

MUHAMMAD UMER HAMEED SHAH

Department of Mechanical Engineering College of Engineering and Information Technology

Academic Rank

Assistant Professor, Department of Mechanical Engineering.

Qualifications

- PhD Mechanical Engineering, Pusan National University, South Korea (2018)
- MS Mechanical Engineering, National University of Sciences and Technology, Pakistan (2012)
- BE Mechanical Engineering, National University of Sciences and Technology, Pakistan (2005)

Research field(s)

- Dynamics and Control of Underactuated Mechanical Systems
 Hybrid ODE-PDE Systems
 Crane Systems
 Vehicle Suspension Systems
 Marine Risers
 Underwater Vehicle-Manipulator Systems
 Nuclear Refueling Machines
 Compliant Manipulators
 - Vision-Based Tactile Sensors
- Control Theory
- Lyapunov Stability

Publications (Last five years)

- Hong, Keum-Shik, and Umer Hameed Shah. "Vortex-induced vibrations and control of marine risers: A review." Ocean Engineering 152 (2018): 300-315.
- Shah, Umer Hameed, and Keum-Shik Hong. "Active vibration control of a flexible rod moving in water: Application to nuclear refueling machines." *Automatica* 93 (2018): 231-243.
- Hong, Keum-Shik, and Umer Hameed Shah. Dynamics and control of industrial cranes. Springer Singapore, 2019.



- Shah, Umer Hameed, Mansour Karkoub, Deniz Kerimoglu, and Hong-Du Wang. "Dynamic analysis of the UVMS: effect of disturbances, coupling, and joint-flexibility on end-effector positioning." *Robotica* 39, no. 11 (2021): 1952-1980.
- Shah, Umer Hameed, Rajkumar Muthusamy, Dongming Gan, Yahya Zweiri, and Lakmal Seneviratne. "On the design and development of vision-based tactile sensors." *Journal of Intelligent & Robotic Systems* 102, no. 4 (2021): 1-27.
- Lin, Zhi, Hong Du Wang, Mansour Karkoub, Umer Hameed Shah, and Ming Li. "Prescribed performance based sliding mode path-following control of UVMS with flexible joints using extended state observer based sliding mode disturbance observer." *Ocean Engineering* 240 (2021): 109915.
- Niu, Zhenwei, Mohammad I. Awad, Umer Hameed Shah, Mohamed N. Boushaki, Yahya Zweiri, Lakmal Seneviratne, and Irfan Hussain. "Towards safe physical human-robot interaction by exploring the rapid stiffness switching feature of discrete variable stiffness actuation." *IEEE Robotics and Automation Letters* 7, no. 3 (2022): 8084-8091.

Courses Taught (Last five years)

- Engineering Mechanics Dynamics
- Manufacturing Technology
- Machine Design
- Design of Machine Elements
- Fluid Mechanics
- Heat Transfer
- Introduction to Engineering
- Turbomachines

Professional Experience

- Assistant Professor, College of Engineering and Information Technology, Department of Mechanical Engineering, Ajman University, UAE (Aug. 2021 ~ date).
- Postdoctoral Research Fellow, Department of Mechanical Engineering, Khalifa University, UAE (Aug. 2019 ~ June 2021).
- Postdoctoral Research Associate, Mechanical Engineering Program, Texas A&M University at Qatar, Qatar (Nov. 2018~July 2019)
- Postdoctoral Researcher, School of Mechanical Engineering, Pusan National University, South Korea (March 2018 ~ Oct. 2018).
- Lecturer, Mechatronics Engineering Department, National University of Sciences and Technology (March 2012 ~ February 2013)

Committees Work

CO-OP Committee



CEIT Plan

Honors and Awards

- PhD Scholarship: The World Class University Program, South Korea (March. 2013 ~ Feb. 2018)
- Best paper award: ICROS/KROS/KIIS, Pusan National University, Korea (Dec. 2013)
- Best presentation award: 14th International Conference on Control, Automation and Systems (ICCAS 2015), KINTEX, Korea (Oct. 2014)
- Outstanding paper award: 2015 International Automatic Control Conference (CACS 2015), Yilan, Taiwan (Nov. 2015)
- Student Travel Grant Award: The Society of Instrument and Control Engineers (SICE), SICE Annual Conference, Kanazawa, Japan (Sept. 2017)
- Received Internal Seed Grant from Ajman University, UAE (2022)
- Received AU funded research grant (AY 2022-23)