA Schemes for Enhancing Communication Security and Reliability of Future Low-complexity, Massive Machine-Type Communications.
- Developed mathematical equations for the design of novel advanced security schemes that are suitable for IoT-based applications.
- Wrote MATLAB codes for our designed models and schemes.
- Published multiple research articles, conference paper, journal papers and patents.
- My recently published research paper is cited by major labs working in this domain.

## Education

M.S.	Antalya Bilim University, Turkey	Electrical & Computer Engineering ( Majoring in Wireless Communication )	January 2021
B.E.	DHA Suffa University, Pakistan	Electrical Engineering	June 2017

## Academic Projects

**Research Project funded by Scientific and Technological Research Council of Turkey (TÜBİTAK)**

**Project Name:** *Advanced small-scale NOMA Schemes for Enhancing Communication Security and Reliability of Future Low-complexity, Massive Machine-Type Communications.*

- Invented multiple novel security techniques based on non-orthogonal transmission for Future Wireless Communication Networks, which was also presented at SoftCom 2020 conference organized by the University of Split in Hvar, Croatia.

**Advanced Non-Orthogonal and Deep Learning based Communication Techniques for Future Wireless Communication systems. (Master Thesis)**

- Developed a novel security technique based on MISO-NOMA systems for Future Wireless Communication Networks, which is capable to provide security against external and internal eavesdropping with no processing power required.
- Implemented deep learning algorithm for channel estimation of OFDM systems, capable to be adopted by wireless networks in small-scale area.
- My detailed presentation about this work is available at <https://www.youtube.com/watch?v=iHREcm6qio0&t=896s>

## Publications and Patents

- M. F. Zia and J. Hamamreh, "An advanced NOMA security technique for future wireless communication," Workshop on Information and Communications technologies, International **Conference** on Software, Telecommunications and Computer Networks (SoftCOM2020), 17-19 Sep 2020.
- Zia, M. F., & Hamamreh, J. M. (2020). An Advanced Non-Orthogonal Multiple Access Security Technique for Future Wireless Communication Networks. *RS Open Journal on Innovative Communication Technologies*.  
<https://doi.org/10.46470/03d8ffbd.19888ce7>

- Zia, M. F., Furqan, H. M., & Hamamreh, J. M. (2021). Multi-cell, Multi-user, and Multi-carrier Secure Communication Using Non-Orthogonal Signals' Superposition with Dual-Transmission for IoT in 6G and Beyond. *RS Open Journal on Innovative Communication Technologies*. <https://doi.org/10.46470/03d8ffbd.08b7bd1d>
- Muhammad Furqan Zia and Jehad M. Hamamreh - **Patent (ACCEPTED)**  
" A Communication System with Multiple-Input Single-Output Non-Orthogonal Multiple Access (MISO-NOMA) system and its Communication Method.
- Muhammad Furqan Zia and Jehad M. Hamamreh - **Patent (PENDING)**  
"Single-Cell and Multi-Cell Secure Communication using Non-Orthogonal Signals Superposition with Dual Transmission for IoT in Next Generation Communication Networks".
- Muhammad Furqan Zia and Jehad M. Hamamreh - **Patent (PENDING)**  
" Ultimate Information Secrecy for Transparent Downlink-Uplink IoT Communication systems".

## Technical Skills

<b>Software</b>	MATLAB, Latex, Proteus, Multisim, LT-Spice, SPSS, P-Spice.
<b>Programming</b>	HTML, CSS, JavaScript, SQL, PHP.
<b>Hardware</b>	Circuit Designing, PCB, Microcontrollers, Arduino.
<b>Other Skills</b>	Research & Development, Project Management, Research Writing.

## Achievements

- Got fee waiver along with **TÜBİTAK** scholarship for my research during master's degree at Antalya Bilim University.
- Got selected for **Erasmus Training Program (Summer 2019)** in Europe by Antalya Bilim University, Turkey \*(Passed)
- Winner of **Robocamp "ROBOSPRINT"** competition held in summer 2015 at PAF-KIET University, Karachi.
- Got several Awards for winning Quiz competitions, Sports competitions, Athletics, and Science projects.

## Trainings

- Attended **EBSCO Database and Management** training organized by Antalya Bilim University, Turkey.
- Attended 2 months long training program titled "**Industrial Automation and Controls**" from Automators (Pvt.) Ltd.: DCS, PLC, SCADA, HMI Panel, Instrumentation and Industrial Communication, VFD based motor speed control.
- Attended **Robotics** workshop by PAF-KIET university(August, 2015), Pakistan.
- Attended workshop on **Soft Skills** organized by DHA Suffa University, Pakistan.

## English Language Scores

TOEFL iBT - 80

IELTS (British Council) - 6.0