



# Muhammad Ibrahim

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## ABOUT ME

An experienced **Electrical/Electronic Engineer and Researcher** focused on biomedical solutions for healthcare. I have managed and completed major construction projects in Pakistan and contributed to research and development in FPGA devices for cancer detection and machine learning for Type 1 diabetes management. Known for my ability to integrate seamlessly into multicultural environments, I bring a detail-oriented and driven approach to solving complex problems, supported by strong communication skills.

## WORK EXPERIENCE

[ 09/2021 – Current ]

### Predoctoral Researcher

**Modeling, Identification & Control Engineering Lab**

City: Girona | Country: Spain

#### Project: TAILOR

Patient-TAILOREd solutions for blood glucose control in type 1 diabetes (TAILOR)

**Funded by:** Spanish Ministry of Science & Innovation

#### My Role:

- Modelling & simulation of patients with type 1 diabetes in MATLAB and Python
- Developed an ensemble machine learning-based control algorithm for automated meal detection
- Academic research & writing

**Programming Language:** MATLAB (50%), Python (50%)

**Keywords:** *machine learning, scikit-learn, artificial pancreas, type 1 diabetes*

[ 11/2019 – 04/2021 ]

### Academic Coordinator

**CECOS University of IT & Emerging Sciences**

City: Peshawar | Country: Pakistan

#### Programs:

I served as an academic coordinator for the following two bachelor's programmes:

1. Bachelor in Technology (Electrical)
2. Bachelor in Technology (Mechanical)

#### My Role:

Led curriculum development and assessment aligned with educational standards, managed academic scheduling and resource allocation and ensured compliance with accreditation standards. Successfully obtained National Technology Council (NTC) accreditation for both programs, and facilitated communication between faculty, students, and administration at the university.

**Keywords:** *program coordination, team management, academic administration, performance evaluation*

[ 11/2018 – 04/2021 ]

### Laboratory Engineer

**CECOS University of IT & Emerging Sciences**

City: Peshawar | Country: Pakistan

#### My Role:

- Instructed Communication Systems Lab, Electronics Devices and Circuits Lab, Linear Circuit Analysis Lab, Embedded Systems Lab, and Digital Logic Design Lab for the

Department of Electrical Engineering, focusing on practical applications and experiments.

- Enhanced student understanding of complex theories through direct laboratory engagement and tailored instructional techniques.

**Software Used:** HFSS, ADS, MATLAB, Proteus Design Suite, NI Multisim

**Keywords:** *antenna design, electronics circuit design, student mentoring, technical training*

[ 12/2017 – 12/2018 ] **Electrical Project Engineer**

**Famous Electric Company**

**City:** Karachi | **Country:** Pakistan

**My Role:**

Managed technical aspects of major construction projects, including planning, resource allocation, and supervising installations of electrical distribution boards, data cabling, and UPS systems, ensuring on-time completion and compliance with technical standards and client specifications.

**Software Used:** AutoCAD, MS Office

**Keywords:** *project management, supervision, team leadership, technical documentation, cost management*

## EDUCATION AND TRAINING

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[ 09/2021 – Current ] **PhD in Electrical, Electronic and Automatic Engineering**

**University of Girona**

**Country:** Spain |

Expected completion: September 2024

[ 10/2018 – 10/2020 ] **Masters in Electrical Engineering**

**CECOS University of IT & Emerging Sciences**

**Country:** Pakistan | | **Final grade:** CGPA 3.75/4.00 (Cum Laude) | **Thesis:** A Fast Mutation Detection System for Cancer Prevention on FPGA

[ 09/2013 – 09/2017 ] **Bachelors in Electrical Engineering**

**CECOS University of IT & Emerging Sciences**

**Country:** Pakistan | | **Final grade:** CGPA 3.85/4.00 (Cum Laude) | **Thesis:** Pattern Recognition Through a CAM-based Information Detection Hardware

## DIGITAL SKILLS

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**My Digital Skills**

**Programming Languages**

Python | MATLAB | LabVIEW | C | C++ | Verilog

**Web Development**

HTML | CSS | Weebly | WordPress

**Digital Typesetting**

LaTeX

**Development Tools**

Git

**Miscellaneous**

PyQT GUI Design | Xilinx - ISE | Arduino | Raspberry Pi | CubeIDE | Proteus | PowerPoint (Expert Level)

## PROJECTS

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[ 09/2019 – 09/2020 ] **Load Stability Robot**

Supervised the 'Load Stability Robot' project at CECOS University, Pakistan, which secured funding from the Ignite NGIRI FYP Fund 2020

[ 06/2018 – 12/2018 ] **Rehman Medical College, Hayatabad, Peshawar, Pakistan**

Led the electrical installations for Rehman Medical College's extension in Peshawar, overseeing the setup of electrical distribution boards, data server racks, data and power cable laying and termination, and UPS systems.

**My Role:** Electrical Project Engineer

**Company:** Famous Electric, Karachi, Pakistan

[ 12/2017 – 12/2018 ] **Coronet Food (Pvt) Limited, Hattar Industrial Estate, Haripur, Pakistan**

Led the completion of a new production block project at Coronet Food (Pvt) Limited, Hattar, Haripur. Responsibilities included supervising the installation of electrical distribution boards, data cabling, and uninterruptible power supplies (UPS)

**My Role:** Electrical Project Engineer

**Company:** Famous Electric, Karachi, Pakistan

[ 03/2017 – 09/2017 ] **Pattern recognition through a CAM based information detection hardware**

This work proposed an alternative way to design a content-addressable memory (CAM) using existing resources of a field-programable gate array (FPGA) device.

## HONOURS AND AWARDS

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[ 09/2021 ] **AGAUR FI 2021 - Research Grant Awarding institution:** Agency for Management of University and Research Grants (AGAUR)

Merit scholarship from AGAUR for PhD studies

[ 02/2020 ] **Ignite NGIRI FYP Fund 2020 Awarding institution:** Ignite - National Technology Fund

A final year project (FYP) named 'Load Stability Robot' under my supervision received funding from the National Grassroots ICT Research Initiative (NGIRI) 2020, sponsored by the Ignite - National Technology Fund.

[ 09/2017 ] **Gold Medal Awarding institution:** CECOS University of IT & Emerging Sciences

Completed bachelor in electrical engineering with distinction (Cum Laude)

[ 09/2013 ] **Merit Scholarship Awarding institution:** CECOS University of IT & Emerging Sciences

Received a merit scholarship for the highest CGPA in the BSc Electrical Engineering program, session 2013–2017.

## PUBLICATIONS

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[ 2024 ] [\*\*An ensemble machine learning approach for the detection of unannounced meals to enhance postprandial glycemic control\*\*](#)

**Ibrahim, Muhammad**, Aleix Beneyto, Ivan Contreras, and Josep Vehi. "An ensemble machine learning approach for the detection of unannounced meals to enhance postprandial glucose control." *Computers in Biology and Medicine* (2024): 108154.

[ 2023 ] [\*\*Faults And Fault Tolerance In Automated Insulin Delivery Systems With An Emphasis On Human-In-The-Loop\*\*](#)

**Ibrahim, Muhammad**, Aleix Beneyto, Ivan Contreras, and Josep Vehi P hD. "Faults And Fault Tolerance In Automated Insulin Delivery Systems With An Emphasis On Human-In-The-Loop." *IFAC-PapersOnLine* 56, no. 2 (2023): 11503-11514.

[ 2021 ] [\*\*An FPGA-Based Accelerated Mutation Detection System for the Tumor Suppressor Gene\*\*](#)

**Ibrahim, Muhammad**, Omer Mujahid, Najib Ur Rehman, Azhar Qazi, Zahid Ullah, and Tama Fouzder. "An FPGA-based accelerated mutation detection system for the tumor suppressor gene." *IEEE Access* 9 (2021): 164542-164550.

[ 2020 ] [A Wearable Millimeter Wave MIMO Antenna Design For High Frequency Applications](#)

Shafeeq, Muhammad, **Muhammad Ibrahim**, Zahid Ullah, Abdul Hafeez, and Tama Fouzder. "A wearable millimeter wave MIMO antenna design for high frequency applications." In *2019 International Conference on Advances in the Emerging Computing Technologies (AECT)*, pp. 1-4. IEEE, 2020.

[ 2020 ] [Power Efficient FPGA-based TCAM Architecture by using Segmented Matchline Strategy](#)

Rehman, Najib Ur, Omer Mujahid, Zahid Ullah, Abdul Hafeez, Tama Fouzder, and **Muhammad Ibrahim**. "Power efficient FPGA-based TCAM architecture by using segmented matchline strategy." In *2019 International Conference on Advances in the Emerging Computing Technologies (AECT)*, pp. 1-4. IEEE, 2020.

## LANGUAGE SKILLS

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**Mother tongue(s):** Pashto

**Other language(s):**

**English**

LISTENING C1 READING C1 WRITING C2

SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1

**Spanish**

LISTENING A1 READING A1 WRITING A1

SPOKEN PRODUCTION A1 SPOKEN INTERACTION A1

**Urdu**

LISTENING C2 READING C2 WRITING C1

SPOKEN PRODUCTION C2 SPOKEN INTERACTION C2

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

## REFERENCES

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Can be provided when needed