Dr. Muhammad Zubair

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Electrical Engineering Department,
College of Engineering,
Majmaah University, Saudi Arabia.

Education:

Qualification	University	Year
PhD Mechatronics Engineering	Jeju National University, South Korea	**2011~2014**
Thesis Title: Fabrication and Characterization of Organic Light Emitting Diodes based on Printed Electronic Approaches		
MS Electrical Engineering	University of Engineering & Technology Taxila, Pakistan	**2007~2010**
Thesis Title: Land Mine Detecting Robot capable of Path Planning		
BE Mechatronics Engineering	National University of Sciences and Technology, Pakistan	**2002~2006**
Project Title: Design and Fabrication of a Programmable 5-DOF Autonomous Robotic Arm		

Experience:

Oct 2015 ~ Till now — **Majmaah University, Saudi Arabia** — **Assistant Professor**

Undergraduate Courses: Electrical Instrumentation and Measurement, Digital Logic Design, Applied Control, General Physics, Electrical Measurements & Control Lab, Machine Lab, Physics Lab, Machine Lab, Microcontroller Lab, Electronic Devices, Electric Machines
Member: Quality Steering Committee, College of Engineering
Member: Quality Assurance Committee, College of Engineering
Coordinator: Lab Development Committee, Electrical Engineering Department
Member: Teaching Assurance Committee**,** Electrical Engineering Department
Member: Strategic Planning Committee, Electrical Engineering Department
Research Project: Majmaah University 2017, Majmaah University 2018

Oct 2014 ~ Sep 2015 — **Necmettin Erbakan University, Konya, Turkey** — **Assistant Professor**

Undergraduate Courses: Computer Programming, Engineering Mechanics Statics

Aug 2008 ~ Dec 2010 — **Intersoft International, Islamabad, Pakistan** — **Design Engineer**

- Motor control of Telemetry station for tracking missiles, the position of the dish was shown in LabVIEW. PIC microcontrollers were used for motor control and PC Serial Communication.
- Multi-channel (32) temperature scanner and logger for PT100 and Cu50 RTDs was designed and fabricated using microcontrollers.
- Diesel Generator saver for telecom towers was designed to optimize the cost by switching between the UPS and a diesel generator available in telecom towers in a case of power failure.
- Starter kit for Battle tank T80UD was designed to provide voltage in ramp form to the starter motor of an engine.

May 2007 ~ May 2008 — **Heavy Industries Taxila, Taxila Cantt, Pakistan** — **Assistant Manager**

As a team leader of a production and testing house of IR cameras for military tanks, successful assembled and tested cameras after job training. Cameras were installed and integrated into a military tank on user premises throughout the country. The team was also responsible for repair and maintenance, technical assistance, technical training & customer support, liaison with OEM.

Sep 2006 ~ Apr 2007 — **Wah Engineering College, Wah Cantt, Pakistan** — **Research Engineer**

Projects on PID motor & temperature control, Video processing. Taught C programming course

Research Interests:

Renewable Energy, Energy optimization in Building, Net Zero Energy Buildings, Sustainable Cities, Nano-scale Energy Devices, Nanotechnology, Advanced Manufacturing, Thin Film, OLEDs, MEMS/NEMS Devices, Micro-Nano-Fabrication, Electrosprays, Roll to Roll Processing, Printed-Electronics

Manufacturing & Characterization Expertise in Printed Electronics:

Thin films and patterns fabrication by: Electrohydrodynamics printing system, gravure offset printer, slot die, micro gravure, screen printer, doctor blade, spin coating, atmospheric roll-to-roll atomic layer deposition techniques, fabrication and characteristic of an organic light emitting diodes (OLED), microsensors, memristors and electroactive polymers.

Characterization Equipment: Scanning Electron Microscope, X-ray Diffraction, X-ray photoelectron Spectroscope, UV-Vis/NIR Spectrophotometer, Optical Microscope, Contact Angle Analyzer, I-V measurement Probe Station (Agilent)

Lab Equipment: Motor Drive Control, LabView PXI, LabView FPGAs interfacing, Labview motion control, Labview automation, Glovebox, Ultrasonic Stirrer, Magnetic Stirrer, Ultrasonic Shakers, Ultra-violet Cleaner, Tube Furnace, Air Furnace

Programming Languages: LabVIEW, C/C++, Microsoft Visual C#, Assembly and C of Intel MCS-51 series Microcontrollers, C language of AVR microcontroller, Assembly & C language of PIC microcontroller

Engineering software: Sketchup, EnergyPlus (NERL), Homer (NERL), System Advisor Model (SAM NERL), LabVIEW, Origin, Orcad for PCB layouts, Matlab, Proteus, Allen Bradley Ladder Logic Language for PLC's, Electronics Work Bench, ProEngineer, AutoCAD, PSpice, G-Code for CNC Machines.

Award:

- Won Best Technical Design Award with a cash prize of Rs. 20,000 and RS-Robotics and Fluid Studio Software from FESTO Germany worth 695 Euro in National Engineering Robotic Contest 2005. NERC 2005
- Certificate for Exceptional work in ABET Accreditation, Majmaah University

Workshops Presentations:

1. 2nd workshop by AMM lab on Printed Electronics on 24 March 2012
2. LabVIEW programming, College of Engineering, Majmaah University

Courses Taught:

Computer Programming in C language, Electrical Power Distribution, Engineering Mechanics Statics, Digital Logic Design, VLSI, Electrical Measurement & Instrumentation, Applied Control, General Physics, Electrical Measurements & Control Lab, Machine Lab I, Physics Lab, Measurement, and Control Lab, Machine Lab II, Microcontroller Lab, Electronic Devices, Electric Machines, Engineering Safey

Research Funding:

Majmaah University **2017:** Optimization of building energy system by using PV arrays for energy production and building insulation and sensors based smart Heating, Ventilation and Air Conditioning

Majmaah University **2018:** Feasibility and Design aspects of Net Zero Energy Building Blocks in various cities of Kingdom of Saudi Arabia using Renewable Energy Resources.

Majmaah University **2019:** Very Large-Scale Solar Energy Systems deployment, design aspects and Prospects of Energy exports of Saudi Arabia via HVDC transmission.

Science Citation Indexed Journals Publications: (Impact Factor: 37.9)

20 **Muhammad Zubair**, Ahmed Bilal Awan, Sajid Ghuffar, Vakkar Ali, Analysis of floating Photovoltaic Capabilities of Pakistan, Energy, Solar Energy, **Under-Review**. 2018

19 **Muhammad Zubair**, Sajid Ghuffar, Ahmed Bilal Awan, Analysis of Rooftop Photovoltaic Net Metering Capabilities of Islamabad, Pakistan using Deep Learning Algorithm, Energy, **Under-Review**. 2018

18 **Muhammad Zubair**, Analysis of Net-Zero Energy Blocks in New Sustainable City of Neom, Saudi Arabia, Journal of Renewable & Sustainable Energy, **Under-Review**. 2018

17 Ahmed Bilal Awan, **Muhammad Zubair,** Praveen R.P., Abdul Rauf Bhatti, Design and comparative analysis of photovoltaic and parabolic trough based CSP plants, Solar Energy, 183 551–565. (2019) **(Q1 Impact Factor 4.374)** 10.1016/j.solener.2019.03.037

16 Ahmed Bilal Awan, **Muhammad Zubair**, Abdul Rauf Bhatti, Design and Analysis of Various Hybrid Renewable Energy Systems Scenarios and Hydrogen Production, International Journal of Energy Research, Accepted, Nov 2018 (**Q2 Impact Factor 3.009**) 10.1002/er.4343

15 Ahmed Bilal Awan, **Muhammad Zubair**, Praveen R.P, Ahmed G. Abokhalil, Performance Analysis of Hybrid Renewable Energy System in NEOM Saudi Arabia, Journal of Renewable & Sustainable Energy, **Under-review**, 2018

14 **Muhammad Zubair**, Analysis of Net-Zero Energy Housing Society in Gwadar Pakistan, Journal of Renewable & Sustainable Energy, 10(6) Pages 065906-1-20 Nov 2018. **(Q3 Impact Factor 1.337)** 10.1063/1.5053952

13 **Muhammad Zubair**, Ahmed Bilal Awan, Abdullah Al-Ahmadi, Ahmed G. Abo-Khalil, NPC based Design Optimization for a Net Zero Office Building in Hot Climates with PV Panels as Shading Device, Energies, 11(1391) Pages 1-21, May 2018. **(Q1 Impact Factor 2.676)** 10.3390/en11061391

12 **Muhammad Zubair**, Ahmed Bilal Awan, Praveen R.P, Analysis of PV Arrays Efficiency for Reduction of Building Cooling Load in Hot Climates, Building Services Engineering Research and Technology, May 2018, (**Q2 Impact Factor 1.100**) 10.1177/0143624418780633

11 Ahmed Bilal Awan, **Muhammad Zubair**, Praveen R.P, Solar Resource Assessment and Identification of Most Feasible Regions for Photovoltaic Power Generation in the Kingdom of Saudi Arabia, Sustainability, 10(1129), Pages 1-27, 2018 (Q2 **Impact Factor 2.075**) 10.3390/su10041129

10 Praveen R.P, Ahmed Bilal Awan, **Muhammad Zubair**, Design, Performance Analysis and Optimization of a Parabolic Trough based Concentrated Solar Power Plant for Feasible locations in the Middle East Region, Energies, 11(741) 24 March 2018 **(Q1 Impact Factor 2.676)** 10.3390/en11040741

9 Memoon Sajid, **Muhammad Zubair**, Yang Hoi Doh, Kyoung-Hoan Na, Kyung Hyun Choi, Flexible Large Area Organic Light Emitting Diode Fabricated by Electrohydrodynamics Atomization Technique, Journal of Material Sciences: Materials in Electronics, 26 (9) 7192-7199 (2015) **(Q2 Impact Factor 2.324)** 10.1007/s10854-015-3344-1

8 **Muhammad Zubair**, Maria Mustafa, Kangtaek Lee, Cheolsang Yoon, Yang Hoi Doh and Kyung Hyun Choi, Fabrication of flexible hybrid organic light emitting diode with solution based CdSe/ZnS quantum dots deposited by electrohydrodynamics atomization technique, Chemical Engineering Journal, Vol 253, 1 Oct 2014, Pages 325–331 **(Q1 Impact Factor 6.735)** 10.1016/j.cej.2014.05.067

7 **Muhammad Zubair**, Maria Mustafa, Kyung Hyun Choi, Improvement of Solution Based Conjugate Polymer Organic Light Emitting Diode by ZnO-Graphene Quantum Dots, Journal of Material Sciences: Materials in Electronics, 26:3344–3351(2015) **(Q2 Impact Factor 2.324)** 10.1007/s10854-015-2837-2

6 Kyung Hyun Choi, **Muhammad Zubair**, Characterization of Flexible Temperature Sensor Fabricated Through Drop-on-Demand Electrohydrodynamics Patterning, Japanese Journal of Applied Physics, 53, 05HB02 (2014) **(Q2 Impact Factor 1.452)** 10.7567/JJAP.53.05HB02

5 **Muhammad Zubair,** Ganeshthangaraj Ponniah, Young Jin Yang, Kyung Hyun Choi, Web Tension Regulation of Multispan Roll-to-Roll System using Integrated Active Dancer and Load Cells for Printed Electronics Applications, Chinese Journal of Mechanical Engineering, 27(2): 229-239 (2014) **(Q1 Impact Factor 0.814)** 10.3901/CJME.2014.02.229

4 **Muhammad Zubair**, Navaneethan Duraisamy, Kyung Hyun Choi, Myung Teak Hyun, Conductivity enhancement of PEDOT:PSS thin film using roll to plate technique and its characterization as a Schottky diode, Journal of Material Sciences: Materials in Electronics, 25:1033–1039 (2014) **(Q2 Impact Factor 2.324)** 10.1007/s10854-013-1683-3

3 Ganeshthangaraj Ponniah, **Muhammad Zubair**, Yang Hui Doh, Kyung Hyun Choi, Fuzzy decoupling to reduce propagation of tension disturbances in roll-to-roll system, The International Journal of Advanced Manufacturing Technology, 71:153–163 (2014) **(Q1 Impact Factor 2.601)** 10.1007/s00170-013-5400-4

2 Maria Mustafa, **Muhammad Zubair**, Hyun Chan Kim, Kyung Hyun Choi, Fabrication and Characterization of Organic Light Emitting Diodes by Using Solution Processable Conjugated Polymer, Journal of Nano electronics and Optoelectronics 8 (4), 343-348 (2013) **(Q3 Impact Factor 1.069)** 10.1166/jno.2013.1478

1 Kyung Hyun Choi, **Muhammad Zubair**, Ganeshthangaraj Ponniah, Web Tension Control of Multispan Roll to Roll System by Artificial Neural Networks for Printed Electronics, Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Oct 227: 2361-2376 (2013) **(Q2 Impact Factor 0.996)** 10.1177/0954406212473041

Book Chapter

- Thanh Trung Tran, Ganeshthangaraj Ponniah, **Muhammad Zubair**, Kyung Hyun Choi, An Evolution Strategy Based Autonomous Algorithm for Roll-to-Roll Web Control System, Intelligent Autonomous Systems, Springer, ISBN 978-3-642-33931-8, 12, 717-729 (2013). 10.1007/978-3-642-33932-5_67

Conferences:

- **Muhammad Zubair**, 2018. Analysis of Net Zero Energy Housing Society in Karachi, Pakistan. Proceedings of the 5th International Conference on Energy, Environment and Sustainable Development, November 14-16, Energy & Environment Engineering Research. ISBN: 978-969-7710-02-7 http://eesd.muet.edu.pk/proceedings/
- **Muhammad Zubair,** Kyung Hyun Choi, Maria Mustafa, Flexible organic light emitting diodes with patterned top electrode using gravure offset printer, LOPEC, The International Exhibition and Conference for Printed Electronics, 27 May 2014 https://www.lopec.com/index.html
- **Muhammad Zubair,** Memoon Sajid, Kyung Hyun Choi, Flexible large area organic light emitting diode fabricated by electrohydrodynamics atomization technique, The 40th International Conference on Micro and Nano Engineering, 2014 http://www.mne2014.org/mee.php
- **Muhammad Zubair**, Mohammad Ahmad Choudhry, Land Mine Detecting Robot Capable of Path Planning, Second WRI World Congress on Software Engineering, IEEE Computer Society, 2010. 10.1109/WCSE.2010.34

Community Service Work:

Development of Electric Metering System in LabVIEW for educational purposes of community

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Supervised Undergraduate Senior Design Projects

- Design and Implementation of Regenerative Braking System
- Design and implementation of Energy Efficient Buildings
- Design and Implementation of Concentrated Solar Power PID Controlled Parabolic Dish
- Analysis of floating photovoltaic potential in KSA
- Design and Implementation of Smart Energy Meter

Website links:

Research Gate: https://www.researchgate.net/profile/Muhammad_Zubair9?ev=hdr_xprf
Google Scholar: https://scholar.google.com/citations?user=-HH2kjwAAAAJ&hl=en

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References

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