

## Bijan Moaveni - CURRICULUM VITAE

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### EDUCATION

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2002 – 2007: PhD, Automatic Control, K. N. Toosi University of Technology, Iran.

2000 – 2002: Master, Automatic Control, K. N. Toosi University of Technology, Iran.

1995 – 2000: Bachelor, Electrical Engineering-Control, Isfahan University of Technology (IUT), Iran.

### ACADEMIC EMPLOYMENT

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Since 2018: **Associate Professor**, Faculty of Electrical Engineering, K. N. Toosi University of Technology (KNTU).

2016-2018: **Director Manager of Curriculum Planning office**, Iran University of Science and Technology (IUST).

2016-2018: **Associate Professor**, Iran University of Science and Technology (IUST).

2010-2017: Head of Control and Signaling Department.

Since 2009: **Assistant Professor**, Iran University of Science and Technology (IUST).

### PUBLICATIONS

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#### BOOK

- Khaki Sedigh, A. and B. Moaveni, Control Configuration Selection for Multivariable Plants, *Springer*, 2009. (ISBN: 978-3-642-03192-2, DOI: 10.1007/978-3-642-03192-2)
- B. Moaveni, V. Kariwala, Plantwide Control Recent Advances and Developments, *John Wiley and Sons*, 2012 (*Chapter Book*). (ISBN: 978-0470980149)
- Birk, Wolfgang, Miguel Castaño Arranz, and Bijan Moaveni. *Perspectives and Future Directions in Control Configuration Selection: PiCCS Workshop Notes.* , Lulea University of Technology, 2017.

#### SELECTED JOURNAL PAPERS

1. Bijan Moaveni and Ali Khaki-Sedigh. "Input-output pairing for nonlinear multivariable systems." *Journal of applied sciences* 7.22 (2007): 3492-3498.
2. Bijan Moaveni and Ali Khaki Sedigh. "Input–output pairing analysis for uncertain multivariable processes." *Journal of Process Control* 18.6 (2008): 527-532.
3. Bijan Moaveni and Ali Khaki-Sedigh. "Reconfigurable controller design for linear multivariable plants." *International Journal of Modelling, Identification and Control* 2.2 (2007): 138-146.

4. Bijan Moaveni and A. Khaki-Sedigh. "A new approach to compute the cross-Gramian matrix and its application in input-output pairing of linear multivariable plants." *Journal of Applied Sciences* 8.4 (2008): 608-614.
5. Bijan Moaveni and Ali Khaki Sedigh. "Further Theoretical Results on "Relative Gain Array for Norm-Bounded Uncertain Systems". " *Industrial & Engineering Chemistry Research* 46.24 (2007): 8288-8289.
6. Raygani, Saeid Veysi, Bijan Moaveni and et al. "Load flow analysis and future development study for an AC electric railway." *IET Electrical Systems in Transportation* 2.3 (2012): 139-147.
7. Zaeim, Ramin, and Bijan Moaveni. "A New Approach for Control Configuration Selection of Linear MIMO Plants based on the State Space Model" *Control and Intelligent Systems* 41.2 (2013).
8. Hassanabadi, Hamid, Bijan Moaveni, and Mohammad Karimi. "A comprehensive distributed architecture for railway traffic control using multi-agent systems." *Proceedings of the Institution of Mechanical Engineers, Part F: Journal of Rail and Rapid Transit* (2013): 0954409713503458.
9. Salloum, Rafik, Bijan Moaveni, and Mohammad Reza Arvan. "Robust PID Controller Design for a Real Electromechanical Actuator." *Acta Polytechnica Hungarica* 11.5 (2014).
10. Moaveni, Bijan, Mahdi Khosravi Roqaye Abad, and Sayyad Nasiri. "Vehicle longitudinal velocity estimation during the braking process using unknown input Kalman filter." *Vehicle System Dynamics* 53.10 (2015): 1373-1392.
11. Salloum, Rafik, Bijan Moaveni, and Mohammad Reza Arvan. "Identification and robust controller design for an electromechanical actuator with time delay." *Transactions of the Institute of Measurement and Control* 37.9 (2015): 1109-1117.
12. Salloum, Rafik, Bijan Moaveni, and Mohammad Reza Arvan. "Robust  $H_{\infty}$  feedback compensator design for an electromechanical actuator with time delay." *Journal of the Chinese Institute of Engineers* 38.6 (2015): 751-759.
13. Bijan Moaveni and Mojtaba Khorshidi. "Robust speed controller design for induction motors based on IFOC and Kharitonov theorem." *Turkish Journal of Electrical Engineering & Computer Sciences* 23.4 (2015).
14. Salloum, Rafik, Mohammad Reza Arvan, and Bijan Moaveni. "System identification and uncertainty modeling of an electromechanical actuator." *Journal of the Chinese Institute of Engineers* 38.5 (2015): 562-572.
15. Moaveni, Bijan, and Pegah Barkhordari. "Identification and characterization of the hydraulic unit in an anti-lock brake system." *Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering* 230.10 (2016): 1430-1440.
16. Salloum, Rafik, Mohammad Reza Arvan, and Bijan Moaveni. "Identification, uncertainty modeling and robust controller design for an electromechanical actuator." *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science* 230.20 (2016): 3631-3641.
17. Malekizade, Hamid, et al. "Robust model predictive control employed to the container ship roll motion using fin-stabilizer." *Cogent Engineering* 3.1 (2016): 1235478.
18. Moaveni, B., and M. Karimi. "Subway Traffic Regulation Using Model-Based Predictive Control by Considering the Passengers Dynamic Effect." *Arabian Journal for Science and Engineering* (2017): 1-11.
19. Aghajanian, Saeid, Fereidoun Amini, and Bijan Moaveni. "Luenberger observer application in decentralised control of civil structures." *Proceedings of the Institution of Civil Engineers-Structures and Buildings* (2017): 1-9.

20. Amini, Fereidoun, Saeid Aghajanian, and Bijan Moaveni. "Decentralized Control of Uncertain Structures Using Luenberger Observer." *Structural Engineering International* 27.1 (2017): 127-133.
21. Beidaghi, Sahereh, et al. "Robust  $H_{\infty}$  filtering for uncertain discrete-time descriptor systems." *International Journal of Control, Automation and Systems* (2017): 1-8.
22. Moaveni, Bijan, and Sima Najafi. "Metro Traffic Modeling and Regulation in Loop Lines Using a Robust Model Predictive Controller to Improve Passenger Satisfaction." *IEEE Transactions on Control Systems Technology* (2017).
23. Malekizade, Hamid, et al. "Coefficients Extraction of Model and Constrained Controller Design for Fin-Roll Stabilizer System in a Fishing Boat." *Journal of Ship Production and Design* 34.3 (2018): 226-235.
24. Moaveni, B., & Barkhordari, P. (2019). Modeling, identification, and controller design for hydraulic anti-slip braking system. *Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering*, 0954407018755611.
25. Najafi Birgani, Soleiman, Bijan Moaveni, and Ali Khaki-Sedigh. "Infinite horizon linear quadratic tracking problem: A discounted cost function approach." *Optimal Control Applications and Methods* 39.4 (2018): 1549-1572.
26. Seyed Moosavi, Seyed, et al. "Auto-calibration and fault detection and isolation of skewed redundant accelerometers in measurement while drilling systems." *Sensors* 18.3 (2018): 702.
27. Vesali, F., Molatefi, H., Rezvani, M. A., Moaveni, B., & Hecht, M. (2019). New control approaches to improve contact quality in the conventional spans and overlap section in a high-speed catenary system. *Proceedings of the Institution of Mechanical Engineers, Part F: Journal of Rail and Rapid Transit*, 0954409718822861.
28. Moaveni, B., & Masoumi, Z. (2019). Modifying the ERA and fast ERA to improve operational performance for structural system identification. *Mechanical Systems and Signal Processing*, 120, 664-692.

### **SELECTED JOURNAL PAPERS (PERSIAN)**

1. Bijan Moaveni, Shima Rouhi, "Comparison the State Vector Fusion Methods for Data Fusion in Multi Sensors Networks", *Journal of Control*, 5.3 (2011), 24-35.
2. Sayad Nasiri, Bijan Moaveni, GolamHassan Payganeh, Mohammad Arefiyan, "Modeling and Analysis of the Hydraulic Antilock Brake System of Vehicle", *Journal of Control*, 6.3 (2012), 11-26.
3. Bijan Moaveni, Mina Gholami, "Decentralized Reduced Order Observer Design for Large-Scale Plants with Unknown Inputs", *Journal of Control*, 6.2 (2012), 77-85.
4. Bijan Moaveni, Majid Booyezaman, "Design of Unknown Input Proportional-Integral Kalman Filter", *Journal of Control*, 8.2 (2014), 1-10.
5. Bijan Moaveni, Mehran Movahedi, "Centralized Controller Design for the Moving Vehicles in a Platoon to Achieve the Robust String Stability", *Journal of Control*, 9.1 (2015), 1-12.
6. Najafi, Sima, Bijan Moaveni, "Modeling and Real-time Traffic Regulation in Metro Loop Lines using Nonlinear Model Predictive Control", *Journal of Control*, 9.2 (2015), 59-69.
7. Bijan Moaveni, Hamid Keshavarz, "Designing an event driven railway interlocking simulator in MATLAB software", *Journal of Transportation Engineering*. 7.2 (2016). 315-338..

8. M. Maleki, Bijan Moaveni, S. Nasiri, Designing a modified adaptive nonlinear filter for vehicle longitudinal velocity estimation and slip detection, *Journal of Control*, 10.1 (2016), 1-10.

## TEACHING EXPERIENCE

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Large Scale Systems  
Multivariable Control Systems  
Control Configuration Selection (2016, Lulea University of Technology (LTU), Sweden)  
Automatic Traffic Control  
Estimation Theory  
Systems Identification  
Identification Methods in Structural Systems  
Fault Diagnosis and Fault Tolerant Control

## INTERNATIONAL ACTIVITIES

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- **Resilient Reconfigurable Control for Large Scale Plants based on Cyber physical Sensor-Actuator Networks**, Swedish Foundation for International Cooperation in Research and Higher Education (STINT), IB2016-6549, Initiation LTU-IUST Collaboration (iLIST), 2016-2017.
- **Perspectives and future directions in Control Configuration Selection (PiCCS)**,
- Workshop, LTU, Sweden, 2017, August.
- Co-advising:
  - Miguel Castano, Post-Doc, Lulea University of Technology (LTU), Sweden, 2016-2017.
  - Ali Kadhim, PhD, Lulea University of Technology (LTU), Sweden, 2016-2017.

## INDUSTRIAL PROJECTS

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Automotive Systems:

- Electronic Control unit design for hydraulic anti-lock braking system, Negarin Sanat Asia, and Sharif University of Technology 2013-2016
- Cruise Control System design for road vehicles, Negarin Sanat Asia, and Sharif University of Technology 2014-2015.
- Control system design for fuel injection system of road vehicles, Negarin Sanat Asia, and Sharif University of Technology, 2014-2016.
- Antilock Regenerative Braking Systems, Niroo Keshesh, Iran Railway Co., 2015-2016.

Railway Traffic Modeling and Control:

- Tehran metro traffic system: modeling and optimal delay recovery, Tehran urban and suburban railway operation co., 2017-ongoing.

Structure Health Monitoring:

- Structural Health Monitoring based on Model Identification (Case studies: Veresk, Salar, Izadkhast and Nekaa Bridges), Iran Railway Co., 2015-ongoing.