SEYED MOHAMMAD AMIN (REZA) SADAT

Control Engineer / AI Researcher

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EDUCATION

Mechanical Engineering - Bachelor's degree

Shiraz University

2017 - 2021 Shiraz , Iran

- GPA: 14.68/20

Relevant courses: Automatic Control, Robotics, Introduction to Mechatronics, Dynamics, Finite Element Analysis, Mechanism Design, Bio-mechanics, Computer Aided Design

Mechatronics Engineering - Master's degree

Shahid Beheshti University

2021 - Present Tehran , Iran

- GPA: 17.54/20

Relevant courses: Modern Control, Mechatronics I & II, Introduction to Machine Learning, Artificial Intelligence, Hydraulics and Pneumatics

RESEARCH

Master thesis: Trajectory tracking control of an autonomous vehicle using model predictive control and reinforcement learning

In progress

Present

Article: Deep reinforcement learning based nonlinear MPC for path tracking of autonomous vehicles - *1^{st} author*

In progress

Persent

Article: Fixed-time Disturbance Observer-based Adaptive Fault Tolerant Control for a Quadrotor - *2^{nd} author*

In progress

Present

WORK EXPERIENCE

Mechatronics Engineer / AI Researcher

Avid Mechanic Hazef Sanaat

Oct 2021-March 2023 Shiraz-Tehran , Iran

I was participated in the design and manufacturing of a hospital bed that could make the patient's life easier. I've designed the software completely with graphical user interface. Also i've done some minor participation in their AI research.

Teaching Assistance

Shiraz University & Shahid beheshti University

I was honored to be a teaching assistance for the following courses in the University. ● **Statics** **Advisor: Dr.** Mohammadreza Sajjadi& Alireza Asnafi
● **Automatic Control** **Advisor: Dr.** Mostafa Taghizadeh Shol
● **Artificial intelligence** **Advisor: Dr.** Hadi Asharioun
● **Modern Control** **Advisor: Dr.** Mostafa Taghizadeh Shol

LANGUAGES

- **Persian** - Native
- **English** - Professional - IELTS scores O:7.0 S:6.5 L:7.5 R:7.0 W:6

THECNICAL SKILLS

Python	●●●●○
Matlab	●●●●○
SolidWorks	●●●○○
LaTeX	●●●●○
Embedded Systems	●●●●○
ROS	●●●●○
Altium Designer	●●○○○
C/C++	●●●●○
Linux	●●●○○
Rust	●●●○○

MINOR SKILLS

- Deep learning using PyTorch and TensorFlow
- Deep Reinforcement Learning
- Generative AI in Robotics and Control
- Model Predictive Control (MPC)
- Optimal Control & Optimization
- Dynamical Modeling & Simulating
- Physics Informed Neural Networks(PINN)
- Designing Mechatronics Systems

INTERESTS

- Model Predictive Control (MPC)
- Reinforcement Learning (RL)
- Learning based Control
- Generative AI in Robotics and Mechatronics
- AI in Robotics and Mechatronics
- Mechatronics
- Robotics
- Self-driving Cars
- PINN Researcher

HONOR AND AWARD

- Full tuition waiver scholarship for Bachelor's and Master's degree.
- Top 2% in the nation-wide BSc entrance exam in the felid of Mathematics and Physics in 2017 in Iranian Universities.
- Top 0.5% in the nation-wide MSc entrance exam in the felid of mechanical Engineering in 2023 in Iranian Universities.
- Rank 1 in GPA among mechatronics Engineering students in my university until now.

CERTIFICATIONS

Generative AI for everyone
Show Credential

State Estimation and Localization for Self-Driving cars
Show Credential

Motion Planing for Self-Driving Cars
Show Credential

VOLUNTEERING

Core Member of Robotics Club

Shiraz University

2020 Shiraz , Iran

In addition to my usual responsibilities, I've also taught ARDUINO programming to the members of club.

Participated on 6^{th} Annually Conference of Clean Energy

Shiraz University

27-28 Feb 2019 Shiraz , Iran

ACADEMIC PROJECT - M.S.

Mechatronics I Project

Shahid Beheshti University

Fall 2022

In this project we build a line following robot.
Advisor: Dr. Hadi Asharioun and Mohammadreza Haghjo.

Artificial intelligence Project

Shahid Beheshti University

Spring 2023

In this project we asked to find the best algorithm for yeast dataset and I've got the best accuracy among my classmates.
Advisor: Dr. Hadi Asharioun.

Mechatronics II Project

Shahid beheshti University

Spring 2023

In this project we built an inverted pendulum on the cart and control it with PID controller.
Advisor: Dr. Mojtaba Norimanzar.

Hydraulics and Pneumatics Project

Shahid Beheshti University

Spring 2023

In this project I designed a sequence control for a pneumatics system.
Advisor: Dr. Mostafa Taghizadeh Shol

ACADEMIC PROJECTS - B.S.

Heat Transfer Project

Shiraz University

Fall 2019

In this project I've numerically analyzed the heat transfer in a duct.
Advisor: Dr. Mehdi Bahneshi.

Robotics Project

Shiraz University

Fall 2020

In this project we designed and simulate a quad-rotor with a capability of transforming to a mobile robot.
Advisor: Dr. Hossein Mohammadi

Mechanism design Project

Shiraz University

Spring 2021

In this project we asked to design and Simulate a wire-wrapping tool for the usage in the construction industry.
Advisor: Dr. Sajjad Taghvaei.

Introduction to Mechatronics Project

Shiraz University

Spring 2021

In this project we made a color-detection sensor.
Advisor: Prof. Mohammad Eghtesad

Introduction to Bio-Mechanics

Shiraz University

Fall 2021

In this project i've done mechanical design of a hospital bed.
Advisor: Dr. Sajjad Taghvaei

Batchlor's Degree Final Project

Shiraz University

Fall 2021

In this project I've designed an IOT garden. In this project the user can control a garden using a web interface and scheduled for watering. All the programming and PCB design is done by me.
Supervisor Prof. Mohammad Eghtesad.

REFRENCES

Available on request.