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 🖑
Github: https://github.com/A-Safi 🖑 • ORCID: [0000-0002-9234-3224](0000-0002-9234-3224) 🖑

SUMMERY

- Experienced researcher in Mechanical and Control Engineering.
- Specialized in designing and applying control theories to practical situations.
- Proficient in programming languages such as MATLAB, Arduino, and Python.
- Skilled in electrical circuit design and fluent in English as a second language.
- Strong in presentation, problem-solving, and committed to achieving results.

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. Esmaeel Khanmirza
  - GPA: 18.06 / 20

Golpayegan College of Engineering, Isfahan University of Technology, 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

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

RESEARCH EXPERIENCE

Research And Development Specialist @ *Dolfa Robotics* Jul 2023 – Present
- Developing Institute Objectives in the Short and Long Term, Evaluating New Ideas

Research And Development Engineer @ *Electro Samane Alvand (ELSA)* Jan 2021 – Jun 2021
- 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)

Research Assistant @ *Iran University of Science and Technology* Winter 2020
- Building and Controlling of an Inverted Pendulum Device
  In cooperation with Iran's National Elites Foundation

Internet of Things Developer @ *Pars System Energy* Sep 2019 – Mar 2020
- Designing a Temperature and Pressure Monitoring System of a Powerhouse

Cooperative Education Student @ *Iran University of Science and Technology* Fall 2019
- Routing and Controlling of Two-wheeled Mobile Robots and Avoiding Collisions by Using Model Predictive Control and Optimal Feedback Control
  In cooperation with Iran's National Elites Foundation

TEACHING EXPERIENCE

Teaching Assistant @ *Iran University of Science and Technology*

- Adaptive Control — Winter 2020
  In cooperation with Iran's National Elites Foundation

Teaching Assistant @ *Golpayegan College of Engineering, Isfahan University of Technology*

- 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 & AWARDS

- 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.

- Entrance to Iran University of Science and Technology Without Entrance Exam for Master's Degree as a Recognized Student — 2018

PUBLICATIONS

Journals:

- **A review on benchmarks examples for hybrid dynamical systems controller synthesis to facilitate its selection process.** A. Safi, A. Taghavian and E. Khanmirza, *Space Science, Technology and Applications*
  DOI: 10.22034/jssta.2023.355411.1091 — 2023

- **Stability analysis of real-time hybrid simulation in consideration of time delays of actuator and shake table using delay differential equations.** Nasiri, M. and A. Safi, *Journal of Mechanical Science and Technology*
  DOI: 10.1007/s12206-019-0301-6 — 2019

- **Stability Anaysis of Real-time Hybrid Simulation for a Multi-story Structure Considering Time-delay of Hydrolic Actuator.** Nasiri, M. and A. Safi, *Amirkabir Journal of Civil Engineering*
  DOI: 10.22060/CEEJ.2018.13547.5433 — 2019

Conferences:

- **On the effectiveness of Stable Model Predictive vs. Adaptive Fuzzy Sliding Mode Method in synthesizing the controller for High-Speed Trains.** A. Safi, F. Namdarpour and E. Khanmirza, *9th RSI International Conference on Robotics and Mechatronics (ICRoM),* Tehran, Iran
  DOI: 10.1109/ICRoM54204.2021.9663459 — 2021

- **A Criticism of Position Control of the Inverted Pendulum with Biased Angle Measurements Using Double-Loop PID.** A. Safi, and E. Khanmirza, *Advances in Science and Engineering Technology International Conferences (ASET)*, Dubai, United Arab Emirates
  DOI: 10.1109/ASET48392.2020.9118277 — 2020

PROJECTS

- Constrained optimization-based control of nonlinear input affine systems
  - Under review paper submitted to *Journal of Dynamic Systems Measurement and Control*

- The design of dynamic predictive control for networked control systems subject to latency and packet loss
  - Under review paper submitted to *Journal of systems and control engineering*

- Constrained computational hybrid controller for input affine hybrid dynamical systems
  - Under review paper submitted to *Journal of the Franklin Institute*

- Distributed control of second-order multi-agent systems with bidirectional meshed topology, considering communication delays

- Control design and implementation of a three tank experimental device

- Implementation of modern control and feedback linearization methods on quadrotors

ENGLISH TEST

- Full Professional Proficiency
  The TOEFL exam is scheduled for December 2023

SKILLS

- **Type Setting**
  LaTeX • Microsoft Office

- **Programming Language**
  MATLAB • C++ (Arduino variant) • Python • Ladder Logic

- **Softwares**
  MATLAB • Visual Studio Code • Arduino IDE • Simulink • Catia • SolidWorks • Git • Proteus Design Suite

- **Other Skills**
  Programmable Logic Controller (PLC) • Communication Protocols (UDP, TCP/IP, Modbus, I2C) • Internet of Things (IoT) • WordPress • Adobe Photoshop • Adobe Premiere

- **Soft Skills**
  Dedication to Results • Eager to Learn • Effective Communication • Crafting Practical Solutions • Collaborative Team Member • Academic Writing Pro

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 2023-09-28 for University Application]