Syed Riaz un Nabi Jafri

Qualification: Post doctorate (Nederland), Doctorate (Italy)
Experience: 20 years
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OBJECTIVE

To contribute for the educational development of the students and to share the state of the art research findings with in scientific community to enhance common living standards.

EDUCATION

Post doctorate (3D Indoor Modelling) 2017
Department of Earth Observation Sciences (EOS)
ITC - University of Twente
Enschede-Nederland

PhD (Mobile Robotics) 2013
Department of Pattern Analysis and Computer Vision (PAVIS)
Italian Institute of Technology-University of Genova
Genova-Italy

Master of Engineering (Industrial Electronics) 2007
Department of Electronic Engineering
NED University of Engineering & Technology, Karachi, Pakistan

Bachelor of Engineering (Industrial Electronics) 2003
Institute of Industrial Electronics Engineering P.C.S.I.R, Karachi, Pakistan
(Affiliated with NED University of Engineering & Technology, Karachi)

EXPERIENCES

Teaching Experience Summary
Assistant Professor in Department of Electronic Engineering (NEDUET, since 2008):

Graduate Level Courses:
Robotics and its Applications of Industrial Electronics: Transformations, Kinematics, DH parameterization, Robotic sensors and actuators, Signal conditioning, Trajectory planning
Industrial Control Systems: Physical and chemical processes, Process and instrumentation diagrams, PLCs, Industrial sensing, PLC ladder logics for actuators, PID control strategy, Discrete controllers, Pole placement control strategy
Selected Topics in IE (moving robot applications): Motion sensors, Laser scanners, IMU, Kalman Filtering, Localization and mapping (SLAM) using KF, Particle Filter based SLAM, Path Planning

Under-Graduate Level Courses:
Robotics: History, Robotic Components, Types of robots, Kinematics, Localization, Mapping
Industrial Electronics: Industrial sensors, actuators, embedded controllers, PLC, Ladder logic, PLC programming, Simatic S7-300 simulations
Analog Integrated Circuits: OP-Amp applications, Amplifiers, Signal Conditioning, Filters

Research Experience Summary

R&D Experience in Public Sector Organization (2003-2007):
Embedded controller applications, vehicle navigation using GPS-INS based solution, Instrumentation

Competitive Research Grants based Work Experience (2017-2024):
Principal Investigator of HEC (Pakistan)-NRPU-6061 project for Indoor Modelling (Rs. 2.9 million funded, finished in 2020), lead a team of two engineers and one MS student along with Co-PI to accomplish the project.
Principal Investigator of HEC (Pakistan)-TDF-02057 project for Outdoor Building Scanning and Mapping (Rs. 14 million funded, finished in 2022), lead a team of four engineers and one MS student to accomplish the project.
Co-Principal Investigator of HEC (Pakistan)-NCGSA project for Magnetometer Modelling (Rs. 15 million funded, in progress)

PhD and ME Research Work Supervision based Experience (2013-2024):
PhD Thesis Supervisor of two PhD Scholars (One scholar has completed PhD)
ME Thesis Supervision of various ME students

Experience and Familiarity with Various Tools and Applications:
Robotics project developments using ROS, Gazebo and MATLAB
Electronic tools usage, PLC hands-on experience on Siemens S7, OrCAD and NI Multisim

PUBLICATIONS

Papers with first PhD Scholar (PhD completed)
- Asif and **S. Riaz** et al., "A rover team based 3D map building using low cost 2D laser scanners", IEEE ACCESS (IF: 3.3), Vol. 2021, ISSN: 2169-3536, 2021.
- **S. Riaz** and Asif et al., "Compact Rover Surveying and Laser Scanning for BIM Development", PLOS One (IF: 3.7), Vol. 19(3), ISSN: 1932-6203, 2024.

Papers with second PhD Scholar
- Sheraz and **S. Riaz** et al., "Enhanced Vehicle Localization with Low-Cost Sensor Fusion for 3D Urban Mapping", IEEE Sensors Journal (IF: 4.3), (under review), ISSN: 1530-437X, 2024.
- **S. Riaz** and Sheraz et al., "Characterization and Calibration of Multiple 2D Laser Scanners", PLOS One (IF: 3.7), Vol. 17(7), ISSN: 1932-6203, 2022.

Papers with ME students
- **S. Riaz** et al., "Parametric Classification of furniture from point cloud developed using low cost trolley based laser scanning system", IEEE ACCESS (IF:3.3), June 2023, ISSN: 2169-3536.
- **S. Riaz** et al., "Slum Terrain Mapping using Low Cost 2D Laser Scanners", Elektronika IR Elektrotechnika (IF:1.1), Vol. 29(2) , ISSN: 1392-1215, 2023.

Some Selected Papers
- **S. Riaz,** J. Iqbal, H. Khan and R. Chellali, "A Unified SLAM solution Using Partial 3D Structure", Elektronika IR Elektrotechnika (IF:1.1), Vol. 20 (3), ISSN: 1392-1215, 2014.
- M. Peter, **S. Riaz** and G. Vosselman, "Line segmentation of 2D laser scanner point clouds for indoor slam based on a range of residuals", ISPRS Ann. Photogramm. Remote Sens. Spatial Inf. Sci., IV-2/W4, 363-369, 2017.
- **S. Riaz** et al., "Development of a low cost stationary laser scanning system for generation of building information models", Elektronika IR Elektrotechnika (IF:1.1), Vol. 28 (6), ISSN: 1392-1215, 2022.
- **S. Riaz** et al., "Development of Georeferenced 3D Point Cloud in GPS Denied Environments using Backpack Laser Scanning System", Elektronika IR Elektrotechnika (IF:1.1), Vol. 27 (6), ISSN: 1392-1215, 2021.