Reza Sadeghi

I'm Reza, a mechanical engineer. I am currently a master student in energy engineering at the Polytechnic University of Milan. My research journey started with Optimization algorithms and Condition monitoring, and now, my research activity is focused on Digital Twins and Risk Analysis. As an engineer, I worked at ISENSE health monitoring and IPC company. Also led and was involved in some industrial projects such as TMSC and TFM monitoring.

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Milan, Italy

❖ Professional Experience

Mechanic R&D Engineer
ISENSE Health Monitoring, Tehran, Iran — Aug 2021 – Aug 2022
- Vibration analysis: signal processing and research on mechanical joints looseness
- Designed & built a calibration setup with nearly 10 μm accuracy for crack meters
- Designed, analyzed, and manufactured temperature and strain data loggers enclosures

Mechanical Designer
IPC Company, Tehran, Iran — Nov 2020 – Mar 2021
- Develop a laboratory pressure mat using FSR and its interactive software for movement monitoring (using PyQt and Arduino).
- Designed PMMA structures and enclosures for switching rectifiers

Mechanical Dynamic and Vibration Teaching Assistant
IUST, Tehran, Iran — Feb 2020 – Apr 2021
- TA of mechanical vibration and vector dynamics
- Tutor of MATLAB for three semesters
- Head of MATLAB competition instructors for two competitions

Mechanical R&D Intern
Nabz Company, Tehran, Iran — Apr 2019 – Sep 2019
- Analyzed the stethoscope acoustic structure in Abaqus
- Researched signal & systems field

Mechanical Intern
Nilper Company, Parand, Iran — May 2018 – Jun 2018
- Mechanical design (Solidworks)
- Become familiar with industrial manufacturing processes

❖ Education

M.Sc. of Energy Engineering
University Of Polytechnic of Milan, Milan, Italy — 2022-2024
- Focused on PHM, CM, Risk & Reliability

B.Sc. of Mechanical Engineering
Iran University of Science and Technology, Tehran, Iran — 2017-2021
- Grade: 18.64/20 (GPA of 3.96/4) – 3rd rank on the campus
- Focused on Condition Monitoring and Fault diagnosis
- Thesis: Bearing Fault Detection Using EMD and Ensemble Neural Network, under Dr. Rajabi's supervision

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)

❖ Notable Projects

Turbine Flow Meter Fault Diagnosis 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 System– Beta Resin 2021-2022

- Build & Design a reactor that is able to control rotation speed and measure its torque.
- 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 (Scope 3D)
- Design and manufacture a prototype of an automated yarn winder called Pyro
- Design a complete package for 3D printed part recycling called FilaCycle

❖ Extracurricular Courses

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

❖ 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 the Physics Olympiad (2016)
- Acceptance in the first stage of the Astrophysics Olympiad (2016)