

CURRICULUM VITAE

Seyed Vahid Naghavi
(*Phd in Electrical Engineering, Majoring in Control*)
(Updated November-2022)

Personal Details

Date of Birth: 21 September 1982

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Work Experience

2018 - Present Research Institute of Petroleum Industry (RIPI), Iran

On the Faculty – Assistant Professor

The Research Development Office of the National Iranian Oil Company, initially established to conduct research on the applications of petroleum-based products in 1959, was developed into the Research Institute of Petroleum industry in 1989 under the formal agreement of the Development Council of the Ministry of Culture and Higher Education. In line with its main assignment of conducting technological R&D to meet the needs of the Iranian oil industry, RIPI has been focused on developing ongoing interactions with the operating units of the industry, international collaboration networks, absorbing national and foreign investments, capacity building and optimally utilizing the resources to develop the national technological capabilities.

2010 - 2018 Islamic Azad University, Iran

On the Faculty – Assistant Professor

The Islamic Azad University (IAU) is a non-governmental private university in Iran. It is one of the largest comprehensive systems of universities, colleges, and community colleges in the world.

Educational Background

2009-2014 Shiraz University, Iran

Phd in Electrical Engineering, Majoring in Control

GPA: 17.22 out of 20

Thesis Title: Developing Distributed Networked Control Systems Based on Model Predictive Controllers for Real-Time Applications **Grade:** Excellent

The Shiraz University, formerly known as Pahlavi University, is a public university located in Shiraz, Iran. It is both a modern as well as the old institution of Higher Education. Established in 1946, the University has always ranked as Top 5 among Iranian universities and is well respected in Iran.

2004-2007 Shiraz University, Iran

MEngSc in Electrical Engineering, Majoring in Control

Ranked first (First Honor), GPA: 18.40 out of 20

Thesis Title: A new approach for neural network observer-based synchronization problem of chaotic systems

2000-2004 Shiraz University, Iran

BSc in Electrical Engineering, Majoring in control

GPA: 15.65 out of 20

BSc Project: Fuzzy control of traffic lights using microprocessor 8051

Journal Reviewer

Automatica, Journal of Process Control, IEEE Transactions on Neural Networks and Learning Systems, Asian Journal of Control, Transactions of the Institute of Measurement and Control, Nonlinear Dynamics, Journal of Control Theory and Applications, Journal of Vibration and Control, Systems Science and Control Engineering, Petroleum Research

Publications

Journals:

1. S. Ghorbani, A. Safavi, and S. Vahid Naghavi, "Decentralized event-triggered robust MPC for large-scale networked Lipschitz nonlinear control systems", *IET Control Theory & Applications* (IF: 3.343). Published Online, September 2021.
2. O. Zadehbagheri, M.R. Salehizadeh, S. Vahid Naghavi and M. Moattari, "Design of Pipeline leak Detection System using Neural Network on Scada Platform of National Iranian Oil Company", *Petroleum Research*, Vol. 31, No. 116, 6-8, 2021(April-May).
3. S. Ghorbani, A. Safavi, and S. Vahid Naghavi, "Event-triggered robust model predictive control for Lipschitz nonlinear networked control systems subject to communication delays", *Transactions of the Institute of Measurement and Control* (IF: 1.649). First Online: November 2020.
4. Navid Vafamand, S. Vahid Naghavi, Ali Akbar Safavi, Alireza Khayatani, Mohammad Hassan Khooban & Tomislav Dragičević, "TS-based sampled-data model predictive controller for continuous-time nonlinear systems", *International Journal of Systems Science* (IF: 2.185), First Online: 25 October 2018.
5. Iman Hoseini, S. Vahid Naghavi, and A. A. Safavi, "Distributed model predictive control strategy for a class of interconnected discrete-time systems with communication delay", *Iranian Journal of Science and Technology, Transactions of Electrical Engineering* (IF: 0.519), First Online: 17 July 2018.
6. Ali Azami, S. Vahid Naghavi, Reza Dadkhah Tehrani, M. H. Khooban, and Faridoon Shabaninia, "State estimation strategy for fractional order systems with noises and multiple time delayed measurements", *IET Science, Measurement & Technology* (IF: 1.336), pp. 1-9, August 2016.
7. S. Vahid Naghavi, A. A. Safavi and M.H. Khooban, "Robust Control Strategies for a Class of Distributed Networked systems with Transmission Delays: LMI-Based Model Predictive Controller", *COMPEL - The international journal for computation and mathematics in electrical and electronic engineering* (IF: 1.336), pp. 1786-1813, Vol. 35 No. 5, April 2016.
8. Abdollah Rahimi et al and S. Vahid Naghavi, "The online parameter identification of chaotic behaviour in permanent magnet synchronous motor by Self-Adaptive Learning Bat-inspired algorithm", *International Journal of Electrical Power & Energy Systems* (IF: 3.610), Volume 78, Pages 285–291, June 2016.
9. M. Zamani, A.A. Safavi and S. Vahid Naghavi, "Performance Review of the Oil Cycle of Parabolic Shiraz Solar Power Plant Part I: Modeling and Monitoring", *Tabriz University Journal of Mechanical engineering*, Vol. 45, Pages 61–67, Spring 2014 (in persian).
10. S. Vahid Naghavi, A. A. Safavi and M. Kazerooni, "Decentralized Fault Tolerant Model Predictive Control of Discrete-Time Interconnected Nonlinear Systems", *Journal of the Franklin Institute* (IF: 3.576), Volume 351, Issue 3, Pages 1644–1656, March 2014.
11. Valiollah Ghaffari, Hamid Reza Karimi, Navid Noroozi, and S. Vahid Naghavi, "Stabilization of a Class of Stochastic Nonlinear Systems", *Mathematical Problems in Engineering ((Special Issue on Mathematical Control of Complex Systems))* (IF: 1.145), Volume 2013, October 2013.
12. Yousef Alipouri, Saeed Ahmadizadeh, Hamid Reza Karimi, S. Vahid Naghavi, and Ahad Soltani Sarvestani, "Improving performance of evolutionary algorithms with application to fuzzy control of truck backer-upper system", *Mathematical Problems in Engineering (Special Issue on Mathematical Tools of Soft Computing)* (IF: 1.145), Volume 2013, September 2013.
13. V. Ghaffari, S. Vahid Naghavi and A.A. Safavi, "Robust Model Predictive Control of a Class of Uncertain Nonlinear Systems with Application to Typical CSTR Problems", *Journal of Process Control* (IF: 2.787), Volume 23, Issue 4, Pages 493–499, April 2013.
14. M. Zamani, S. M. H. Mohammadi, A.A. Safavi and S. V. Naghavi, "On the Control of the Collector Field Outlet Temperature of Shiraz 250KW Solar Power Plant", *Applied Mechanics and Materials*, Vol. 260-261, pp. 163-168, December 2012.
15. M. Zamani, A.A. Safavi, S. Vahid Naghavi and S. M. H. Mohammadi, "Design and Development of a Simulator for Shiraz 250kw Solar Power Plant Based on Hybrid Modeling", *Iranian Journal of Energy*, Vol. 3, December 2012. (in persian)
16. S. Vahid Naghavi, Ali Azami, Freidoon Shabaninia, "State Estimation over Customized Wireless Network", *Wireless Engineering and Technology*, Vol. 3, No. 4, pp. 221-228, October 2012.
17. V. Zakeri, S. Vahid Naghavi, A. Safavi, "Developing Real-Time Wave-Net Models for Nonlinear Time-Varying Experimental Processes", *Computers and Chemical Engineering* (IF: 3.113), Volume 33, Page 1379–1388, February 2009.

18. S.Vahid Naghavi, A.A.Safavi, "Novel Synchronization of Discrete-Time Chaotic Systems Using Neural Network Observer", *Chaos: An Interdisciplinary Journal of Nonlinear Science (IF: 2.415)*, Volume 18, Issue 3, September 2008.
19. A.A Safavi, S.Salehi, M.Motamedi, E.Kikha, S.Vahid Naghavi and H.Ghafari, "The First Iranian Virtual and Remote Laboratory for control Engineers: Design and Implementation", *Iranian Journal of Engineering Education*, Vol.9, No.34, Summer 2007. (in persian)

Book Chapter:

1. Hassan Adloo, S. Vahid Naghavi, Ahad Soltani Sarvestani and Erfan Shahriari, "Two Dimensional Sliding Mode Control", *Book title: Sliding Mode Control, ISBN: 978-953-307-1093-8, INTECH*, March, 2011.

Conferences:

1. S. Vahid Naghavi and A.A. Safavi, "Decentralized model predictive control of interconnected nonlinear systems at the presence of faults over communication network", *Comptelix 2017*, Jaipur, India, 1-2 July, 2017.
2. S. Vahid Naghavi et al., "Proposing a robust strategy to control micro-grid parameters in distributed power generation", *6th International Conference on Electrical, Computer, Mechanical and Mechatronics Engineering (ICE2017)*, Dubai, Emirates, 9-10 February 2017.
3. Iman Hoseini, S.Vahid Naghavi, and A. A. Safavi, "Distributed model predictive control of discrete-time linear systems with nonlinear interconnection and time delay", the 24th Iranian Conference on Electrical Engineering (ICEE 2016), Shiraz, Iran, 10-12 May, 2016.
4. S.Vahid Naghavi, A. A. Safavi and V. Ghaffari, "Developing a robust model predictive controller for a class of distributed networked systems with application to a chemical reactor plant", the 6th International Conference on Modeling, Simulation and Applied Optimization (ICMSAO 2015), Istanbul, Turkey, May 27-29, 2015.
5. M. Zamani, A.A. Safavi S. Vahid Naghavi, "Evaluation of control structures based on PID controllers on the Performance of Shiraz solar power plant oil cycle", the 3rd International Congress on Electric Industry Automation (ICEIA2015), Shiraz, Iran, 24-25 February 2014. (in persian).
6. S. Vahid Naghavi, A.A. Safavi, and S. Pourdehi, "Decentralized Observer-Based Robust Model Predictive Control for a Class of Distributed Networked Systems", 13th International Conference on Instrumentation, Measurement, Circuits and Systems (IMCAS '14), Istanbul, Turkey, December 15-17, 2014.
7. S. Pourdehi, S. Vahid Naghavi, and A.A. Safavi, "Observer-based robust model predictive control of a class of nonlinear systems with both state and input delays", The 3rd International Conference on Control, Instrumentation, and Automation, Tehran, Iran, December 2013.
8. V. Ghaffari, S. Vahid Naghavi, A.A. Safavi and Masoud Shafiee, "An LMI Framework to Design Robust MPC for a class of Nonlinear Uncertain Systems", 9th Asian Control Conference (ASCC 2013), Istanbul, Turkey, June 23-26, 2013.
9. M. Zamani, A.A. Safavi, S. M. H. Mohammadi, and S. Vahid Naghavi, "Collector Field Input Oil Temperature Control Analysis of Shiraz 250KW Solar Power Plant", The 27th International Power System Conference (PSC2012), Tehran, Iran, November 13-15, 2012. (in persian)
10. M. Zamani, S. M. H. Mohammadi, A.A. Safavi and S. V. Naghavi, "On the Control of the Collector Field Outlet Temperature of Shiraz 250KW Solar Power Plant", 2012 Asian Pacific Conference on Energy, Environment and Sustainable Development (APEESD 2012), Kuala Lumpur, Malaysia, November 12-13, 2012.
11. M. Zamani, S. M. H. Mohammadi, A.A. Safavi and S. V. Naghavi, "Design and development of Shiraz 250KW Solar Power plant simulator", The 2nd Annual Clean Energy Conference (ACEC), International center for science, High technology and environmental sciences, Kerman, Iran, July 11-12, 2012. (in persian)
12. S. V. Naghavi, N. Noroozi and A.A. Safavi, "Time-Scale Separation Based Synchronization of Two Non-identical Chaotic Neural Networks", The 2nd International Conference on Control, Instrumentation, and Automation (ICCIA 2011), Shiraz, Iran, December 27-29, 2011.
13. Valiollah Ghaffari, A.A. Safavi and S. V. Naghavi, "Robust Model Predictive Control for a Class of Uncertain Nonlinear Systems: An LMI Approach", The 2nd International Conference on Control, Instrumentation, and Automation (ICCIA 2011), Shiraz, Iran, December 27-29, 2011.
14. S. V. Naghavi, A.A. Safavi, "A Neural Network Observer-based Approach for Synchronization of Discrete-time Chaotic Systems", 17th IFAC World Congress (IFAC WC 2008), Seoul, Korea, July 6-11, 2008.
15. Seyed Vahid Naghavi, "PM Stepper Motor Control-Universal SMC", Proceeding of 39th North American Power Symposium (NAPS 2007), New Mexico State University, Las Cruces, New Mexico, September 30–October 2, 2007.
16. V. Zakeri, V. Naghavi, A.A. Safavi, "A Comprehensive Study for Real-Time Learning of Wave-Net Models of a Nonlinear Time-Varying Experimental Process", Proceedings of the 15th Med. Conf. on Control and Automation (MED 2007), July 27-29, Athens, Greece, 2007.
17. S. V. Naghavi, A.A. Safavi, "A wedding of neural network observers and LPV formulation to solve synchronization problem of discrete-time chaotic systems", The Second International Conference on Modeling and Simulation, And Applied Optimization (ICMSAO 2007), March 25-27, Abu Dhabi, UAE, 2007.

18. V. Zakeri, V. Naghavi, A.A. Safavi, “ Real time on-line learning and improvement of wave-net models of a time varying experimental process with L2 approach”, *The Second International Conference on Modeling and Simulation, And Applied Optimization(ICMSAO 2007)*, March 25-27, Abu Dhabi, UAE, 2007.
19. S. V. Naghavi, A.A. Safavi, “ Presenting an Approach to Solve the synchronization Problem of LPV Chaotic systems Based on Nueral Network Observers ”, *ICEE* , Tehran, Iran, May 2008. (in persian)

Journal submitted

1. Developing A Novel Approach for Pipeline Leak Detection Based on Modified Real Time Transient Modeling Method, Extended Kalman filter and Artificial Intelligence
2. A Novel Data Mining Method using Adaptive Hidden Markov Model and EM Algorithm for Pipeline Leak Detection

Academic Achievements

- Chairman of the board: Iranian Society of Instrumentaion and Control Engineers (From the year 2020)
- Member of Iran Elites Institute from the year 2008.
- Ranked 1st among M.Sc. Control Engineering students, 2007.
- Ranked third at the second student research festival and distinguished ideas of the students in Fars province, November 2007. “ Simulation, Virtual and Real-time Control of an Educational Servo System ” .

Research Projects

1. Digital Transformation in Oil and Gas Industry. 2018-WIP
2. Model Predictive Control (MPC). 2012-WIP.
3. Homogreenus: a better Social Media - Combining IOT and Blockchain technologies to upgrade social networks business model. 2018-WIP.
4. Design a robust controller to control the micro-grid parameters, Islamic Azad University, 2015-2016.
5. Increasing speed and accuracy of evolutionary algorithms by designing controller using of cost and coordination information, Islamic Azad University, 2012-2013.
6. Developing PC-based Advanced Control and Monitoring of Shiraz 250KW Solar Power Plant, Shiraz University, 2011-2013.

Cooperation in Industrial Projects

1. Engineering Design (Basic/Detail) of Several Industrial Projects licensed by **RIPI**.
2. Development of ANG technology with nano-adsorbent to replace CNG tanks.
3. Applying Data Reconciliation technique based on mass balance and applying it in virtual sensor design of RFCC unit.
4. Process design and optimization of produced water cycle of Siri Island.

Research Interests

Digital transformation, Industry 4.0, Industrial Intenet of things, Model predictive and optimization-based control, Intelligent Control, Studding emerging technologies, developing new business models, Networked Control Systems, Control of distributed systems, Control of large-scale systems, Real-Time Identification and Control, Non-Linear Identification and Control, Process Control, Data Monitoring and Analysis, Remote and Virtual Laboratories.

Courses Taught

Model Predictive Control, Intelligent control, Industrial Automation, System Identification, Linear Control, Digital and Nonlinear Control, Modern Control, Instrumentation, Computer Applications in Control, Electrical measurment, Electrical Circuits, Electronics I, Computer programming, Digital Design Lab., Circuit and Measurement Lab., Electronics Lab. I, Electronics Lab. II, Linear Control Lab.

Skills

General:

- Control engineering theory and applications
- Industrial Electrical and control Engineer
- Familiar with emerging technologies
- Social entrepreneurship
- Business consultant

Language Proficiency: Cambrige ESOL Level 2 Certificate in English based on INTERNATINAL ENGLISH LANGUAGE TESTING SYSTEM

Computer Skills:

- Conversant in office software (Power Point, Word, Excel).
- Skillful in Matlab, LABVIEW.
- Conversant in AUTOCAD.
- Conversant in Instrumentation sizing softwares.

Phd Courses

1. An Introduction to Networked Control Systems by Prof. Karl Henrik Johansson and Dr. Vijay Gupta, HYCON-EECI Graduate School on Control, Paris, (15/03/2010 – 19/03/2010).
2. Optimality, Stabilization, and Feedback in Nonlinear Control by Prof. Francis Clarke, HYCON-EECI Graduate School on Control, Paris, (22/03/2010 – 26/03/2010).
3. Advanced Adaptive Control, Shiraz University, First semester 2010-2011
4. Applied Functional Analysis, Shiraz University, Second semester 2009-2010
5. Optimal State Estimation, Shiraz University, Second semester 2009-2010
6. Model Predictive Control, Shiraz University, First semester 2009-2010
7. Asymptotic Methods in Control, Shiraz University, First semester 2009-2010
8. An Introduction to Identification, Shiraz University, First semester 2009-2010

Assistance in Holding Conferences, Workshops and contests

1. General Chair – The 8th international conference on Control, Instrumentation and Automation (Iranian Society of Instrumentation and Control Engineers, Tehran, Iran, 2022)
2. Member of Scientific Committee – The 5th International Conference on Control, Instrumentation and Automation (Shiraz University, Shiraz, Iran, 2016)
3. Member of Executive and Organizing Committee -The 2nd International Conference on Control, Instrumentation, and Automation (Shiraz University, Shiraz, Iran, 2011)
4. Member of Scientific Committee - The third Sama Robotic contest (Shiraz, Iran, 2011).
5. Member of Scientific Committee -The National Conference on Electrical and Computer Engineering (Islamic Azad University, Neyriz, Iran, 2011)
6. Control and Robotics Workshop (Islamic Azad University, Iran, December 2010)
7. Member of Scientific Committee - The second Sama Robotic contest (Shiraz, Iran, 2009)
8. Member of Scientific Committee - The first Sama Robotic contest (Shiraz, Iran, 2008)
9. Virtual Laboratory Workshop (Shiraz University, Shiraz, Iran, 2007)
10. Member of Organizing Committee- E-learning workshop (Shiraz University, Shiraz, Iran, 2003).
11. Member of student Organizing Committee- The 11th Iranian Conference on Electrical Engineering(Shiraz University, Shiraz, Iran, 2003)
12. Member of student Organizing Committee- The 5th Iranian Student Conference on Electrical Engineering(Shiraz University, Shiraz, Iran, 2002)

Reference

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