

# Dr. Owais Khan



## Personal Details

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## Objectives

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Academically sophisticated PhD degree holder with career reflecting professional research experience in academia. Driven by the desire of sharing my expertise in a competitive and healthy academia environment.

## Research Area of Interest

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Robust Model Predictive Control, Fault Diagnosis & Tolerant Control, Control Systems Design

## Educational Qualifications

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Oct 2021 – Present **Postdoctoral Research Scholar**  
School for Engineering of Matter, Transport, and Energy,  
Arizona State University Tempe, Arizona ([www.asu.edu](http://www.asu.edu))



Sep 2016 – Dec 2020 **Ph.D. Electrical Engineering**  
**Supervisor/Co-Supervisor** = Prof. Dr. Ghulam Mustafa, Prof. Dr. AQ Khan  
Pakistan Institute of Engineering and Applied Sciences (PIEAS) Islamabad  
([www.pieas.edu.pk](http://www.pieas.edu.pk))  
**Reg #** 02-7P1-003-2016



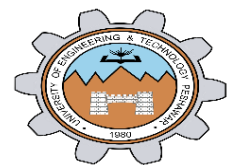
**Thesis Title:** Robust Model Predictive Control and Fault Tolerance for Uncertain Dynamical Systems  
**Courses Studied:** Robust Control Systems, Fault Diagnosis and Tolerance, Optimal Control Engineering, System Identification, Computational Intelligence, Control System Design-II, Convex Optimization  
**CGPA:** 3.83/4.0

Feb 2014 – March 2016 **MS Electrical Engineering (Control Systems)**  
**Supervisor/Co-Supervisor** = Dr. Shafayat Abrar, Dr. Mahmood Pervaiz  
COMSATS University Islamabad ([www.comsats.edu.pk](http://www.comsats.edu.pk))  
**Reg #** CIIT/SP14-REE-072/ISB



**Majors:** Nonlinear, Adaptive & Robust Control  
**Research Thesis Title:** Designing a Robust Controller for a Single-Link Flexible Joint Robot Manipulator  
**Courses Studied:** Linear Control Systems, Digital Control Systems, Non-linear Systems & Control, Adaptive Control  
Linear System Theory, Advanced Topics in Control Systems, Neural & Fuzzy Systems  
**CGPA:** 3.93/4.0

Sep 2007 – Oct 2011 **B.Sc. Electronics Engineering**  
University of Engineering and Technology Peshawar Pakistan  
([www.uetpeshawar.edu.pk](http://www.uetpeshawar.edu.pk))  
**Reg #** 07ABELT0176  
**Final year project:** Video Conferencing & Sound Tracking Camera



## Teaching/ Technical Experience (Total Experience: 5 Years, 6 Months, 12 Days)

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Sep 08, 2018–  
March 08, 2021 **Lecturer, Department of Electrical Engineering**  
Grafton College of Engineering & Sciences Islamabad ( [www.graftoncollege.edu.pk](http://www.graftoncollege.edu.pk) )

### Courses taught

Control Systems, Digital Logic Design, Electrical Network Analysis, Differential Equations, Linear Algebra

### Duties and Responsibilities

- i. Teaching of different courses related to electrical engineering degree program
- ii. Conducting assigned lab experiments and maintaining the course folders and lab folders
- iii. Assessment of students according to outcome-based education (OBE) system
- iv. Supervising final year students in their FYP projects

Sep 18, 2017–  
Jun 15, 2018 **Lab Engineer, Department of Electrical Engineering**  
Pakistan Institute of Engineering and Applied Sciences (PIEAS) Islamabad ([www.pieas.edu.pk](http://www.pieas.edu.pk))

### Lab Conducted

Linear Control Systems, Basic Electrical Engineering, Circuit Analysis-II, Electric Circuit and Design, Digital Logic Design

### Duties and Responsibilities

- i. Conducting different lab experiments of electrical engineering degree program
- ii. Conducting Lab Test and Viva and maintaining the lab attendance record
- iii. Assessment of students according to outcome-based education (OBE) system
- iv. Collaborate with teachers on theory related projects.
- v. Assist teachers in updating lab curriculum and manuals
- vi. Lead and coordinated with other team members for overall functioning of the lab

Oct 16, 2011–  
Jan 30, 2014 **Senior Instructor (Electrical Technology)**  
Swabi Institute of Technology Swabi, KPK, Pakistan

## Journal/Conferences Publications (Published/In-press)

Cumulative IF: 26.15, Citations: 47

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- 1) M Hussain, FB Muslim, **O. Khan**, N us Saqib, “Robust Anti-windup Control Strategy for Uncertain Nonlinear System with Time-delays”, Arabian Journal for Science and Engineering, pp. 1-14, September 2021 (**ISSN: 1319-8025, IF: 2.334**) (**In-Press**) (**DOI: [10.1007/s13369-021-06095-4](https://doi.org/10.1007/s13369-021-06095-4)**)
- 2) M.A. Shoaib, A.Q. Khan, G. Mustafa, S.T. Gul, **O. Khan**, A.S. Khan, “A nonlinear observer-based robust fault detection scheme for synchronous generators”, IEEE Transactions on Power Systems, 2021 (**ISSN: 0885-8950, IF: 6.663**) (**In-Press**) (**DOI: [10.1109/TPWRS.2021.3106913](https://doi.org/10.1109/TPWRS.2021.3106913)**)
- 3) **O. Khan**, G. Mustafa, A.Q. Khan, M. Abid, and M. Ali, “Fault-tolerant robust model predictive control of uncertain time-delay systems subject to disturbances”, IEEE Transactions on Industrial Electronics, 68(11), pp. 11400-11408, November 2021 (**DOI: [10.1109/TIE.2020.3029469](https://doi.org/10.1109/TIE.2020.3029469)**) (**ISSN: 0278-0046, IF: 8.236**)
- 4) **O. Khan**, G. Mustafa, A.Q. Khan, M. Abid, “Robust Model Predictive Control for a class of Sampled-Data Lipschitz Nonlinear Systems Subject to Bounded Disturbances”, IEEE Systems Journal, 2021 (**ISSN: [1932-8184](https://doi.org/10.1109/ISJ.2021.3029469), IF: 3.931**) (**Submitted**)
- 5) **O. Khan**, G. Mustafa, A.Q. Khan, M. Abid, “Robust observer-based model predictive control of non-uniformly sampled systems”, ISA Transactions, 98, pp. 37-46, March 2020 (DOI: [10.1016/j.isatra.2019.08.050](https://doi.org/10.1016/j.isatra.2019.08.050)) (**ISSN 0019-0578, IF : 5.468**)
- 6) AU. Rehman, N. Ali, **O. Khan**, M. Pervaiz, “A Disturbance Observer Based Sliding Mode Control for Variable Speed Wind Turbine”, IETE Journal of Research, pp. 1-8, 2019 (DOI: [10.1080/03772063.2019.1676661](https://doi.org/10.1080/03772063.2019.1676661)) (**ISSN: 0377-2063, IF : 2.333**)
- 7) AU. Rehman, **O. Khan**, N. Ali, M. Pervaiz, “Nonlinear Robust Control of a Variable Speed-Wind Turbine” in International Conference on Engineering and Emerging Technologies (ICEET), Lahore, Pakistan, 2018 ( **DOI: [10.1109/ICEET1.2018.8338647](https://doi.org/10.1109/ICEET1.2018.8338647)** )

- 8) Ejaz Ahmad, AU. Rehman, **Owais Khan**, Muhammad Haseeb, and Nihad Ali, "Backstepping control design for two-wheeled self balancing robot" in IEEE International Conference on Power, Energy and Smart Grid, Mirpur, Pakistan, pp. 1-6, 2018 (DOI: [10.1109/ICPESEG.2018.8384494](https://doi.org/10.1109/ICPESEG.2018.8384494) )
- 9) **O. Khan**, M. Pervaiz, E. Ahmad, J. Iqbal. "On the derivation of novel model and sophisticated control of flexible joint manipulator", Revue Roumaine des Sciences Techniques-Serie Electrotechnique et Energetique, 62, 1, pp. 103-108, Bucarest, 2017 (ISSN: [0035-4066](https://doi.org/10.1109/ICPESEG.2018.8384494), IF: 1.114)
- 10) **O. Khan**, AU. Rehman. M. Pervaiz, "Beyond Linear Control Approaches – Sliding Mode Control of Flexible Robotic Manipulator" in 14<sup>th</sup> International Conference on Frontier of Information Technology, Islamabad, Pakistan, pp. 1-6, 2016 (DOI: [10.1109/FFT.2016.009](https://doi.org/10.1109/FFT.2016.009) )

## Expertise and Honors

### 1) Workshops/Seminars

Workshop Title	Date	Venue
Model Predictive Control (3-Days)	30 Jan-01 Feb 2020	SEECS-NUST Islamabad
Nonlinear Control Systems by Prof. Dr. Hassan Khalil (USA) (3-Days)	6-8 March 2017	SEECS-NUST Islamabad
Advanced Nonlinear Control Systems (4-Days)	28-31 May 2015	SEECS-NUST Islamabad
Art of Technical Writing (1-Day)	Nov 13, 2014	CIIT Islamabad

### 2) Training/Certifications

Certification Title	Duration/Completion Date	Institute/Board
RCR Workshop - Data Management	Nov 9, 2021	Arizona State University
RCR – Social and Behavioral Responsible Conduct of Research	Oct 28, 2021	CITI Program
IRB – Social & Behavioral Research (Group 2)	Oct 28, 2021	CITI Program
IRB – Native American Research	Oct 28, 2021	CITI Program
CCNA Training	Sep 11, 2012 - Nov 20, 2012	Corvit Systems (PVT)
Linux Training	Sep 11, 2012 - Oct 10, 2012	Ltd Rawalpindi
Certificate in Information Technology (CIT)	Jan 01, 2012 - July 10, 2012	KPK TTB Peshawar

### 3) Memberships, Honours and Awards:

- PEC Registered Engineer (Reg # **ELECTRO/16949**) <https://verification.pec.org.pk>
- IT and Telecom Endowment Fund Scholarship for PhD Studies
- Member IEEE (Membership # **93215333**) and Member of IEEE Control System Society
- Member of American Institute of Aeronautics & Astronautics (AIAA) (Membership # **984417**) <https://www.aiaa.org>
- Member of International Association of Engineers Hong Kong (Membership # **229304**) <http://www.iaeng.org>
- Reviewer of renowned control journals entitled as ISA Transactions, IEEE Transactions on Industrial Informatics, IEEE Transactions on Industrial Electronics, Journal of Franklin Institute, and Ocean Engineering.
- Topper of the Batch during my master's degree program

## Projects – Supervision/Examination:

- 1) Supervised Final year project at Grafton College Islamabad, "Design and control of unstable quadcopter to ensure its applicability for fire extinguishing purposes
- 2) Project Leader of Nescom Funded Project at PIEAS titled as "Active Cancellation and Frequency Estimation of Vibration due to Imbalance Mass".
- 3) Design a PID Controller for Three Tank System (COMSATS, Bachelor - Co-Supervised)

## Software Skills

- Programming:**   ▪ MATLAB, Modalism (Verilog HDL)
- Misc.:**             ▪ MS Office, LaTeX, Beamer, Microwind, PSpice, Microsim, Electronic Work Bench, LTspice, Xilinx 9.2i, Multisim 10

## References

❖ To be furnished upon request