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Education

Ph.D. in Electrical Engineering (Control Engineering)

Department of Control Engineering, Faculty of Electrical and Computer Engineering, University of Tabriz, Tabriz, Iran, 2011-2016.

Thesis Title: Spacecraft Attitude Control in the Presence of Input Delays

M.S. in Electrical Engineering (Control Engineering)

Electrical Engineering Department, Sharif University of Technology, Tehran, Iran, 2008-2010

Thesis Title: The effect of Root and Square Matrices in LQG Performance

B.S. in Bioelectrical Engineering

Biomedical Engineering Department, Amirkabir University of Technology, Tehran, Iran, 2003-2007

Thesis Title: Speech-to-Text Conversion using Hidden Markov Models



Teaching Experience

Graduate Courses

Neural Network
Robot Control

Undergraduate Courses

Digital Control
Modern Control
Industrial Control
Digital Systems
Microcontrollers
Linear System Theory
Industrial Instrumentation
Digital System Lab
Linear System Control Lab
Industrial Instrumentation Lab



Academic Honors and Awards

Ranked 1st in Ph.D. entrance exam of Tabriz University, 2011

Outstanding reviewer in ISA Transactions (2017)

Best paper award in the 4th international conference on control instrumentation and automation, 2016



Publications

- J1:** A. Foroutan, **A. Safa**, "Design of robust sliding mode controller for nonlinear chaotic gyroscope system with input saturation, *Journal of Technology in Aerospace Engineering*," *Journal of Technology in Aerospace Engineering*, vol. 9, no. 1, pp. 27-40, 2025. DOI: 10.22034/jtae.2025.9.1.3
- J2:** S. Jamshidi, **A. Safa**, and S. Mirzajani, "Continuous nonsingular fast terminal sliding mode control for a free gyro stabilized mirror system," *IEEE Transactions on Automation Science and Engineering*, vol. 22, pp. 10937-10947, 2025, DOI: 10.1109/TASE.2025.3530679.
- J3:** M. Zavar, M. Shahraeini, **A. Safa**, N. Manouchehri "A novel method for optimal sensor and actuator placements: the "infinite value algorithm,"", vol. 7, no. 1, 2024. DOI: JADSC-2401-1106
- J4:** A. Foroutan, **A. Safa**, "Design model-free controller for a chaotic nonlinear gyroscope system," *Space Science, Technology and Applications*, vol. 3, no. 2, pp. 89-100, 2024. DOI: 10.22034/jssta.2023.403726.1128
- J5:** A. Ebrahimi Balasi and **A. Safa**, "Designing an optimal robust controller for an automatic voltage regulator via ant colony optimization for continuous domain," vol. 12, no. 2, pp. 15-28, 2021. DOI: 10.22108/isee.2020.119035.1275
- J6:** **A. Safa**, R. Yazdanpanah Abdolmalaki, and H. Chahkandi Nejad, "Precise position tracking control with an improved transient performance for a linear piezoelectric ceramic motor," *IEEE Transactions on Industrial Electronics*, vol. 66, no. 4, 2019. DOI: 10.1109/TIE.2018.2840523
- J7:** **A. Safa**, R. Yazdanpanah Abdolmalaki, S. Shafiee, and B. Sadeghi, "Adaptive nonsingular terminal sliding mode controller for micro/nanopositioning systems driven by linear piezoelectric ceramic motors," *ISA Transactions*, vol. 77, pp. 122-132, 2018. DOI: 10.1016/j.isatra.2018.03.027
- J8:** **A. Safa**, M. Baradarannia, H. Kharrati, and S. Khanmohammadi, "Robust attitude tracking control for a rigid spacecraft under input delays and actuator errors," *International Journal of Control*, pp. 1-13, 2017. DOI: 10.1109/TCST.2017.2761324
- J9:** **A. Safa** and M. Sakhaeifar, "Mismatched disturbance attenuation control for static VAR compensator with uncertain parameters," *International Journal of Electrical Power & Energy Systems*, vol. 91, pp. 61-70, 2017. DOI: 10.1016/j.ijepes.2017.02.007
- J10:** **A. Safa**, M. Baradarannia, H. Kharrati, and S. Khanmohammadi, "Constrained robust control for spacecraft attitude stabilization under actuator delays and faults," *Journal of Dynamic Systems, Measurement, and Control*, vol. 139, p. 051011:1-12, 2017. DOI: 10.1115/1.4035238
- J11:** **A. Safa**, M. Baradarannia, H. Kharrati, and S. Khanmohammadi, "Attitude stabilization of a rigid spacecraft with actuator delay and fault," *Transactions of the Institute of Measurement and Control*, vol. 40, p. 0142331217702441, May 2017. DOI: 10.1177/0142331217702441
- J12:** **A. Safa**, M. Baradarannia, H. Kharrati, and S. Khanmohammadi, "Global attitude stabilization of rigid spacecraft with unknown input delay," *Nonlinear Dynamics*, vol. 82, pp. 1623-1640, July 2015. DOI: 10.1007/s11071-015-2265-0
- J13:** **A. Safa**, G. Alizadeh, and H. Shiri, "Design an adaptive wavelet neural network controller for a two-wheeled mobile robot-like vehicle," *Journal of Circuits, Systems and Computers*, vol. 23, p. 1450133:1-16, October 2014. DOI: 10.1142/S0218126614501333
- Conf.1:** **A. Safa**, M. Baradarannia, H. Kharrati, and S. Khanmohammadi, "Rigid spacecraft attitude regulation with delayed feedback and actuator faults," in *Control, Instrumentation, and Automation (ICCIA), 4th International Conference on*, pp. 202-207, Qazvin, Iran, January 2016. DOI: 10.1109/ICCIAutom.2016.7483161 (Best paper award)
- Conf.2:** **A. Safa**, M. Baradarannia, H. Kharrati, and S. Khanmohammadi, "Large-angle attitude maneuver control for rigid spacecraft with delayed inputs and disturbances," in *Electrical Engineering (ICEE), 2015 23rd Iranian Conference on*, pp. 905-910, Tehran, Iran, May 2015. DOI: 10.1109/IranianCEE.2015.7146340

Conf.3: **A. Safa**, R. Mirzaei, G. Eslami, and B. Behjat, " H_2/H_∞ observer for car suspensions," National Conference of Mechanical Engineering, Shiraz, Iran, 2014.

Conf.4: **A. Safa**, M. Moharramzadeh, G. Eslami, and B. Behjat, "iLQR controller for car suspensions," National Conference of Mechanical Engineering, Shiraz, Iran, 2014.

Conf.5: **A. Safa**, G. Alizadeh, and S. Moradi "Adaptive and robust stabilization of an inverted pendulum via wavelet neural network," *12th Iranian Conference on Intelligent systems*, Bam, Iran, 2014.



Memberships & Services

IEEE Senior Memeber

Reviewer of IEEE Access

Reviewer of Mechatronics

Reviewer of ISA Transactions

Reviewer of International Journal of Control

Reviewer of Journal of Electrical and Power System Engineering

Reviewer of IEEE Transactions on Industrial Electronics

Reviewer of IEEE Transactions on Control Systems Technology

Reviewer of Transactions of the Institute of Measurement and Control

Reviewer of Journal of Dynamic Systems, Measurement, & Control



Research Interests

Robotics include, but are not limited to, bio-inspired robots, exoskeletons (bioengineering applications), nanorobots

Nonlinear systems

Time-delay systems

Attitude estimation and control

Robust and adaptative control

Power systems



Computer Skills

MATLAB

C/C++

OrCAD Capture

Embeded System Programing

Proteus

Altium Designer

Automation Studio

LabView

Arena Simulation