Dr. Tariq Rehman

Assistant Professor

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Dedicated to pioneering research in Electrical and Electronic Engineering, I aim to apply advanced skills and contribute innovative solutions, driven by a commitment to positively impact humanity.

Educational Credentials

Doctor of Philosophy **2015 – 2020**
Major: Electrical Engineering
Universiti Teknologi Malaysia (UTM), Malaysia

Master of Engineering **2009 – 2012**
Major: Electronic Engineering
NED University of Engineering & Technology, Karachi

Bachelor of Engineering **2005 – 2008**
Major: Industrial Electronic Engineering
NED University of Engineering & Technology, Karachi

Professional Experience

Deputy Director **March 2023 – till date**
Quality Enhancement Cell (QEC)
NED University of Engineering & Technology, Karachi

Assistant Professor **Aug 2020 – till date**
Department of Electronic Engineering
NED University of Engineering & Technology, Karachi

Lecturer **Dec 2009 – Aug 2020**
Department of Electronic Engineering
NED University of Engineering & Technology, Karachi

Administrative Assignment

- Contributes towards enhancing the institution's ranking through evaluation of academic programs and assessing institutional performance.
- Conducts Internal Quality Audits and Health Safety and Environment Audits.

- Actively participates in various boards, including the Board of Faculty, Board of Review-QEC, and Board of Review-University.
- Conducts training programs for faculty and staff and undertakes additional tasks delegated by the Director QEC.
- Supervised numerous M.Eng. candidates, guiding them towards completion of their research endeavors.
- Supervised numerous B.Eng. students's Final Year Design Projects (FYDPs).
- Acted as a class advisor for B.Eng. students and served as the PLC and VLSI laboratory incharge.

Courses Taught

Bachelor of Engineering:

- Basic Electronics
- Digital Electronics
- Electronic Design and Workshop
- Electronic Devices and Circuits
- Instrumentation and Control
- Industrial Electronics
- Power Electronics

Master of Engineering:

- Introduction to Mechatronics
- Introduction to MEMS
- Sensors and Systems
- Measurement & Calibration of Electronic Systems
- Data Acquisition and Microcontroller
- Adaptive Control System

Software/Tool and Equipment Proficiency

Software/Tools:

- SolidWorks®
- MARC® Mentat
- Layout Editor
- Origin
- EndNote
- Microsoft Office Suite (Excel, Word, PowerPoint)

Equipment:

- Roland® MDX-40A
- Flashforge® Dreamer
- PELCO® Mini Hot Vac
- Fisherbrand™ Ultrasonic Bath
- Laurell® WS-650MZ
- Heidelberg® µPG-101
- MIDAS® MDA-400M-6

Awards and Honors:

1. **SHEC Sindh Research Support Programme** awarded PKR 1.8 million for the project "Smart IoT-enabled Ground Bird Farming" as Co-PI, (2022-24).
2. **Best Paper Award Finalist** recognized at the 17th Asia Simulation Conference organized by UTM and the Malaysian Simulation Society, (2017).

3. **PhD Scholarship** of PKR 4.25 million received under the "Strengthening of NEDUET, Mega-M3" scheme to pursue a doctoral degree at Universiti Teknologi Malaysia (UTM), (2015-20).

Research Publications

[1] M. K. A. Daud, I. N. A. M. Nordin, T. N. H. T. Ismail, E. Adam, N. Zulkarnain, M. R. M. Razif, and **T. Rehman**, "Development of Smart Chopper Composting Monitoring System," *Journal of Advanced Research in Applied Sciences and Engineering Technology,* vol. 42, no. 2, pp. 197-208, 2024.

[2] **T. Rehman**, A. Ahmed, M. S. Siddiqi, A. Hayat, and T. Saeed, "Slum Terrain Mapping Using Low-Cost 2D Laser Scanners," *Elektronika ir Elektrotechnika,* vol. 29, no. 2, pp. 19-27, 2023.

[3] R. A. Butt, **T. Rehman**, and M. A. Qureshi, "A Smart IoT-Enabled Cage for the Farming of Ground Birds," *Engineering Proceedings,* vol. 46, no. 1, pp. 26, 2023.

[4] **T. REHMAN**, "MONOLITHIC SELF-SUPPORTIVE BI-DIRECTIONAL BENDING PNEUMATIC BELLOWS CATHETER," Universiti Teknologi Malaysia, 2020.

[5] M. R. M. Razif, G. L. Zhi, I. N. A. M. Nordin, H. Hashim, A. S. Sadun, and **T. Rehman**, "Bellow soft gripper for agriculture," *International Journal,* vol. 9, no. 1.4, 2020.

[6] F. A. M. Ghazali, M. N. Hasan, **T. Rehman**, M. Nafea, M. S. M. Ali, and K. Takahata, "MEMS actuators for biomedical applications: a review," *Journal of Micromechanics and Microengineering,* vol. 30, no. 7, pp. 073001, 2020.

[7] K. V. Selvan, **T. Rehman**, T. Saleh, and M. S. M. Ali, "Copper–cobalt thermoelectric generators: power improvement through optimized thickness and sandwiched planar structure," *IEEE Transactions on Electron Devices,* vol. 66, no. 8, pp. 3459-3465, 2019.

[8] **T. Rehman**, M. Nafea, A. A. Faudzi, T. Saleh, and M. S. M. Ali, "PDMS-based dual-channel pneumatic micro-actuator," *Smart Materials and Structures,* vol. 28, no. 11, pp. 115044, 2019.

[9] **T. Rehman**, A. A. Faudzi, M. Nafea, and M. S. M. Ali, "PDMS-based dual-channel pneumatic microactuator using sacrificial molding fabrication technique." pp. 1788-1791.

[10] M. R. M. Razif, A. A. Faudzi, I. N. A. M. Nordin, **T. Rehman**, and D. E. O. Dewi, "Two-chambers soft actuator bending and rotational properties for underwater application," *Indonesian Journal of Electrical Engineering and Computer Science,* vol. 16, no. 2, pp. 669-677, 2019.

[11] M. Nafea, Z. Mohamed, M. S. M. Ali, K. Mehranzamir, and **T. Rehman**, "Hybrid PSO-Tuned PID and hysteresis-observer based control for piezoelectric micropositioning stages." pp. 1-6.

[12] M. Nafea, M. S. M. Ali, **T. Rehman**, and K. Mehranzamir, "Geometrical analysis of diffuser-nozzle elements for valveless micropumps." pp. 1-5.

[13] **R. Tariq**, F. A. A. Mohd, D. D. E. Octorina, and M. A. M. Sultan, "Correction to: Design, characterization, and manufacturing of circular bellows pneumatic soft actuator," *The*

International Journal of Advanced Manufacturing Technology, vol. 95, no. 1-4, pp. 1569-1569, 2018.

[14] **T. Rehman**, A. A. Mohd Faudzi, D. E. Octorina Dewi, and M. S. Mohamed Ali, "Finite element analysis for PDMS based dual chamber bellows structured pneumatic actuator." pp. 392-402.

[15] **T. Rehman**, A. A. M. Faudzi, D. E. O. Dewi, and M. S. M. Ali, "Design, characterization, and manufacturing of circular bellows pneumatic soft actuator," *The International Journal of Advanced Manufacturing Technology,* vol. 93, pp. 4295-4304, 2017.

[16] **T. Rehman**, A. Faudzi, D. E. O. Dewi, K. Suzumori, M. Razif, and I. Nordin, "Design and analysis of bending motion in single and dual chamber bellows structured soft actuators," *J. Teknol,* vol. 78, pp. 17-23, 2016.

[17] I. Nordin, A. M. Faudzi, M. Kamarudin, D. E. O. Dewi, **T. Rehman**, and M. Razif, "Grip force measurement of soft-actuated finger exoskeleton," *J. Teknol,* vol. 78, no. 6-13, pp. 25-30, 2016.

Research Interests

- Soft robotics innovation.
- Mechanical optimization with FEA.
- Precision designing with SolidWorks®
- Advanced 3D printing for robotics.
- Microscale robotics with Photolithography.

Professional Memberships

- Registered Engineer, Pakistan Engineering Council (PEC) - Electro/11069.

References

Available upon request.