



Mohsen Shafieirad

Assistant Professor

Department of Electrical & Computer Engineering
University of Kashan
Kashan, Iran

Office: +98 31 5591 3488
E-mail: m.shafieirad@kashau.ac.ir
Web: <http://mshafieirad.faculty.kashanu.ac.ir/>

EDUCATION

- Jan 2014 **Amirkabir University of Technology**, Tehran, Iran
Ph.D. in Control Engineering
Thesis:
Centralized & Distributed Identification of Two-Dimensional Systems
- Jan 2008 **Amirkabir University of Technology**, Tehran, Iran
M.S. in Control Engineering
Thesis:
A New Method for Congestion Control & Solving the Stability Problem in Ad-hoc Wireless Networks
- Sep 2005 **Isfahan University of Technology**, Isfahan, Iran
B.S. in Control Engineering
Project Title: DC Motor Speed Control Based on PC-Based Control System using LabVIEW Software and Axiom Data Acquisition Cards (Equipping the Digital Control Lab.)
- Sep 2000 **Imam Bagher High School**, Isfahan, Iran
High School Diploma in **Mathematics**
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PRESENT ACADEMIC POSITION

- Jan 2014- Present **University of Kashan, Kashan, Iran**
Assistant Professor
Control Group, Department of Electrical & Computer Engineering
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RESEARCH INTERESTS

- Distributed Control & Consensus
- System Identification & Modelling
- Biological Systems
- Multidimensional (M-D) Systems & M-D Time Series
- Machine Learning & AI
- Digital Signal Processing
- Control of Ad-hoc & Sensor Networks

EDUCATIONAL & RESEARCH ACTIVITIES

- Teaching More than 24 Different Courses at B.S., M.S. and Ph.D. Levels
- Author of More than 40 Journals & Conferences Papers
- Supervisor & Co-Supervisor of more than 15 M.s.c Thesis and 6 Ph.D. Dissertations
- Supervisor of more than 150 Projects at B.S. Level (control, communication, etc)
- Equipping and Setting up the Instrumentation Lab in Electrical & Computer Eng. Dep., Kashan University.
- Tutoring Several Electrical Eng. Courses & Mathematics (for High School, B.S. & M.S. Students)

TEACHING EXPERIENCE

Jan 2014- Present Assistant Professor	University of Kashan, Kashan, Iran Control Group, Department of Electrical & Computer Engineering
Jan 2006 Teacher Assistant	Amirkabir University of Technology, Tehran, Iran Department of Electrical & Computer Engineering
Sep 2007- Jan 2011 Teacher Assistant	International Branch of Amirkabir University of Technology, Tehran, Iran Electrical Engineering group
Jan 2009 Instructor	Imam Khomeini International University, Qazvin, Iran Department of Computer Engineering
Jan 2014-2017 Instructor	Feiz Kashani Institute of Higher Education, Kashan, Iran Department of Electrical & Computer Engineering
Sep 2011 Instructor	Sadra-al-Motoallehin Institute of Higher Education, Tehran, Iran Department of Electrical & Computer Engineering
Sep 2009 Instructor	Payam Golpayegan Institute of Higher Education, Golpayegan, Iran Electrical Engineering Group
Sep 2006 & Jan 2007 Instructor	Natanz Azad University, Natanz, Iran Electrical Engineering Group
Jan 2008- Jan 2013 Instructor	Allameh Rafiee Institute of Higher Education, Qazvin, Iran Electrical Engineering Group

TAUGHT COURSES

- System Identification
- Distributed Cooperative Control
- Multivariable Control Systems
- Digital Control Systems
- Digital Signal Processing
- Modern Control Systems
- Linear Control Systems
- Instrumentation (Sensors & Actuators)
- Signals & Systems
- Linear Algebra
- Electrical Measurement
- Instrumentation Lab.
- Matlab Lab.
- Logic Circuits
- Electrical Circuits 1
- Electrical Circuits 2
- Applied Math 1 & 2
- Engineering Mathematics
- Computer Networks
- Electrical Machine 1
- Pulse Techniques
- Communication Technology
- Analog & Digital Communication
- QBASIC Programming

JOURNAL PUBLICATION

1. AH. Amiri Mehra, **M. Shafieirad** and I.Zamani, Leader-Following Consensus and Qualitative Analysis of a New Multi-Agent-Based Epidemic Model, *IET Control Theory & Applications*, Accepted Oct 2023.
2. M. Sadeghighasami, **M. Shafieirad** and I. Zamani, Robust Output Feedback Controller Design Based on Kalman Filter for Switched Positive Discrete-Time Systems, *Circuits, Systems, and Signal Processing*, pp. 1-30, 2023.
3. Z. Abbasi, **M. Shafieirad**, AH. Amiri Mehra and I. Zamani, Vaccination and Isolation based Control Design of the COVID-19 Pandemic based on Adaptive Neuro Fuzzy Inference System Optimized with the Genetic Algorithm, *Evolving Systems*, vol. 14, no. 3, pp. 413-435, 2023.
4. M. Sadeghighasami, **M. Shafieirad** and I. Zamani, H_∞ Observer-Based Control Design for Switched Positive Systems Including Interval Uncertainties, Unstable Modes and Time-Varying Delay, *Journal of Operation and Automation in Power Engineering*, 2023.
5. E. Nazemorroaya, **M. Shafieirad** and SA. Zahiripour, Mean Square Consensus of Heterogeneous Multi-Agent Systems in the Presence of Actuator Faults, *Transactions of the Institute of Measurement and Control*, vol. 45, no. 6, pp. 1158-1168, 2023.
6. I. Zamani, **M. Shafieirad**, M. Manthoori, M. Sarbaz and A. Ibeas, Nonlinear Pseudo State-Feedback Controller Design for Affine Fuzzy Large-Scale Systems with H_∞ Performance, *International Journal of Fuzzy Systems*, *International Journal of Fuzzy Systems*, vol. 25, no. 1, pp. 80-95, 2023.
7. M. Soltani, R. Abolghasemian, AR. Ghasemi, **M. Shafieirad**, Z. Abbasi and AH. Amiri Mehra, Laminated Optimization of Non-Uniform I-Shaped Beams Under Transversely Loading with Clamped-Free Boundary Conditions, *Structures*, vol. 47, pp. 1524-1530, 2023.
8. Z. Abbasi, I. Zamani, SH. Nosrati, AH. Amiri Mehra, **M. Shafieirad** and A Ibeas, Nonlinear Robust Adaptive Sliding Mode Control Strategy for Innate Immune Response to Influenza Virus, *IETE Journal of Research*, pp. 1-13, 2022.
9. AH. Amiri Mehra, **M. Shafieirad** and I.Zamani, Leader-Following Consensus Considering Effects of Agents on Each Other Via Impulsive Control: A Topology Dependent Average Dwell Time Approach, *Journal of the Franklin Institute*, vol. 359, no. 16, pp. 8639-8668, 2022.
10. M. Soltani, R. Abolghasemian, **M. Shafieirad**, Z. Abbasi, AH. Amiri Mehra and AR. Ghasemi, Multi-Objective Optimization of Lateral Stability Strength of Transversely Loaded Laminated Composite Beams with Varying I-Section, *Journal of Composite Materials*, vol. 56, no. 12, pp. 1921-1939, 2022.
11. M. Adeli, M. Hajatipour, MJ. Yazdanpanah, **M. Shafieirad** and H. Hashemi-Dezaki, Optimized Cyber-Attack Detection Method Of Power Systems Using Sliding Mode Observer, *Electric Power Systems Research*, vol. 205, pp. 107745, 2022.
12. M. Adeli, M. Hajatipour, MJ. Yazdanpanah, **M. Shafieirad** and H. Hashemi-Dezaki, Distributed Trust-Based Unscented Kalman Filter for Nonlinear State Estimation Under Cyber-Attacks: The Application of Maneuvering Target Tracking over Wireless Sensor Networks, *IET Control Theory & Applications*, vol. 15, no. 15, pp. 1987-1998, 2021.

13. Z. Abbasi, I. Zamani, **M. Shafieirad**, AH. Amiri Mehra and M. Hosseini-Farahi, Linear Modeling of the Impact of Pests and Diseases on the Growth Process of Strawberry Plants in the State Space, *Journal of Horticultural Science*, 2021.
14. Z. Abbasi, I. Zamani, AH. Amiri Mehra, A. Ibeas and **M. Shafieirad**, Optimal Control of Multi-Scale Epidemic Model Including Interaction Between SEIR and Innate Immune Response with Nonlinear Transmission Rate and Time Delay, *Computational and Mathematical Methods in Medicine*, 2021.
15. Z. Hayati, **M. Shafieirad**, I. Zamani, AH. Amiri Mehra and Z. Abbasi, Parameter Estimation of MIMO Two-Dimensional ARMAX Model Based on IGLS Method, *Control and Cybernetics*, vol. 50, no. 3, pp. 1-19, 2021.
16. AH. Amiri Mehra, **M. Shafieirad**, Z. Abbasi, I. Zamani and Z. Aarabi, Fuzzy Sliding Mode Controller Design and Analysis of an SQEIR Epidemic Model for COVID-19 to Determine the Quarantine Rate, *Journal of Control*, vol. 14, no. 5, pp. 59-70, 2021.
17. AH. Amiri Mehra, **M. Shafieirad**, Z. Abbasi and I. Zamani, Parameter Estimation and Prediction of COVID-19 Epidemic Turning Point and Ending Time of a Case Study on SIR/SQAIR Epidemic Models, *Computational and Mathematical Methods in Medicine*, 2020.
18. A. Bafekry, CV. Nguyen, A. Goudarzi, M. Ghergherehchi and **M. Shafieirad**, Investigation of Strain and Doping on the Electronic Properties of Single Layers of C_6N_6 and C_6N_8 : A First Principles Study, *RSC Advances*, vol. 10, no. 46, pp. 27743-51, 2020.
19. Z. Abbasi, I. Zamani, AH. Amiri Mehra, **M. Shafieirad** and A. Ibeas, Optimal Control Design of Impulsive SQEIR Epidemic Models with Application to COVID-19, *Chaos, Solitons & Fractals*, vol. 139, p.110054, 2020.
20. I. Zamani, M. Shafiee, **M. Shafieirad** and M. Zeinali, Optimal Control of Large-Scale Singular Linear Systems via Hierarchical Strategy, *Transactions of the Institute of Measurement and Control*, vol. 41, no. 8, pp. 2250-2267, 2019.
21. **M. Shafieirad**, M. Shafiee and M. Abedi, Recursive Identification of Continuous Two-Dimensional Systems in the Presence of Additive Colored Noise, *IETE Journal of Research*, vol. 60, no. 1, pp. 74-84, 2014.
22. **M. Shafieirad**, M. Shafiee and M. Abedi, Estimation of Space and Time Shifts in Continuous 2-D Systems Using Instrumental Variable, *Electrical and Computer Engineering, Canadian Journal of*, vol. 37. No. 1, pp. 42-47, 2014.
23. M. Farrokhi, **M. Shafieirad** and M. Emamimeybodi, Localized Cross-Layer Algorithm to Minimize Transmission Delay in Wireless Ad-hoc Networks, *Journal of American Science*, vol. 9, no. 4, pp. 218-222, 2013.
24. **M. Shafieirad**, M. Shafiee, A. Mobinidehkordi and H. Shafieirad, Distributed Cross-layer Routing and Congestion Control Algorithm in Mobile Ad-hoc Networks, *Journal of American Science*, vol. 9, no.2, pp. 156-165, 2013.
25. **M. Shafieirad**, M. Shafiee and M. Abedi, Identification of Linear Partial Difference Equations with Constant Coefficients, *Journal of Basic and Applied Scientific Research*, vol. 3, no. 1, pp. 655-660, 2013.
26. M. Akhtari, M. Hamdi Bin Abd Shukor, R. Rahbari Ghahnaviye, M. Amiri Roudan and **M. Shafieirad**, "Fabrication of TiB₂-TiC Composites using Different Amount of Carbon in the Initial Ti-B-C Powder Mixture, *Applied Mechanics and Materials Journal*, vol. 315, pp. 720-723, 2013.

27. M. Sadeghi, M. Shafiee and **M. Shafieirad**, “A New Approach to Improve Defect Detection of Steel Sheets Using Gabor Wavelet”, *International Journal of Information and Electronics Engineering*, vol. 3(5), pp. 541-543, 2013.
28. **M. Shafieirad**, M. shafiee, “Cross-layer Design for Congestion Control Routing and Scheduling in Ad-hoc Wireless Networks with Considering the Electrical Power of nodes”, *Iranian Journal of Information and Communication Technology*, vol. 1,no. 1, pp. 71-83, 2008.

CONFERENCE PROCEEDING

1. E. Nazemorroaya, **M. Shafieirad** and M.Majidi, Consensus-based algorithm for distributed convex optimization, *4th International Conference on Computational Algebra, Computational Number Theory and Applications (CACNA2023)*, Kashan, Tehran, Iran, 2023.
2. E. Nazemorroaya, **M. Shafieirad** and M.Hajatipour, Model Reference Adaptive Control for Nonlinear Systems in the Presence of Unknown External Disturbances, *30th Iranian Conference on Electrical Engineering (ICEE2022)*, Tehran, Iran, 2022.
3. Z. Abbasi, I. Zamani, AH. Amiri Mehra and **M. Shafieirad**, “Optimal Control of SEIR Epidemic Model Considering Nonlinear Transmission Rate and Time Delay”, *7th International Conference on Control, Instrumentation and Automation (ICCIA)*, Tabriz, Iran, 2021.
4. Z. Abbasi, **M. Shafieirad**, AH. Amiri Mehra and I. Zamani, “Optimized ANFIS-based Control Design Using Genetic Algorithm to Obtain the Vaccination and Isolation Rates for the COVID-19”, *29th Iranian Conference on Electrical Engineering (ICEE2021)*, Tehran, Iran, 2021.
5. AH. Amiri Mehra, **M. Shafieirad**, Z. Abbasi and I. Zamani, “Stability Analysis of a New Switched SEIAR-Vac-Iso Epidemic Model for the COVID-19”, *29th Iranian Conference on Electrical Engineering (ICEE2021)*, Tehran, Iran, 2021.
6. M. Bahmani, **M. Shafieirad**, M. Zeinali and E. Nazemorroaya, “Parameter Estimation of Two-Dimensional Discrete Multivariate Time Series”, *29th Iranian Conference on Electrical Engineering (ICEE2021)*, Tehran, Iran, 2021. (in Persian)
7. Z. Hayati, **M. Shafieirad** and I. Zamani, “Parameter Estimation of MMO Two-Dimensional ARMAX Model Using Prediction Error Method”, *4th National Conference on Applied Research in Electrical, Mechanical, Computer & IT Engineering*, Shiraz, 2018.
8. S. Kashefi and **M. Shafieirad**, “Formation of C4I Network Components Using Distributed Position-Based Formation Control Design”, *9th National Conference of Command Control Communication Computer Intelligence*, Tehran, Iran, 2016. (in Persian)
9. M. H. Nasirirad, I. Zamani, **M. Shafieirad** and S. A. Hosseini, “New Road Tunnels Intelligent Control Design to Increase Safety and Reduce Financial Costs and Death Toll with the Case Study of Tunnels in Road 006-85-01-04”, *1st National Road ITS Congress*, Tehran, Iran, 2015. (in Persian)
10. M. Sadeghi, M. Shafiee, F. Memarzadeh Zavareh and **M. Shafieirad**, “Utilization of Gabor Wavelet in Image Processing of Steel Surfaces for Detection of Observable Defects”, *MASFOR 2012*, Istanbul, Turkey, 2012.
11. M. Akhtari, M. Hamdi Bin Abd Shukor, R. Rahbari Ghahnaviye, M. Amiri Roudan and **M. Shafieirad**, “Fabrication of TiB₂-TiC composites using different amount of carbon in the initial Ti-B-C powder mixture An Axiomatic Approach to Design for Sustainable End-of-life: A Review of Literature.”, *ICME2012*, KL, Malaysia, 2012.

12. M. Sadeghi, M. Shafiee and **M. Shafieirad**, "A New Approach to Improve Defect Detection of Steel Sheets Using Gabor Wavelet", *IEEE 3rd International Conference On Signal Processing Systems (ICSPPS)*, Yantai, China, Aug 2011.
13. **M. shafieirad**, M. Karimi Hosseinabadi and M. Shafiee, "Graphical stability Analysis for two-Dimensional systems", *10th Iranian Conference on Electrical Engineering (ICEE2010)*, Isfahan, Iran, 2010. (in Persian)
14. **M. Shafieirad** and M. Shafiee, "A Mobility-aware Cross-layer Congestion Control, Routing and Scheduling Design in Ad-hoc Wireless Networks", *11th International Conference on Optimization of Electrical and Electronic Equipment*, pp. 191–200, Romania, 2008.

BOOKS & CHAPTERS

1. Z. Abbasi, I. Zamani, AH. Amiri Mehra, **M. Shafieirad** and A. Ibeas, Optimal Control Design of Impulsive SQEIR Epidemic Models with Application to COVID-19, *Modeling, Control and Drug Development for COVID-19 Outbreak Prevention*, Springer, 2021. (Chapter)

RESEARCH PROJECTS

1. Gathering resources, uploading regulations, compiling and activating the "relation between university and industry" website, **M.Shafieirad**, *University of Kashan*, 1401.
2. Design and Construction of 3 Setups (Temperature, Pressure & Flow Measurement) for Instrumentation Laboratory, **M.Shafieirad** and S. H. Ejtahed, *University of Kashan*, 1399.
3. Force Constants Calculation of Black Phosphorene, H. Karami Taheri, F. Masoudinia and **M.Shafieirad**, *University of Kashan*, 1399.
4. Providing an Integration Design for Building Instrumentation and Automation based on Wired and Wireless Protocoling, **M.Shafieirad**, *Niusad Madaar San'at*, 1397.

HONORS & AWARDS

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| 2022 | Award of Excellence for Teaching in Electrical & Computer Eng. Dep., Kashan University. |
| 2016 | Award of Excellence for Teaching in Electrical & Computer Eng. Dep., Kashan University. |
| 2008 | Ranked 1 st in Ph.D. Entrance Exam (Control Eng.), Amirkabir University of Technology. |
| 2005 | Outstanding Undergraduate Student Award in Electrical & Computer Eng. Dep., Isfahan Uni. of Tech. |
| 2001 | 1 st Rank of Pre-University Level in Isfahan Province. |

ADMINISTRATIVE ACTIVITIES & MEMBERSHIPS

- Chair of the Control Group from 2016 to 2023, Electrical & Computer Eng. Dep., Kashan University
- Chair of the Control, Communication & ICT Groups (for 3 years) in Allameh Rafiee Inst. Of Higher Edu.
- Member, Institute of Electronic and Electrical Engineering (IEEE)
- Member, Iranian Society of Instrument & Control Engineers
- Member, Iranian Association of Information and Communication Technology

LANGUAGES

English **Advanced**

Persian **Native**