

Amir Fassih

Mechatronic Engineer PhD

Educations

Ph.D. Mechanical Engineering, (Engineering & Applied Science)
2009-2012 *Idaho State University, Pocatello, ID, USA*

M.Sc. Mechanical Engineering, Mechatronics
2004-2006 *Iran University of Science & Technology, Tehran, Iran*

B.Sc. Mechanical Engineering, Rolling Stock
1999-2004 *Iran University of Science & Technology, Tehran, Iran*

Industrial Experiences

Asst. Professor Design a Test System for Catalytic Converter of Car with High Temperature and Vibration
IROST
(6 months) (currently employed) Reverse Engineering of Oxygen Concentrator using Zeolite Microporous, Aluminosilicate Adsorbents and Catalyst

Asst. Professor Design of Fuel Nozzle Test Stand for Aircraft Applications
Jahad Daneshgahi Sharif
(1.5 Years) Reverse Engineering and Design of Turret for Continuous Casting Machine
Design and Control of Robotic System for Glass Production
Design of Test System for Fuel Injector for Automotive Applications

R&D Manager **Vibration Test and Analysis of Helicopter Gearbox** (*JD Sharif*)
Fankavan Aral Co. Vibration Measurement and Test
Tehran, Iran Signal Processing
(4 years) Modal Analysis
The Company is in close collaboration with Iran University of Science and Technology
Design of Condition Monitoring System for Passenger Trains(*Rail Pardaz*)
Sensor and Instrument: Temperature, Infra-Red, Accelerometer, Voltage, Current, Pressure
Design of Sensor Network based on LAN
Design of Data Logging Center and HMI based on LABView Software
Design of IOT System to Remotely Monitor Train Condition

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Comprehensive Test of Mobile Power Generator (*Mapna Co.*)

Stress and Strain Measurement
Vibration Measurement
Signal Processing
Mechanical Design

Dynamic and Static Load Test for Passenger Trains (*Rail Pardaz*)

Stress and Strain Measurement
Acceleration Measurement
Signal Processing
Mechanical Design
Ride Comfort Index Calculation
Load Test based on UIC Standard

Laser Measurement Device for Train Wheel Profile (*Metro*)

Mechatronic Design
Image Processing
Optimization to Increase Accuracy of Measurement
Filter Design for Different Lighting Condition

Mechatronic. Eng.
Team Lead
Tenneco Co.
Mechatronic Div.
Michigan, USA
2014 to 2015 (1 year)

Design of Control Systems for Car Catalytic Converter

Controller Design for After-Treatment System SCR(Selective Catalytic Reduction)
Controller Implementation on Matlab
Controller Test and Diagnosis
Observer Design for Engine Emission Estimation
Sensor Test and Validation
Particle Matter Filter Controller Design

Mechatronic Engineer
Caterpillar Co.
Mechatronic Div.
Illinois, USA
2012 to 2014 (2.5 years)

Design and Analysis of Control Systems Algorithm for Gas Engines

Controller Development using Matlab/Simulink/StateFlow and C Embedded Code Generation
Controller Calibration and Troubleshooting
Controller Validation using Software and Hardware in the Loop and Test on the Bench
System Identification and Stability Analysis of Engine Controller
Performance and Controller Requirement Development
Controller Design using Classical Control, Cascade Control, Gain Switching, Adaptive and Sliding Mode
Filter Design and Observer Design
Engine Modeling and Simulation Using GT Power
Hardware Troubleshooting on I/O and CAN communication Controller prototyping Using xPc

Mechatronic Engineer
Raja Passenger Trains
2006 to 2009

Principle of an R&D team to improve maintenance procedure

Inspection, Trouble Shooting and Maintenance of Mechanical and Electrical Parts
Embedded Controller Design for Temperature Control
Software Development for Maintenance Record

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Teaching Experience

- Control System Design
(Idaho State University,2011)
- Control System Design
(Idaho State University,2012)
- Measurements and Instrumentations Lab
(Idaho State University,2011)
- Signals and Systems
(Idaho State University,2012)
- Mechatronics I
(Iran University of Science and Technology,2016)
- Mechatronics II
(Iran University of Science and Technology,2016)
- Vibration Lab
(Iran University of Science and Technology,2016)
- Measurements and Instrumentations Systems
(Iran University of Science and Technology,2018)
- Measurements and Instrumentations Lab
(Iran University of Science and Technology,2019)
- Arduino Workshop
(Short 4 days Course, 2019)

Publications

- An Adaptive Hybrid Data Fusion Based Identification of Skeletal Muscle Force with ANFIS and Smoothing Spline Curve Fitting, International Conference on Fuzzy Systems, Taipei, Taiwan, June 2011.
- Real-Time sEMG Acquisition and Processing Using a PIC 32 Microcontroller, ESA'11 - 9th Intl Conference on Embedded Systems and Applications, Las Vegas, Nevada, USA, July 18-21, 2011.
- Precision Grasping of a Prosthetic Hand Based on Virtual Spring Damper Hypothesis, IEEE, Dec 2010
- Power Grasping of a Prosthetic Hand Based upon Virtual Spring-Damper Hypothesis, IASTED, MA, 2010
- Closed-Loop Control of a Shaking Table Using Robust Control Method, TICME 2007, Tehran, Iran
- Application of Optimal Gain Switching Technique in Design of Railway Vehicle Active Suspension Systems, CANMAC International Conference 2006, Toronto, Canada
- Nonlinear Longitudinal Vibration Analysis in Passenger Trains, Railway Engineering Students Journal", 4th Vol, IUST, 2005
- Dynamic Modeling of Locomotive Pneumatic Brake Circuits by Object-Oriented Method, 2nd international Railway Research Conference,2004,Iran,Tehran