

Ali Safi

✉ Golpayegan, Isfahan, Iran • ✉ Ali_Safi@alumni.iust.ac.ir • ☎ +98 (937) 806-8264
Website: ControlScience.ir/about 🖱 • LinkedIn: LinkedIn.com/in/Safi-Ali 🖱

EDUCATION

Iran University of Science and Technology, Tehran, Iran

Sep 2018 – Feb 2021

- M.Sc. in Mechanical Engineering (Control, Dynamics and Vibrations)
 - Thesis: A New Controller Design Technique for Piecewise Affine Hybrid Systems
 - Adviser: Dr. Esmael Khanmirza
 - Focus: Hybrid dynamical systems, Hybrid control
 - GPA: 18.06 / 20

Golpayegan University of Technology, Golpayegan, Isfahan, Iran

Sep 2014 – Jun 2018

- B.Sc. in General Mechanical Engineering
 - Thesis: Control Design and Implementation of a Ball and Beam Device
 - Adviser: Dr. Mostafa Nasiri
 - GPA: 18.96 / 20

INTERESTS

- Control Theories
 - Model Predictive Control (MPC)
 - Linear Matrix Inequality (LMI)
 - Sliding Mode Control (SMC)
 - Adaptive Control
- Hybrid Dynamical Systems
 - Delay Effect Analysis
 - Mechatronics
 - Internet of Things (IoT)
 - Automation

RESEARCH EXPERIENCE

Research And Development Specialist

Jul 2023 – Present

- Dolfa Robotics
 - Principal Investigator: Mrs. Maryam Jamali

Mechatronics Engineer

Jan 2021 – Jun 2021

- Electro Samane Alvand (ELSA)
 - Design, Construction, Calibration and Software Development of an Electric Motor Testing Dynamometer
 - Parameter Estimation of a Single-Phase Axial Flux Induction Motor (Hardware and Software Development)
 - Chief Executive Officer: Mr. Mohsen Fayazi

Research Assistant

Winter 2020

- Iran University of Science and Technology
 - Building and Controlling of an Inverted Pendulum Device
 - Supervisor: Dr. Esmael Khanmirza
- In cooperation with Iran's National Elites Foundation

Internet of Things Developer

Sep 2019 – Mar 2020

- Pars System Energy
 - Designing a Temperature and Pressure Monitoring System of a Powerhouse
 - Chief Executive Officer: Dr. Saeed Jani

Cooperative Education Student

Fall 2019

- Iran University of Science and Technology
 - Routing and Controlling of a Two-wheeled Mobile Robots and Avoiding Collisions by Using Model Predictive Control and Optimal Feedback Control
 - Supervisor: Dr. Esmael Khanmirza
- In cooperation with Iran's National Elites Foundation

TEACHING EXPERIENCE

Teaching Assistant

Winter 2020

- Iran University of Science and Technology
Adaptive Control
In cooperation with Iran's National Elites Foundation

Teacher

Summer 2018

- English Teacher at Daemi languages institute

Teaching Assistant

- Golpayegan University of Engineering
Industrial Automation Winter 2018
Dynamics Fall 2017
Design of Machine Components (1) Winter 2017
Engineering Mathematics Fall 2016
Engineering Technical Drawing (1) Winter 2016

HONORS

- 2 Times Winner of The Iran's National Elite Foundation Scholarship Award
Jan 2019, Jan 2020
- 1st Rank, Achieving The Highest GPA Among all Mechanical Engineering (Control, Dynamics and Vibration) Graduate Students 2019
Iran University of Science and Technology, Tehran, Iran.
- 1st Rank, Achieving The Highest GPA Among all University Mechanical Engineering Students 2014 – 2018
Golpayegan University of Technology, Golpayegan, Isfahan, Iran.
- 1st Team Rank, MATLAB Programming Contest 2019
Iran University of Science and Technology, Tehran, Iran.
- Successful Participation in "Exhibition of Research and Technology Achievements and Market Technology" 2018
- Entrance to Iran University of Science and Technology Without Entrance Exam for Master's Degree as a Recognized Student. 2018


PUBLICATIONS

JOURNALS

- [1] A. Safi, A. Taghavian and E. Khanmirza, A review on benchmarks Examples for dynamical hybrid systems controller synthesis to facilitate its selection process. *Space Science, Technology and Applications*, 2023. 2(2): p. 115-134. (Persian) 🖱
- [2] Nasiri, M. and A. Safi, Stability analysis of real-time hybrid simulation in consideration of time delays of actuator and shake table using delay differential equations. *Journal of Mechanical Science and Technology*, 2019. 33(4): p. 1489-1499. 🖱
- [3] Nasiri, M. and A. Safi, Stability Analysis of Real-time Hybrid Simulation for a Multi-story Structure Considering Time-delay of Hydraulic Actuator. *Amirkabir Journal of Civil Engineering*, 2019. 51(3): p. 391-400. (Persian) 🖱

CONFERENCES

- [4] A. Safi, and E. Khanmirza. A Criticism of Position Control of the Inverted Pendulum with Biased Angle Measurements Using Double-Loop PID. in *2020 Advances in Science and Engineering Technology International Conferences (ASET)*. 2020, Dubai, United Arab Emirates. 🖱

- [5] A, Safi, F. Namdarpour and E. Khanmirza. On the effectiveness of Stable Model Predictive vs. Adaptive Fuzzy Sliding Mode Method in synthesizing the controller for High-Speed Trains. in *2021 9th RSI International Conference on Robotics and Mechatronics (ICRoM)*, Tehran, Iran, Islamic Republic of. 2021, pp. 293-300 

PROJECTS

- Control Design and Implementation of a Three Tank Experimental Device (A Hybrid Dynamical System)
- Implementation of Modern Control and Feedback Linearization Methods on Quadrotors
- Distributed Control of Several Quadrotors Considering Delay Effects
- Article 1
- Article 2

ENGLISH TEST

- TOEFL(Academic): 105 (overall score)
 - Listening: 105 • Speaking: 105
 - Reading: 105 • Writing: 105

SKILLS

- *Type Setting*
L^AT_EX • Microsoft Office
- *Programming Language*
MATLAB • C++ (Arduino variant) • Python • Ladder logic
- *Softwares*
MATLAB • Visual Studio Code • Arduino IDE • Simulink • Catia • SolidWorks • Proteus Design Suite • WPLSoft
Familiar With: Autodesk Inventor • Adams • CodeVisionAVR • Abacus • Altium Designer
- *Toolboxes*
YALMIP Optimisation Toolbox • HYSDEL Toolbox • MATLAB Optimisation Toolbox • MATLAB Identification Toolbox • DDEBiftool Toolbox • Graphical User Interface (GUI) Toolbox
- *Scientific Knowledge*
Convex Optimization • Linear Matrix Inequality (LMI) • Model Predictive Control (MPC) • Hybrid Dynamical Systems • Adaptive Control • Modern Control Theory • Sliding Mode Control (SMC) • Fuzzy Logic • Genetic Algorithms • Dynamic Simulation • System Identification • Electronics • Robotics • Mechatronics
Familiar With: Artificial Intelligent and Neural Networks
- *Industry Knowledge*
Computer-Aided Design (CAD) • Computer-Aided Manufacturing (CAM) • Printed Circuit Board (PCB) Design • Programmable Logic Controller (PLC) • Internet Protocol Suite (TCP/IP) • Internet of Things (IoT) • Web Design • JSON • Serial Communications • Modbus
- *Other Softwares*
WordPress • Adobe Photoshop • Multimedia Builder • Adobe Premiere

REFERENCES

- **Dr. Esmaeel Khanmirza**
Associate Professor in Mechanical Engineering
Iran University of Science and Technology
✉ Khanmirza@iust.ac.ir • ☎ +98 (21) 7724-0469

▪ **Dr. Mostafa Nasiri**

Assistant Professor in Mechanical Engineering

Golpayegan University of Technology

✉ Nasiri@gut.ac.ir

[CV compiled on 2023-09-06 for University Application]