DANISH RAHMAN

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EDUCATION

COLUMBIA UNIVERSITY New York, NY
M.S. in Mechanical Engineering, Concentration in Robotics and Control
Major Coursework: Robotics Studio, Advanced Control Theory, Data Science for Mechanical Systems *Expected Dec. 2023*

TEXAS A&M UNIVERSITY AT QATAR (TAMU-Q) Doha, Qatar
B.S. in Mechanical Engineering *May 2018*
Pi Tau Sigma, Mechanical Engineering Honors Society
Major Coursework: Mechatronics in Mechanical Design, Dynamic Systems and Control, Manufacturing in Design

WORK EXPERIENCE

RHEINMETALL BARZAN ADVANCED TECHNOLOGIES (RBAT) Doha, Qatar
Systems Engineer *May 2021 – Jul. 2022*

- Facilitated the system design, architecture, and operation of state-of-the-art 8x8 electrified unmanned ground vehicles (UGVs)
- Defined system and software requirements for the development of a UGV Command and Control (C2) Software, focusing on autonomous features such as collision avoidance, waypoint navigation, target tracking, mission planning and execution
- Utilized Agile Scrum to facilitate the development of a UGV embedded software to match dynamically changing customer needs
- Led the Surveillance Payload Subsystem Project, which aims to develop a solution for an integrated ISR capable payload system for multi-clustered deployment
- Headed the Sensor Suite Project; designed developed and 3-D prototyped a physical sensor system of IMUs, thermocouples, voltage, current and rotational sensors; integrated with LabVIEW for data collection and analysis of performance parameters such as slippage ratio and power consumption for scenario-based operational limits
- Organized and conducted an intensive UGV prototype performance testing campaign on desert terrain in Qatar

Mechanical Engineer *Sep. 2018 – Apr. 2021*

- Conducted detailed data analysis and performance evaluation of lithium phosphate batteries, to determine battery characteristics such as charging and discharging curves in varying operational environments
- Developed and fabricated a miniature UGV prototype, using a customized motion controller with off-the-shelf sensors such as LiDAR, cameras and IMUs
- Performed electro-mechanical troubleshooting activities for critical failures of vehicle prototypes, including GPS systems, navigation systems, dead reckoning, lithium-ion battery system failure and vehicle drivetrain malfunctions

RESEARCH EXPERIENCE AND PROJECTS

COLUMBIA UNIVERSITY New York, NY
Robotics and Rehabilitation Lab (ROAR Lab) *Aug. 2022 – Present*

- Working on the Mobile Tethered Pelvic Assist Device (mTPAD) Project, developing a novel solution to augment motion stability in elderly people, and patients of Parkinson's and Cerebellar ataxia
- Collecting and analyzing locomotive data using PKMAS, LabVIEW and data acquisition systems to identify trends in gait position and weight distribution for different patients

TEXAS A&M UNIVERSITY AT QATAR (TAMU-Q) Doha, Qatar
Undergraduate Research Assistant *Jan. 2016 – May 2018*

- Analyzed the impact of different two-phase flow regimes on cooling efficiency in concentrated photovoltaic solar panels with Dr. Ibrahim Galal Hassan
- Conducted flow visualization on a test section to simulate CPV cell cooling to observe flow regimes with air and water flow rates
- Published ASME Research Papers in FESDM 2018, ICNMM 2019, Extended Abstract in ICTEA Doha 2018

Founding Team Member, SAE Supermileage *Aug. 2017 – Jun. 2018*

- Designed and developed a fuel-efficient three-wheel prototype vehicle for the Society of Automotive Engineers (SAE) Supermileage Competition 2018

RELEVANT ACTIVITIES AND AWARDS

TEXAS A&M UNIVERSITY AT QATAR (TAMU-Q) Doha, Qatar
Vice-President Internal, Student Engineers' Council *Sep. 2016 – Jun. 2018*

- Led a student-run organization focused on liaising between the student body and the TAMU-Q administration and faculty
- Awarded the Troy Marschang Award for Leadership Excellence, and the Buck Weirus Spirit Award

Aggie Service-Learning Experience Leader *May 2016*

- Guided a group of students to work with a UNRWA school for Palestinian refugees in Amman, Jordan

TECHNICAL SKILLS

- Technical Skills: Simulink, LabVIEW, SolidWorks, 3-D Prototyping, Pybullet, Git, JIRA, and Confluence
- Programming: Python, MATLAB, C
- Languages: English (native, full proficiency), Urdu (native, full proficiency)