



## Tanweer Hussain, PhD

Associate Professor, Department of Mechanical Engineering  
Mehran University of Engineering & Technology, Jamshoro  
Phone: (Off) +92 (0) 22 277 1275, (Mobile) +92 (0) 322 309 7794  
Email: [tanweer.hussain@faculty.muet.edu.pk](mailto:tanweer.hussain@faculty.muet.edu.pk), [tanweer08@hotmail.com](mailto:tanweer08@hotmail.com)

### 1. Current Area(s) of Research:

I have research expertise in design, modelling and analysis of mechanical assemblies, stochastic and uncertainty analysis of mechanical system. In general, this research is involved in the development and application of analytical and numerical analysis methods to predict and better understand the performance of complex mechanical assemblies. Current areas of interest include:

- Aero-engine assembly design.
- Controlling variation propagations in mechanical assembly of high speed rotating machines and assembly process optimization.
- Probabilistic/stochastic analysis of assembly tolerances, Probabilistic analysis of multivariate systems.

### 2. Awards/Honours:

- Award of fully funded PhD Scholarship by HEC under Faculty Development Program.
- Involved in assembly design of Jet Engine Casing Rotor at Rolls Royce Plc. UK, (Jan 2008 – Aug 2011). Studied and analysed T-500, T-900 and T-1000 jet-engines for error propagations during assembly and developed methods for controlling assembly variation propagations.
- Involved in assembly design of Jet Engine Casing with MTU Aero Engines GmbH Germany, (June 2010 – Sep 2011). Studied and analysed Outward Guide Vane (OGV) casing assembly of aero-engine. Developed methods for optimisation of assembly process and controlling assembly variation propagations.
- Gold Medal award received from Al-Zahra Foundation, Nottingham, UK.
- Author/ co-author of **06** research papers published in high ranking International research journals in the field of Manufacturing Engineering.
- Author/ co-author of **13** research papers published in HEC recognised National (Pakistani) Science and Engineering journals.

### 3. Professional Experience

- Associate Professor (15-04-2013 to to-date)** Department of Mechanical Engineering  
Mehran University of Engineering & Technology, Jamshoro
- Assistant Professor (16-07-2012 to 14-04-2013)** Department of Mechanical Engineering  
Mehran University of Engineering & Technology, Jamshoro

- iii. **Lecturer** (20-01-2003 to 15-07-2012) Department of Mechanical Engineering  
Mehran University of Engineering & Technology, Jamshoro
- iv. **Lab Demonstrator** (2008 to 2010) School of Mechanical, Materials and Manufacturing Engg,  
The University of Nottingham, England UK.
- v. **Maintenance & Q.C. Engineer** (22-06-2001 to 19-01-2003) Dewan Sugar Mills Ltd. (Polypropylene Div.)

***Job Responsibilities***

- Maintenance of compressors, pumps, power equipment and other plant machinery.
- Supervise Q.C. team and to inspect the product quality to meet the customer's requirement.
- Observe quality inhibiting situation and eliminate these conditions.

**4. International Publications:**

- i. Hussain T., Yang Z., Popov A. A. and McWilliam S. (2011), "Straight-Build Assembly Optimization: A Method to Minimize Stage-by-Stage Eccentricity Error in the Assembly of Axisymmetric Rigid Components (Two-Dimensional Case Study)", ASME Journal of Manufacturing Science and Engineering, Vol.133(3), p.031014/1-9.
- ii. Hussain, T., McWilliam, S., Popov, A. A. and Yang, Z. (2012), "Geometric Error Reduction in the Assembly of Axi-symmetric Rigid Components - A 2D Case Study", Proceedings of the Institution of Mechanical Engineers, Part B, Journal of Engineering Manufacture, Vol. 226(7), p. 1259-1274.
- iii. Yang Z., Hussain T., Popov A. A. and McWilliam S. (2011), "Novel Optimization Technique for Variation Propagation Control in an Aero-Engine Assembly", Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture, Vol. 225(1), p. 100-111.
- iv. Yang Z., Hussain T., Popov A. A. and McWilliam S. (2011), "A Comparison of Different Optimization Techniques for Variation Propagation Control in Mechanical Assembly", IOP Conference Series: Journal of Materials Science and Engineering, Vol.26(1), p. 1-11.
- v. Yang Z., McWilliam S., Popov A. A. and Hussain T. (2013), "A Probabilistic Approach to Variation Propagation Control for Straight Build in Mechanical Assembly", International Journal of Advanced Manufacturing Technology, Vol. 64(5-8), p. 1029-1047.
- vi. Yang Z., McWilliam S., Popov A. A., Hussain T., and Yang, H., "Dimensional Variation Propagation Analysis in Straight-Build Mechanical Assemblies Using A Probabilistic Approach", Journal of Manufacturing Systems, Vol. 32(2), p. 348-356.

**5. National Publications:**

- i. Hussain, T., Memon, A. R., and Larik, J. (2013), "Analysis of Thermal Desorption System for the Chemical Treatment of Old Storages of Oil Based Mud", Mehran University Research Journal of Engineering and Technology, Vol. 32(2), p. 71-80.
- ii. Hussain, T., Abbasi, A. F., and Daudpoto, J. (2013). "Tolerance Analysis in Straight-Build Mechanical Assemblies Using a Probabilistic Approach-2D Assembly", Mehran University Research Journal of Engineering and Technology, Vol. 32(2), p. 319-328.

- iii. Hussain, T., Shaikh, G. Y., and Shaikh, S. A. (2013). "Variation Propagation Control in Straight-Build Assemblies: 2D Case Study", *Mehran University Research Journal of Engineering and Technology*, Vol. 32(1), p. 71-80.
- iv. Hussain, T., Ali, Z., Daudpoto, J., Khaliqdina, J.H., and Memon, I. A. (2012), "A Probabilistic Tolerance Analysis for Mechanical Assembly of Rotating Machines", *Sindh University Research Journal (Science Series)*, Vol. 44(4): 565- 570.
- v. Hussain, T., Memon, M. and, Ali, Z. (2012), "Prediction of Elastic-Plastic Behaviour of Structures at Notches", *Mehran University Research Journal of Engineering and Technology*, Vol. 31(3): 545-552.
- vi. Hussain, T., Ali, Z., and Larik, J. (2012), "A Study on Tolerance Representation, Variation Propagation Analysis and Control in Mechanical Assemblies", *Sindh University Research Journal (Science Series)*, Vol. 44(3): 427-432.
- vii. Pathan, D. M., Ali, Z., and, Hussain, T. (2012), "Analysis of the Controllers for the Transitional Manoeuvres of Adaptive Cruise Control Systems", *Mehran University Research Journal of Engineering and Technology*, Vol. 31(3): 545-552.
- viii. Ali, Z., Jumani, S., and Hussain, T. (2012), "Sliding Mode Control for Longitudinal Control of a Platoon of Adaptive Cruise Control Vehicles", *Sindh University Research Journal (Science Series)*, Vol. 44(2): 245-250.
- ix. Ali, Z., Jumani, S., and Hussain, T. (2012), "Analysis of the Automotive Powertrain Model for Longitudinal Dynamics Control using Look-up Tables", *Sindh University Research Journal (Science Series)*, Vol. 44(2): 281-290.
- x. Pathan, D. M., Hussain, T., Daudpoto, J., and Memon, I. A. (2012), "Neural Network Steering Controller for a Ship", *Sindh University Research Journal (Science Series)*, Vol. 44(3): 395-398.
- xi. Ali, Z., Pathan, D. M. and Hussain, T., (2012), "Analysis of an ACC System for Sliding Mode and MPC under Transitional Manoeuvres", *Mehran University Research Journal of Engineering and Technology*, Vol. 31(4): 669-676.
- xii. Memon, M., Hussain, T. and, Ali, Z. (2012), "Minimizing Assembly Errors by Selecting Optimum Assembly Sequence in the Assembly of Rigid Circular Structure", *Mehran University Research Journal of Engineering and Technology*, Vol. 31(4): 743-754.
- xiii. Daudpoto, J., Ali, Z., Hussain, T., and Khaliqdina, J.H., (2012), "Design, Development and Characterisation of a Bundled SMA Actuator", *Sindh University Research Journal (Science Series)*, Vol. 44(4): 641-644.

## **6. International Conferences**

- Hussain T, Yang Z, Popov A. A., and McWilliam S. Controlling Variation Propagations in Straight Build of an Assembly by Process Optimization Methods (2D Case Study). *21<sup>st</sup> International Computer –Aided Production Engineering Conference (CAPE 2010)*, Edinburgh, UK, 2010.
- Yang Z., Hussain T., Popov A. A. and McWilliam S., "A Comparison of Different Optimization Techniques for Variation Propagation Control in Mechanical Assembly". *Trends in Aerospace Manufacturing (TRAM 2009) International Conference*, Sheffield, UK, 2009.

## **7. Projects Supervised:**

- Generation of mechanical power from load exerted by slow moving vehicles on speed breakers.
- Design and Fabrication of power generating speed breaker.