Dr. MUHAMMAD IRFAN

CELL # +966595957833
E-MAIL: irfan16.uetian@gmail.com
Current Address: Electrical Engineering Department, Najran University, Saudi Arabia

EDUCATION

Ph.D Degree	Master's Degree	Bachelor's Degree
Ph.D in Electrical & Electronics Engineering Universiti Teknologi PETRONAS, Malaysia (2013~2016)	M.Sc in Electrical & Electronics Engineering Universiti Teknologi PETRONAS, Malaysia (2011~2013)	B.Sc in Mechatronics & Control Engineering University of Engineering & Technology Lahore, Pakistan (2005~2009)

WORK EXPERIENCE

Academic Experience 1: Najran University, Kingdom of Saudi Arabia

Designation: Assistant Professor

Duration: January 2017 (Continued)

Teaching & Research Responsibilities:

- To teach courses: Automatic Control Systems, Applied Control, Electrical Measurements, Electric Drives.
- To supervise students in their graduation projects.
- To conduct research in the area of control systems, vibration analysis, condition monitoring and fault diagnosis.

Administrative Responsibilities:

- Member of curriculum committee.
- Member of academic affairs committee.
- Member of the final year project evaluation committee.
- In charge of the measurement & control Lab.
- Coordinator of accreditation and assessment committee (**ABET and NCAAA Accreditation**).
- To write the **Self Study Report (SSR)** for the Electrical Engineering Department for ABET and NCAAA Accreditation.

Academic Experience 2: Universiti Teknologi PETRONAS, Malaysia

Designation: Lab Instructor (Part Time)

Duration: 5 Years (2011 ~ 2016)

Industry Experience: Roshan Packages Pvt Ltd, Pakistan

Designation: Electrical & Control Engineer

Duration: 2 Years (2009 ~ 2011)

INTELLECTUAL PROPERTY

Patent: A Method of Detecting Bearing Defects in an Induction Motor, April 2017 (Intellectual Property Corporation of Malaysia, Filing No: PI 2016000073).

Copyright: An Intelligent Condition Monitoring and Fault Diagnostic System for Induction Motors, (Intellectual Property Corporation of Malaysia, Statutory Declaration Date: 17th April 2015).

RESEARCH PUBLICATIONS

Book:

Nordin Saad, **Muhammad Irfan** and Rosdiazli Ibrahim, "Condition Monitoring and Faults Diagnosis of Induction Motors: Electrical Signature Analysis," CRC Press & Routledge - Taylor & Francis Group, February 2018.

Journal Papers:

1. **Muhammad Irfan**, "A Novel Non-Intrusive Method to Diagnose Bearings Surface Roughness Faults in Induction Motors," *Journal of Failure Analysis and Prevention*, Vol. 18, No.1, pp. 145-152, January 2018 **(ISI/SCOPUS, Q3)**.
2. Adam Glowacz1 , Zygfryd Glowacz , Miroslav Gutten , Daniel Korenciak , Z. Faizal Khan , **Muhammad Irfan** , Hui Liu , Eleonora Carletti , Anamika Yadav , Frantisek Brumercik , Gurmeet Singh, "Fault Diagnostics of Synchronous Motor Based on Analysis of Acoustic Signals with the use Of Haar Wavelet Transform And Nearest Mean Classifier," Journal of Modern Engineering, Vol. 1, No. 1, January 2018.
3. A. Glowacz, W. Glowacz, Z. Glowacz, J. Kozik, M. Gutten, D. Korenciak, Z. F. Khan , **M. Irfan** and E. Carletti, "Fault Diagnosis of Three Phase Induction Motor using Current Signal, MSAF-Ratio15 and Selected Classifiers," *Archives of Metallurgy and Materials*, Vol. 62, No. 4, pp. 2413-2419, December 2017 **(ISI, IF 0.571, Q2)**.
4. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim, Vijanth S Asirvadam, Alwadie A and Muhammad Aman, "Analysis of Distributed Faults in Inner and Outer Race of Bearing via Park Vector Analysis Method," *Neural Computing & Applications*, May 2017. **(ISI, IF 1.492, Q1)**
5. M. Aman, Nursyarizal, Tayyab, and **Muhammad Irfan** and Nordin Saad "An Intelligent Automated Method to Diagnose and Segregate Induction Motor Faults," *Journal of Electrical Systems*, June 2017. **(ISI Index)**
6. M. Aman, Nursyarizal, Tayyab, and **Muhammad Irfan**, "An Unsupervised On-Line Method to Diagnose Unbalanced Voltage in Three-Phase Induction Motor," *Neural Computing & Applications*, April 2017. **(ISI, IF 1.492, Q1)**
7. Muawia Magzoub, N. Saad, R. Ibrahim and **Muhammad Irfan**, "An Experimental Demonstration of Hybrid Fuzzy-Fuzzy Space-Vector Control on AC variable Speed Drives," *Neural Computing & Applications*, May 2017 **(ISI, IF 1.492, Q1)**
8. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim, Vijanth S Asirvadam and Muawia Magzoub, "An Online Fault Diagnosis System for Induction Motors via Instantaneous Power Analysis," *Tribology Transactions*, Vol. 60, No. 4, pp. 592–604, July 2017. **(ISI, IF 1.349, Q1)**
9. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim, Vijanth S Asirvadam and Muawia Magzoub, "An Intelligent Fault Diagnosis of Induction Motors in an Arbitrary Noisy Environment," *Journal of Nondestructive Testing & Evaluation*, Vol.35, No. 1, pp. 1-13, January 2016. **(ISI, IF 1.46, Q2)**
10. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim, Vijanth S Asirvadam and Muawia Magzoub, "A Non Invasive Method for Condition Monitoring of Induction Motors Operating under Arbitrary Loading Conditions," *Arabian Journal for Science & Engineering*, DOI: 10.1007/s13369-015-1996-z, December 2015. **(ISI, IF 0.728, Q1)**
11. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim and Vijanth S Asirvadam, "An Online Condition Monitoring System for Induction Motors via Instantaneous Power Analysis," *Journal of Mechanical Science and Technology*, Vol. 29, No. 04, April 2015. **(ISI, IF 0.761, Q2)**
12. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim and Vijanth S Asirvadam, "Condition Monitoring of Induction Motors via Instantaneous Power Analysis," *Journal of Intelligent Manufacturing*, Volume 28, Issue 6, pp 1259–1267, August 2017. **(ISI, IF 1.995, Q1)**
13. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim and Vijanth S Asirvadam, "Analysis of Bearing Surface Roughness Defects in Induction Motors," *Journal of Failure Analysis and Prevention*, Vol. 15, No. 5, pp. 730-736, August 2015. **(ISI/SCOPUS, Q3)**

14. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim and Vijanth S Asirvadam, "An Intelligent Diagnostic Condition Monitoring System for AC Motors via Instantaneous Power Analysis," *International Review of Electrical Engineering*, Vol.8, No. 2, pp. 664-672, April 2013. **(SCOPUS, Q2)**
15. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim, Vijanth S Asirvadam and Alwadie A, "The Design of an Intelligent Decision Making System on the Existence of Gear Fault Signatures in Instantaneous Power Spectrum of Induction Motor," *Neural Computing & Applications*. (Under Review)
16. Adam Glowacz, Zygfryd Glowacz, **Muhammad Irfan**, Gurmeet Singh, Hui Liu, Eleonora Carletti, Daniel Korenciak, Frantisek Brumercik, Faizal Khan and Miroslav Gutten "Rotor fault diagnosis of three-phase induction motor using MSAF-12 and vibration signals," *Computers and Electrical Engineering*, October 2017. (Under Review)

Book Chapters:

1. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim, Vijanth S Asirvadam, Alwadie A, Nursynrizal and M. Aman "A Hardware and Software Integration Approach for Development of a Non-Invasive Condition Monitoring Systems for Motor-Coupled Gears Faults Diagnosis," *Modeling, Design and Simulation of Systems - Springer*, Vol. 751, pp. 642-655, August 2017. **(SCOPUS)**
2. Omar Shorman, Tariq Ali and **Muhammad Irfan**, "EEG Analysis for Pre-Learning Stress in the Brain," *Modeling, Design and Simulation of Systems - Springer*, Vol. 752, pp. 447-455, August 2017. **(SCOPUS)**
3. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim, Vijanth S Asirvadam, Alwadie A and Muhammad Aman, "An Assessment on the Non-Invasive Methods for Condition Monitoring of Induction Motors," *Fault Diagnosis and Detection- ISBN 978-953-51-5011-4*, InTech Publishing, May 2017.
4. Muhammad Aman, Nursyarizal, Tayyab, and **Muhammad Irfan**, "Non-Invasive Methods for Condition Monitoring and Electrical Fault Diagnosis of Induction Motors," *Fault Diagnosis and Detection- ISBN 978-953-51-5011-4*, InTech Publishing, May 2017.
5. Muawia Magzoub, Nordin Saad, Rosdiazli Ibrahim and **Muhammad Irfan**, "An Optimized Hybrid Fuzzy-Fuzzy Controller for PWM-Driven Variable Speed Drives," *Induction Motors Applications, Control and Fault Diagnostics-ISBN 978-953-51-2207-4*, InTech Publishing, DOI: 10.5772/61086, November 2015.

Conference Papers:

1. Muawia Magzoub, N. Saad, R. Ibrahim and **Muhammad Irfan,** "A Genetic Algorithm Optimization of Hybrid Fuzzy-Fuzzy Rules in Induction Motor Control," *The 6th IEEE International Conference on Intelligent and Advanced Systems (ICIAS)*, Malaysia**,** August 2016. (SCOPUS & ISI Indexed).
2. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim and Vijanth S Asirvadam, "An Approach to Diagnose Inner Race Surface Roughness Faults in Bearings of Induction Motors," *IEEE International Conference on Signal and Image Analysis (ICSIPA)*, Kuala Lumpur, Malaysia, October 2015. (SCOPUS & ISI Indexed).
3. Muawia Magzoub, N. Saad, R. Ibrahim and **Muhammad Irfan,** "The Effects of Internal and External Disturbances for the Hybrid Fuzzy-Fuzzy Controller Applied to IM-Drive," *The 10th Asian Control Conference (ASCC 2015)* Kota Kinabalu, Malaysia, June 2015. (SCOPUS & ISI Indexed).
4. N. T Hung, Idris Ismail, Nordin Saad and **Muhammad Irfan,** "Design of Optimal GBN Sequences for Identification of MIMO Systems," *The 10th Asian Control Conference (ASCC 2015)* Kota Kinabalu, **Malaysia**, June 2015. (SCOPUS & ISI Indexed).
5. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim and Vijanth S Asirvadam, " Diagnosis of Distributed Faults in Outer Race of Bearings via Park's Transformation Method," *The 10th Asian Control Conference (ASCC)* Kota Kinabalu, Malaysia, June 2015. (SCOPUS & ISI Indexed).
6. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim and Vijanth S Asirvadam, "A Non Invasive Fault Diagnosis System for Induction Motors in Noisy Environment," *IEEE International Conference on Power and Energy (PECon)*, Malaysia**,** December 2014. (ISI Indexed).
7. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim and Vijanth S Asirvadam, " Analysis of Bearing Outer Race Defects in Induction Motors," *The 5th IEEE International Conference on Intelligent and Advanced Systems (ICIAS)*, Malaysia, June 2014. (ISI Indexed).
8. N. T Hung, Idris Ismail, Nordin Saad and **Muhammad Irfan**, "Design of Multi Model Predictive Control for Nonlinear Process Plant," *The 5th IEEE International Conference on Intelligent and Systems*, Malaysia, June 2014. (ISI Indexed).
9. N. T Hung, Idris Ismail, Nordin Saad and **Muhammad Irfan**, "A Practical Approach of Control of Real Time Nonlinear Process Plant Using Multiple Model Predictive Control," *Proceedings of the 6th IEEE*

International Conference on Modelling, Identification & Control (ICMIC), Australia, December 2014. (ISI Indexed).

10. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim and Vijanth S Asirvadam, " Development of an Intelligent Condition Monitoring System for AC Induction Motors using PLC," *IEEE Business Engineering and Industrial Applications Colloquium*, Langkawi, Malaysia, April 2013.
11. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim and Vijanth S Asirvadam, " AC Motor Fault Diagnosis at Incipient Stages using Programmable Logic Controller," *IEEE Conference on Sustainable Utilization and Development in Engineering and Technology*, Cyberjaya, Malaysia, May 2013.
12. **Muhammad Irfan**, Nordin Saad, Rosdiazli Ibrahim and Vijanth S Asirvadam, "An Intelligent Diagnostic System for Condition Monitoring of AC Motors," *The 8th IEEE Conference on Industrial Electronics and Applications*, Melbourne, Australia, June 2013. (ISI Indexed).

COMMUNITY SERVICES

- **Conducted a workshop** on "*Introduction to LabVIEW Programming and its Applications in the Industry*", Najran University, December 2017.
- **Conducted a workshop** on "*How to Write a Research Proposal*", Najran University, October 2017.
- **Editor** of the Book, "*Advanced Condition Monitoring and Fault Diagnosis of Electric Machines*" Publisher *IGI Global*.
- **Member of the Advisory Board** of the *Cambridge Scholars Publishing*.
- **Editorial Board Member** of the *Journal of Electronic Research & Application*.
- **Editorial Board Member** of the *Journal of Smart Construction Research.*
- Reviewer for *IEEE Transactions on Industrial Informatics*, examine manuscript with regard to its suitability for publication.
- Reviewer for *IEEE Sensors Journal*, examine manuscript with regard to its suitability for publication.
- Reviewer for *Mechatronics-Elsevier*, examine manuscript with regard to its suitability for publication.
- Reviewer for *Electric Power Components and Systems-Taylor & Francis*, examine manuscript with regard to its suitability for publication.
- Reviewer for *International Journal of Power Electronics & Drive Systems*, examine manuscript with regard to its suitability for publication.
- Reviewer for *Journal of Engineering Research* examine manuscript with regard to its suitability for publication.
- Reviewer for *International Journal of Measurement Technologies and Instrumentation Engineering*, examine manuscript with regard to its suitability for publication.

RESEARCH AWARDS & FUNDINGS

- *Silver Award* in ITEX-15(May 2015) held in Kuala Lumpur, Malaysia.
- *Best Paper Presenter Award* in ICIAS 2014.
- *Silver Award* in SEDEX-31 (August 2014) held in UTP, Malaysia.
- *Research Sponsorship* from Ministry of Higher Education Malaysia under Prototype Research Grant Scheme 2016-2017.
- *Research Sponsorship* from Ministry of Higher Education Malaysia under Exploratory Research Grant Scheme 2011-2013 (ERGS/1/2012/TK02/UTP/02/09).
- *Research Sponsorship* from Universiti Teknologi PETRONAS under Universiti Research Innovation Fund (URIF) 2014-2016.

TRAININGS/WORKSHOPS/DISTINCTIONS

- Certification of **Vibration Analysis ISO 18436-2** (JSME), October 2016.
- Certification of **Vibration Analysis ISO 18436-1** (SKF Sdn Bhd Malaysia), March 2016.
- Attended training on **LabVIEW® Programming**, organized by National Instruments Sdn. Bhd., Malaysia, December 2015.
- Attended training on **Fundamentals of Sensor Measurements using LabVIEW**® organized by National Instruments Sdn. Bhd., Malaysia, September 2015.
- Attended **hands on workshop on Matlab®** held in University of Malaya, Malaysia, 2014.
- Attended Training course on *Oil & Gas Project Management* organized by Universiti Teknologi PETRONAS, Malaysia in collaboration with TOTAL E&P Malaysia, 2014.
- Attended **hands on workshop on LabVIEW®** held in Penang Skill Development Center, Malaysia, 2013.
- Attended a seminar on **Graphical System Design** held in Penang, Malaysia, 2012.
- Attended Training workshop on **PLC Programming** held in Roshan Packages Pvt Ltd, 2011.

- Attended the workshops on **Preventive Maintenance to TPM** held in Pakistan Institute of Management & Sciences Lahore, 2010.
- Remain President of University Student Council (2015~2016).
- Remain the Captain of College Cricket Team.

SOFTWARE SKILLS

- LabVIEW®, Matlab®
- C, Visual Basic, GX Developer,
- PLC (Siemens, ABB, Mitsubishi, OMRON)
- Keil, Proteus, CNC Simulator, PCB Designing
- AutoCAD Professional, Solid Edge

PROFESSIONAL MEMBERSHIPS

- IEEE, IET
- Pakistan Engineering Council Membership.

THESIS

Ph.D Thesis Title: A Non-Invasive Condition Monitoring and Fault Diagnosis System for Induction Motors.
M.Sc Thesis Title: Condition Monitoring of Induction Motors via Instantaneous Power Analysis.

PERSONAL BIODATA

Marital status	Single
Passport number	CN1983822
Languages	English, Urdu, Arabic
Nationality	Pakistan

REFERENCES

Dr. Nordin Saad
Associate Professor
Universiti Teknologi PETRONAS, Malaysia
Email: nordiss@utp.edu.my

Dr. Abdullah S Alwadie
Dean, College of Engineering
Najran University, Saudi Arabia
Email: asalwadie@nu.edu.sa

Dr. Tariq Ali
Assistant Professor
COMSATS Institute of Technology, Sahiwal, Pakistan
Email: tariqali@ciitsahiwal.edu.pk