M. Reza Sadeghi

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Milan, Italy

Education

Polytechnic University of Milan, Milan, Italy
Master of Energy Engineering
September 2022 – Present
- Focusing on Reliability and Condition Monitoring

Iran University of Science and Technology (IUST), Tehran, Iran
Bachelor of Mechanical Engineering
September 2017 – September 2021
- GPA 0f 3.96/4 – 3rd rank of the campus
- Thesis: Bearing Fault Detection Using EMD and Ensemble Neural Network, under Dr. Rajabi supervision

Salam Tajrish, Tehran, Iran
Bachelor of Mechanical Engineering
April 2016 – June 2017
- GPA 0f 4/4
- Acceptance as the top one percent of applicants

Professional Experiences

ISENSE Health Monitoring, Tehran, Iran
Mechanic: R&D Engineer
August 2021 – August 2022 (part-time)
- Vibration analysis: signal processing and research on mechanical joints looseness
- Designed & built crack meter calibration setup with nearly 10-micrometer accuracy.
- Designed, analyzed, and manufactured data loggers enclosures

IPC Company, Tehran, Iran
Mechanical Designer
November 2019 – March 2021 (part-time)
- Designed PMMA structures (mostly laser-cut)
- Designed rectifier metal enclosures
- Developed a laboratory pressure mat

Nabz Company, Tehran, Iran
R&D Intern
April 2019 – September 2019
- Analyzed the stethoscope acoustic structure in Abaqus
- Researched signal & systems field
- Designed and manufactured an acoustic chamber

Nilper Company, Tehran, Iran
R&D Intern
April 2018 – July 2018
- Researched furniture manufacturing processes
- Researched Mold die-cast design

Skills

Python Programming
AI & Machine Learning
MATLAB (Advanced)
CAD (Solidworks - Expert)
Abaqus
Arduino
COMSOL

Interests

Reliability
Industry AI
Rotor Dynamics
Machine Learning
Mechatronics
Vibration & Dynamics
Digital Twin
Signal Processing
Ultrasonic

Languages

English (Fluent)
Persian (Native)
Italian (A1, beginner)

Academic & Lab Experiences

National Iranian Gas Transmission Company, Tehran/Rey/Mashhad, Iran
November 2019 – September 2022
- Data analysis: turbine flow meters health monitoring
- Designing a smart alarm system for TBS/DRS stations
- Diagnosis of flow meters using artificial intelligence (AI)
- Ultrasonic Data Acquisition
- Build a simple Sound and Vibration DAQ system (Arduino)

Iran University of Science and Technology (IUST), Tehran, Iran
April 2018 – June 2022
- Head of MATLAB competition judges and test makers in 2020 & 2022
- TA of Vector Dynamics - 2021
- TA of Mechanical Vibration (2 Semesters) – 2019 & 2020
- Teaching MATLAB for beginners (2 courses) - 2021
- Teaching MATLAB (Advanced - Simulink) - 2020
- Teaching General Physics - 2018 & 2019

Publications

Turbine Flow Meter Fault Diagnosis Using Ultrasonic – Atmospheric Case Study
Under Publication (2022)
M. Reza Sadeghi, M. Ghahghaei, Y. Kardan, K. Samradjah, M. Rajabi*

Bearing Fault Detection Using EMD and Ensemble Neural Network
Under Publication (2022)
M. Reza Sadeghi, M. Rajabi*

Equivalent Young's Modulus of Metal Foams Based on Resonance Frequencies
Under Publication (2022)
M. Reza Sadeghi, M. T. Ahmadian*

In Preventing Occupational Traumas Throughout Ergonomic Design
Journal of Archives of Trauma Research (2020)
H. S. Naeini*, Z. Kaviani, K. Karuppiah, **M. R. Sadeghi**

Projects

Turbine Flow Meter Fault Diagnosis – NIGTC 2019-2022
Industrial Project – My contribution: Data analysis and Data Acquisition
TFM Fault detection and health index evaluation using ultrasonic data

Chemical Reactor – Beta Resin 2021-2022
Personal Project (Lambert)
Build & Design a reactor that is able to control rotation speed and measure its torque (500 RPM - 0.5 Nm). Currently, this device is operating in Beta resin company, and the patient is under submission.

Heisler chart auto visualization - 2021
Personal Project (Lambert)
Create a python package to facilitate the process of using the Heisler charts graphically (Available on GitHub)

Other Personal Projects (Lambert):
- Prediction flow parameters using AI (LSTM & ConvLSTM)
- Analyzing anthropometric data using AI
- Designing a 50 ton screw press
- Build, Design & Optimize a bridge prototype using Genetic Algorithm & SFLA
- Designing the mechanical parts of a rubber tensile test setup

Awards

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

Extracurricular Courses

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