

Dr. Mumtaz Hussain Qureshi

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HIGHLIGHTS

- Professional academic with nearly 12 years of experience in teaching and research, and two years of industrial experience.
- Expertise in optical measurement methods in thermal and fluid sciences such as Particle Image Velocimetry (PIV), Particle Tracking Velocimetry (PTV), and Particle Streak Velocimetry (PSV) computationally and experimentally.
- Expertise to develop MATLAB codes for PSV.
- Served in various administrative roles over the years
- Highly rated teacher with exceptional feedback in Bachelor's and Master's programs.
- Development of Student chapters ASME (American Society of Mechanical Engineers) and IMechE (Institution of Mechanical Engineers).
- Conducted Seminars and conferences nationally and internationally.

ACADEMIC BACKGROUND

Ph.D. in Mechanical Engineering

June 2022

National Taiwan University of Science and Technology (Taiwan Tech), Taipei, Taiwan Ph.D. research in Optical Measurement Methods in Thermal and Fluid Sciences under the supervision of Prof. Wei-Hsin Tien.

M. Eng. in Mechanical Engineering

March 2012

NED University of Engineering & Technology (NED UET), Karachi, Pakistan
Specialization: Energy systems

B.Eng. in Mechanical Engineering

February 2003

NED University of Engineering & Technology (NED UET), Karachi, Pakistan

EMPLOYMENT HISTORY

Assistant Professor, Department of Mechanical Engineering

July 2013 – Present

NED University of Engineering & Technology, Karachi, Pakistan

Ph.D. Research Scholar, Department of Mechanical Engineering

September 2016 – June 2022

National Taiwan University of Science and Technology, Taipei, Taiwan

Lecturer, Department of Mechanical Engineering

May 2011 – July 2012

NED University of Engineering & Technology, Karachi, Pakistan

Lecturer, Department of Mechanical Engineering

November 2004 – May 2011

Government College of Technology S.I.T.E. Karachi, Pakistan

(Affiliated with NED University of Engineering & Technology)

Lecturer, Department of Industrial Manufacturing Engineering
Dawood College of Engineering & Technology, Karachi, Pakistan

March 2003 – November 2004

Project Engineer

National Refinery Limited Korangi Karachi, Pakistan

June-July 2009

ADMINISTRATIVE RESPONSIBILITIES

- Industrial Liaison Coordinator (I.L.C.), NED UET, 2022-Present
- ASME (American Society of Mechanical Engineers) coordinator, NED UET, 2012-2016
- IMechE (Institution of Mechanical Engineers) coordinator, NED UET, 2014-2016
- DICE energy Industrial Projects coordinator, NED UET, 2015
- Research Assistant, Optical Thermal Fluid Sciences Laboratory, Taiwan Tech, Taiwan, 2017-2019
- Seminar Coordinator, Taiwan Tech, Taiwan 2019-2020
- Member of organization Committee in International conference, NED UET, 2013

TEACHING RESPONSIBILITIES

Undergraduate Courses

Heat and Mass Transfer, Fluid Mechanics II, Thermodynamics, Fundamentals of Thermal-Fluid Engineering.

Postgraduate Course

Advanced experimental fluid mechanics

SPECIAL ACHIEVEMENTS

Honors and Awards

- A+ grade in doctoral examination at Taiwan Tech, June 2022
- Continuing Ph.D. Scholarship, awarded by Taiwan Tech, 2019–2021
- NTUST Scholarship for Ph.D. studies, awarded by Taiwan Tech, 2016–2019

Professional Activities

- Approved Ph.D. Supervisor of Higher Education Commission (HEC), Pakistan
- Member of Pakistan Engineering Council (PEC), registration number 17623 (Mechanical)
- Member of ASME student chapter and IMechE student chapter, NED University of Engineering & Technology, Karachi, Pakistan, 2008

FUNDED RESEARCH PROJECTS

- Principal Investigator, Novel streak direction resolving algorithm in complex flows using Particle Streak Velocimetry (Independent Research Project), granted by NED University of Engineering & Technology, Karachi, Pakistan, 2023.
- Ph.D. scholar, Novel-streak resolving algorithm for particle streak velocimetry (MOST 106-2221-E-011-087-MY2) and (MOST 106-2221-E-011-087-MY2), granted by the Ministry of Science and Technology, Taiwan, 2022.
- Ph.D. scholar, Performance comparison of Particle Tracking Velocimetry (PTV) and Particle Image Velocimetry with long exposure particle streaks (MOST 106-2221-E-011-087-MY2), granted by the Ministry of Science and Technology, Taiwan, 2020.

JOURNAL ARTICLES

1. Qureshi, M.H. and W.-H. Tien, *Novel streak-resolving algorithm for particle streak velocimetry*. Flow Measurement and Instrumentation, 2022. **87**: p. 102208.
2. Qureshi, M.H., W.-H. Tien, and Y.-J.P. Lin, “Performances comparison of particle tracking velocimetry (PTV) and particle image velocimetry (PIV) with long-exposure particle streaks.” Measurement Science and Technology, 2020.

CONFERENCE CONTRIBUTIONS

1. “Performance of Particle Tracking Velocimetry (PTV) with Streak Images”. Second International Forum of Advanced Engineering Technology, Taipei, Taiwan, February 21-23, 2019.
2. “Performance of Particle Tracking Velocimetry (PTV) & Particle Image Velocimetry (PIV) with Streak \ Images”. The Third Forum of the Chinese Society of Visualization Science and Art, November 21, 2019.
3. Qureshi, M.H. and W.-H. Tien, *Performance of Particle Tracking Velocimetry (PTV) with Streak Images*. 13th International Symposium on Particle Image Velocimetry-ISPIV 2019, Munich, Germany, July 22-24, 2019. ISBN 978-3-943207-39-2. Doi:10.18726/2019_3.
4. Qureshi, M.H. and M. Shakaib. *A CFD (Computational Fluid Dynamics) Based Thermal Performance of Solar Air Heater With Rib-Roughened Channels*. in *ASME International Mechanical Engineering Congress and Exposition*. 2016. American Society of Mechanical Engineers.

SKILLS AND TRAININGS

Engineering Softwares and Programming Languages

- MATLAB
- Engineering Equation Solver (EES)

Programming Projects

- Developed the following codes in MATLAB programming.
 - Gaussian function as a particle image generation
 - Integral Gaussian function as a streak generation
 - Least-square curve-fitting with multi-variables
 - Noisy synthetic images
 - Streak image cropping

PROFESSIONAL TRAININGS

- “Professional Competency Enhancement Program for Teachers (PCEPT)” by National Academy of Higher Education (NAHE), Higher Education Commission (HEC), Pakistan, 8–30 December 2011.
- “Entrepreneurship Training” by the Institute of Business Administration (IBA), Karachi University, 1–5 June 2015.