M. Reza Sadeghi

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Milan, Italy

❖ Education

Iran University of Science and Technology (IUST), Tehran, Iran
Bachelor of Mechanical Engineering

September 2017 – September 2021
- **GPA of 3.96/4** – 3rd rank of the campus
- Thesis: Bearing Fault Detection Using EMD and Ensemble Neural Network, under Dr. Rajabi's supervision
- Notable Courses: **Measurement systems**, Vibration, Control, and **NDT/CM**
- Honorary member of the Scientific Society of Mechanical Engineering (IUST)

❖ Selected 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 a **calibration setup** with nearly 10-micrometer accuracy for crack meters (designed with **strain gauges** for concrete).
- Designed, analyzed, and manufactured **temperature and strain data loggers** enclosures

IPC Company, Tehran, Iran
Mechanical Designer

November 2019 – March 2021 (part-time)
- Developed a laboratory pressure mat using FSR sensors
- Designed PMMA structures and enclosures for switching rectifiers

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

Skills

Python (Data Science)
MATLAB (Advanced)
CAD (Solidworks - Expert)
ABAQUS
COMSOL
Signal Processing

Interests

Industry AI
PHM
Condition Monitoring
Measurement systems
Vibration & Dynamics
Digital Twin
Signal Processing
Machine learning

Languages

English (IELTS 6.5)
Persian (Native)
Italian (A1, beginner)

❖ Publications

Turbine Flow Meter Fault Diagnosis Using Ultrasonic – Atmospheric Case Study
Under Publication – Ready for submission (2023)
M. Reza Sadeghi, M. Ghahghaei, Y. Kardan, K. Samradjah, M. Rajabi*

Bearing Fault Detection Using EMD and Ensemble Neural Network
Under Publication (2023)
M. Reza Sadeghi, M. Rajabi*

Equivalent Young's Modulus of Metal Foams Based on Resonance Frequencies
Under Publication – Submitted (2023)
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. Reza. Sadeghi**

❖ Academic & Lab Experiences

TFM Condition Monitoring, 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

❖ Notable Projects

Turbine Flow Meter Fault Diagnosis – NIGTC 2019–2022
Industrial Project – Data analysis and Data Acquisition
TFM Fault detection and health index evaluation using ultrasonic data with AI–based methods

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.

Personal Projects (Lambert):
- Prediction flow parameters using AI (LSTM & ConvLSTM)
- Create a python package to facilitate the process of using the Heisler charts graphically (Available on GitHub)
- 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