Mohammad Reza Sadeghi

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Education

Iran University of Science and Technology (IUST)
BSc in Mechanical Engineering (2017-2021)
- Thesis title: Fault Detection of Bearings Using EMD & Deep Learning (FLANN)
- **3rd rank**, score: 18.6 out of 20 (**GPA 3.97**)

Salam-Tajrish Highschool
Diploma of Math & Physics (2016-2017)
- Score: 19.48 out of 20 (**GPA 4**)

Teaching Experiences

Iran University of Science and Technology (IUST)
- TA of Vector Dynamics - 2021
- TA of Mechanical Vibration (2 Semesters) – 2019 & 2020
- Vibration and Machine Dynamic Lab assistant - 2021

Scientific Society of Mechanical Eng. (SSME)
- Teaching MATLAB for beginners (2 courses) - 2021
- Teaching MATLAB (Advanced - Simulink) - 2020
- Teaching General Physics - 2018 & 2019

Publication

Under Preparation
- M. Rajabi, Y. Kaardan, **M. R. Sadeghi** (2022), Deep CNN for Remaining Useful Life for PHM Challenge.
- M. Rajabi, **M. R. Sadeghi** (2022), Fault Diagnosis Using Functional Link Artificial Neural Network for Turbine Flow Meters.
- M. Rajabi, **M. R. Sadeghi**, FlowCondition Monitoring, Case Study: Safety Vent of TBS/DRS Stations.

Published
- H. S. Naeini, Z. Kaviani, **M. R. Sadeghi**, In Preventing Occupational Traumas Throughout Ergonomic Design, J of Archives of Trauma Research (2020) [My contribution: Design and Optimize the target tool]

Research Interests

Condition Monitoring
Digital Twin
Machine Learning
Cyber-Physical Systems
Measurement Systems
Vibration & Dynamics
Mechatronics
Signal Processing

Skills

Computer:
Python
AI & Machine Learning
MATLAB
CAD (SolidWorks)
Abaqus
LabVIEW
Arduino & Raspberry Pi
Altium Designer

Language:
English (IELTS 6.5)
Persian (Native)

Other:
Sheetmetal
Soldering

Academic/Lab Experiences

National Iranian Gas Transmission Company (NIGTC)
Research Assistant   *Since 2019*
- Data analysis, turbine flow meters health monitoring
- Designing a smart alarm system for TBS/DRS stations
- Diagnosis of flow meters using artificial intelligence (AI)
- Build a Sound and Vibration DAQ system (Arduino)

Iran University of Science and Technology (IUST)
- Build and Design a yarn winder (mechatronics) – 2021
- Design and Optimize composite gear (based on NASA research) – 2020
- Design a screw press machine
- Build and Design a smart greenhouse - 2018

Professional Experiences

Lambert Mech. – Personal Projects
Mechanical Designer – R&D Engineer   *Since 2019*
- Spectrometer DAQ System (for Agriwatch – Netherland)
- Monitor and control PMDC motor (for Ava Polymer company)
- Prediction flow parameters using AI (LSTM & ConvLSTM)
- Analyzing anthropometric data using AI
- Write a visualization package for Heisler Charts (Uploaded on Pypi & Github)
- Build, Design & Optimize a bridge prototype using Genetic Algorithm & SFLA

ISENSE – Structural Health Monitoring Company
Mechanical Designer – R&D Engineer   *Since Aug 2021*
- Vibration Analysis
- Metal Enclosure Design (Sheetmetal – Solidworks)
- Collaborating with Sensor Network DAQ team

IPC Company
Mechanical Designer   *2019-2020*
- Laser cut design for PMMA (Plexiglass) panels
- Collaborating with PVD Coating team
- Metal Enclosure Design (Sheetmetal – Solidworks)
- Design a screw press machine
- Build and Design a smart green house – 2018

NABZ Company
R&D Engineer (Intern)   *Summer 2019*
- Conduct research about Blood Pressure Measurement Devices
- Acoustic analysis of a stethoscope (Abaqus)
- Build & design a small acoustic chamber

Awards

- Accepted as gifted student for Sharif University of Technology for master program (2021)
- Accepted as gifted student for Tehran University for master program (2021)
- 3rd rank of mechanical engineering campus (2021)
- Honorary member of scientific society of mechanical engineering (2020)
- First Rank of Bridge prototype design competition (2018)
- Acceptance as the top first percent University Entrance Exam (2017)
- Acceptance in first stage of Physics Olympiad (2016)
- Acceptance in first stage of Astrophysics Olympiad (2016)

Extracurricular Courses

- Bayesian Signal and Image Processing (ISAV)
- Physical vapor deposition Workshop (IPIA)
- Deep Learning Summer School (Kharazmy University)
- Bayesian statistics (Coursera)
- NDT Workshop (Tehran University)
- General Engineering Acoustics (ISAV)
- PVD Coating (IPIA)
- Other: Advanced SolidWorks, Python, MATLAB, COMSOL & Abaqus