

S. Sepehr Tabatabaei

Ph.D. in Electrical Engineering, Control

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EDUCATION

- Ph.D. in Electrical Engineering, Control, Sep 2012-Jul 2017
Electrical Engineering Department,
Amirkabir University of Technology (Tehran Polytechnic)
Tehran, Iran.

Ph.D. Dissertation:

“Non-integer Order Modeling and Model Predictive Control of Soft Tissue Deflection”
Supervisor: Prof. H. A. Talebi

- Visiting Doctoral Researcher at Telerobotic & Biorobotic Systems Lab, Oct 2015-Jun 2016
University of Alberta, Edmonton, Canada
- M.Sc. in Electrical Engineering, Control, Sep 2010-Sep 2012
Electrical and Computer Engineering Department,
Faculty of Engineering,
University of Tehran,
Tehran, Iran.

M.Sc.Thesis:

“Optimal and Robust Control of Variable Order Systems”
Supervisor: Prof. M. J. Yazdanpanah
Advisor: Dr. M. S. Tavazoei

- B.Sc. in Electrical Engineering Sep 2006-Sep2010
Sharif University of Technology, Tehran, Iran.

B.Sc. Project:

“On Dynamic Models of Human Emotions”
Supervisor: Dr. M. S. Tavazoei

RESEARCH EXPERIENCE

Visiting Doctoral Researcher at Telerobotic and Biorobotic Systems Lab, University of Alberta, Edmonton, Canada.

Research Assistance Scholar at Real Time Systems Laboratory, Amirkabir University of Technology.
Supervisor: Prof. H. A. Talebi.

Researcher and Research Team Leader at Mechatronics Research Laboratory, Qazvin Islamic Azad University, Qazvin, Iran.

Research Assistance Scholar at Advanced Control System Laboratory, University of Tehran,
Supervisor: Prof. M. J. Yazdanpanah.

RESEARCH INTERESTS

- Modeling and Estimation
- Pattern Recognition and System Identification
- Fractional Order Systems and Control
- Nonlinear, Robust, Optimal and Adaptive Control
- Robotic Surgery

HONORS AND AWARDS

- Awarding Iranian Ministry of Science, Research and Technology award to visit a foreign university as a visiting doctoral, Jun 2015.
- Ranked 1st in Robocup Iran Open 2014 International Competitions and Symposium, Standard Platform League as the leader of MRL Nao Team, April 2014.
- Ranked 3rd in Robocup German Open 2014 International Competitions and Symposium, Standard Platform League as the leader of MRL Nao Team, April 2014.
- Ranked 2nd in Robocup Iran Open 2013 International Competitions and Symposium, Standard Platform League as the leader of MRL Nao Team, April 2013.
- Ranked 17th amongst around 1000 PhD applicants of Control Engineering, 2012.
- Ranked 22nd amongst almost 20000, M.Sc. Entrance Exam in Electrical Engineering, 2010.
- Member of Iran National Elite Foundation, since 2006.
- Ranked 46th amongst more than 300000, Iranian Nation-Wide University Entrance Exam for B. Sc. Degree, 2006.
- Awarding Bronze Medal at the 17th Iran Literature Olympiad, 2005.

PUBLICATIONS

- **S. S. Tabatabaei**, M Tavakoli, H. A. Talebi, (2021). "A finite-time adaptive order estimation approach for non-integer order nonlinear systems." *ISA transactions*.
- M. Eslami, M.Jannati, **S. S. Tabatabaei**, (2021). "An improved protection strategy based on PCC-SVM algorithm for identification of high impedance arcing fault in smart microgrids in the presence of distributed generation". *Measurement*, 175, 109149.
- **S. S. Tabatabaei**, "A self-tuning variable order update rule for perceptron neural networks", (2021) National Conference on Intelligent Systems and Fast Computing, February 2021, Shahreza, Iran. (in Persian).
- **S. S. Tabatabaei**, M Tavakoli, H. A. Talebi, "Using neural networks and GA algorithm in order identification of variable order soft tissue model", (2021) National Conference on Intelligent Systems and Fast Computing , February 2021, Shahreza, Iran. (in Persian).
- **S. S. Tabatabaei**, H. A. Talebi and M Tavakoli, (2017). "An Adaptive Order/State Estimator for Linear Systems with Non-integer Time-Varying Order", *Automatica*, 84, 1-9.
- **S. S. Tabatabaei**, H. A. Talebi, and M. Tavakoli. (2017). "A novel adaptive order/parameter identification method for variable order systems application in viscoelastic soft tissue modeling." *Chaos, Solitons & Fractals* (2017).
- **S. S. Tabatabaei**, M. J. Yazdanpanah and M. S. Tavazoei, (2017). "Deriving the Necessary Conditions for Finite Horizon Time Varying Order Optimal Control of Caputo Systems", *IMA Journal of Mathematical Control & Information*, 2017.
- P. Sindareh-Esfahani, **S. S. Tabatabaei**, & J. K. Pieper. (2017). "Model predictive control of a heat recovery steam generator during cold start-up operation using piecewise linear models". *Applied Thermal Engineering*, 119, 516-529.
- **S. S. Tabatabaei**, H. A. Talebi, and M. Tavakoli. (2017). "Non-integer Variable Order Dynamic Modeling and Identification of Soft Tissue Deformation", *American Conference of Control (ACC)*, May 2017.

- **S. S. Tabatabaei**, M. J. Yazdanpanah and M. S. Tavazoei, (2017). "Formulation and Numerical Solution for Fractional Order Time Optimal Control Problem Using Pontryagin's Minimum Principle", *IFAC World Congress*, July 2017.
- S. Parsianmehr, A. Fakharian, **S. S. Tabatabaei**, (2013). "An experimental LTI model for open loop Nao navigation," *India Conference (INDICON), 2013 Annual IEEE* , vol., no., pp.1,6, 13-15 Dec. 2013 doi: 10.1109/INDCON.2013.6726035.
- **S. S. Tabatabaei**, M. J. Yazdanpanah, S. Jafari, J. C. Sprott, (2014). "Extensions in Dynamic Models of Happiness: Effect of Memory" (2013), *International Journal of Happiness and Development*, 1(4), pp. 344-356.
- **S. S. Tabatabaei**, M. J. Yazdanpanah, and M. S. Tavazoei, (2013). "Incommensurate order fractional optimal control: Application to treatment of psychiatric disorders." In *Electrical Engineering (ICEE), 2013 21st Iranian Conference on* (pp. 1-5). IEEE.
- **S. S. Tabatabaei**, M. J. Yazdanpanah, M. S. Tavazoei, and A. Karimian. (2012). On dynamic models of human emotion. In *Electrical Engineering (ICEE), 2012 20th Iranian Conference on* (pp. 874-878). IEEE.
- M. Jafari, T. A. Najafabadi, B. Moshiri, **S. S. Tabatabaei**, M. Sahebjamayan. (2014). "PEM Stochastic Modeling for MEMS Inertial Sensors in Conventional and Redundant IMUs," *Sensors Journal, IEEE* , vol.14, no.6, pp.2019,2027.
- M. J. Yazdanpanah, A. Yaghmaei, H. Agahi, G. Montaseri, **S. S. Tabatabaei** and A. Vafaei, (2014). "New Horizons in Control Engineering". *Iranian Journal of Engineering Education (IJEE)*, 62(16). (in Persian).

Teaching EXPERIENCES

- **Department of Electrical Engineering**, University of Isfahan, Shahreza Campus, Shahreza, Iran
Since 2014
- **Department of Electrical and Computer Engineering**, University of Tehran, Tehran, Iran
Spring 2018
- **Department of Electrical Engineering**, Kharazmi Technical College, Shahreza, Iran
Fall 2016-Fall 2017
- **Faculty of Engineering**, Islamic Azad University of Shahreza, ,Shahreza, Iran
Spring 2014
- **Department of Electrical and Computer Engineering**, Islamic Azad University of Qazvin, Qazvin, Iran
Spring 2014

Job EXPERIENCES

- **Deputy for Education and Research**, University of Isfahan, Shahreza Campus, Iran
January 2020- July 2021
- **Deputy for Education and Research**, University of Shahreza, Shahreza, Iran
May 2019- January 2020
- **Faculty Member**, Faculty of Engineering, University of Shahreza, Shahreza, Iran
May 2018-Ongoing
- **Researcher and Research Team Leader**, Mechatronics Research Laboratory, Qazvin Islamic Azad University, Qazvin, Iran
September 2012-September 2014

MEMBERSHIP

Iran National Elite Foundation, since 2006.