



# Alireza Safa

Assistant Professor of Electrical Engineering  
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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



## Academic Honors and Awards

**Ranked 1<sup>st</sup> in Ph.D. entrance exam of Tabriz University, 2011**

**Outstanding reviewer in ISA Transactions (2017)**

**Best paper award in the 4<sup>th</sup> international conference on control instrumentation and automation, 2016**



## Publications

**J1: 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, April 2019. DOI: 10.1109/TIE.2018.2840523

**J2: 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, June 2018. DOI: 10.1016/j.isatra.2018.03.027

**J3: 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, October 2017. DOI: 10.1109/TCST.2017.2761324

**J4: 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, October 2017. DOI: 10.1016/j.ijepes.2017.02.007

**J5: 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, March 2017. DOI: 10.1115/1.4035238

**J6: A. Safa**, M. Baradarannia, H. Kharrati, and S. Khanmohammadi, "Fault-tolerant control for attitude regulation of a spacecraft with delayed feedback," *AUT Journal of Electrical Engineering*, January 2018. DOI: 10.22060/EEJ.2018.12030.5027

**J7: 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

**J8: 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

**J9:** **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. Baradaran-nia, 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, " $H_2/H_\infty$  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**