

Curriculum Vitae

Personal Information

Full Name: Fahimeh Nazarimehr

Marital Status: Married

Nationality: Iranian

Place of Birth: Qazvin, Iran

Date of Birth: 07/01/1990

Home Address: 5nd floor, apartment number 56, Eslam Panah Ave, Tehran, Iran

Cell Phone: (+98)9369318148

Email: fahimenazarimehr@yahoo.com, fahimenazarimehr@gmail.com, f_nazarimehr@aut.ac.ir

ResearchGate link: https://www.researchgate.net/profile/Fahimeh_Nazarimehr2

Google Scholar link: <https://scholar.google.com/citations?user=9kSHdyMAAAAJ&hl=en>

Citations: 728

Education

- **2008 -2012:** B.Sc. degree in biomedical engineering at Shahed University in Tehran, Iran. Average: 17.84/20
- **2012 - 2014:** M.Sc. degree in biomedical engineering, majoring in bioelectric at Sharif University of Technology, Tehran, Iran. Average:17.74/20
- **2014 - 2018:** P.hD. degree in biomedical engineering, majoring in bioelectric at Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran. Average:18.15/20
- **2018 – Present:** Postdoctoral researcher in biomedical engineering at Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran.

Research experience

BSc thesis: *Design and Construction Analog part of ABR Signal Recording*

Supervisor: Dr. Ali Moti Nasrabasi

MSc thesis: *Detection of High Frequency Oscillations in EEG Recordings*

Supervisor: Professor Mohammad Bagher Shamsollahi

PhD thesis: *Designing interaction based early warning signals for predicting Bifurcation points in biological systems*

Supervisor: Dr. Sajad Jafari & Professor Seyed Mohammad Reza Hashemi Golpayegani

International Collaborations

I have the honor of working with many great researchers such as:

Julien Clinton Sprott, Professor of Physics, University of Wisconsin - Madison, h-index: 52

Matjaž Perc, Professor of Physics, University of Maribor, h-index: 83

Gennady Leonov, Professor of Mathematics, St. Petersburg State University, h-index: 48

Tomasz Kapitaniak, Professor of Mechanical Engineering, Technical University of Lodz, h-index: 52

Guanrong Chen, Chair Professor of Electronic Engineering, City University of Hong Kong, h-index: 143

Nikolay V. Kuznetsov, Professor of Mathematics, Applied Cybernetics Department, Faculty of Mathematics and Mechanics, St. Petersburg State University, h-index: 39

⋮

Research Interests

- Chaos theory and its application in biological signals and systems
- Nonlinear dynamics
- Bifurcation analysis
- Dynamical Systems in Neuroscience
- Feature extraction and classification of signals

Publications

❖Journal:

- Jafari S, Sprott JC, **Nazarimehr F**. Recent new examples of hidden attractors. The European Physical Journal Special Topics. 2015 Jul 1;224(8):1469-76. (**IF: 1.668**)
- Jafari S, **Nazarimehr F**, Sprott JC, Golpayegani SMH. Limitation of Perpetual Points for confirming conservation in dynamical systems. International Journal of Bifurcation and Chaos. 2015 Dec 15;25(13):1550182. (**IF: 2.469**)
- **Nazarimehr F**, Saedi B, Jafari S, Sprott JC. Are perpetual points sufficient for locating hidden attractors?. International Journal of Bifurcation and Chaos. 2017 Mar;27(03):1750037. (**IF: 2.469**)
- **Nazarimehr F**, Jafari S, Golpayegani SMH, Sprott JC. Can Lyapunov exponent predict critical transitions in biological systems?. Nonlinear Dynamics. 2017 Apr 1;88(2):1493-500. (**IF: 4.867**)
- **Nazarimehr F**, Jafari S, Golpayegani SMH, Sprott JC. Categorizing Chaotic Flows from the Viewpoint of Fixed Points and Perpetual Points. International Journal of Bifurcation and Chaos. 2017 Feb;27(02):1750023. (**IF: 2.469**)
- Hosseini SS, **Nazarimehr F**, Jafari S. Investigation of Seasonal and Latitudinal Effects on the Expression of Clock Genes in Drosophila. International Journal of Bifurcation and Chaos. 2017 Sep;27(10):1750153. (**IF: 2.469**)

- Rajagopal K, **Nazarimehr F**, Karthikeyan A, Srinivasan A, Jafari S. Fractional Order Synchronous Reluctance Motor: Analysis, Chaos Control and FPGA Implementation. *Asian Journal of Control*. 2018 Nov;20(6):1-15. (IF: 2.779)
- **Nazarimehr F**, Jafari S, Golpayegani SM, Kauffman LH. Investigation of Bifurcations in the Process Equation. *International Journal of Bifurcation and Chaos*. 2017 Dec 15;27(13):1750201. (IF: 2.469)
- Mobayen S, Kingni ST, Pham VT, **Nazarimehr F**, Jafari S. Analysis, synchronisation and circuit design of a new highly nonlinear chaotic system. *International Journal of Systems Science*. 2018 Feb 17;49(3):617-30. (IF: 2.149)
- **Nazarimehr F**, Jafari S, Chen G, Kapitaniak T, Kuznetsov NV, Leonov GA, Li C, Wei Z. A Tribute to JC Sprott. *International Journal of Bifurcation and Chaos*. 2017 Dec 30;27(14):1750221. (IF: 2.469)
- **Nazarimehr F**, Sheikh J, Ahmadi MM, Pham VT, Jafari S. Fuzzy predictive controller for chaotic flows based on continuous signals. *Chaos, Solitons & Fractals*. 2018 Jan 31;106:349-54. (IF: 3.764)
- **Nazarimehr F**, Rajagopal K, Kengne J, Jafari S, Pham VT. A new four-dimensional system containing chaotic or hyper-chaotic attractors with no equilibrium, a line of equilibria and unstable equilibria. *Chaos, Solitons & Fractals*. 2018 Jun 30;111:108-18. (IF: 3.764)
- Rajagopal K, **Nazarimehr F**, Jafari S, Karthikeyan A. Fractional and non-fractional chaotic amphibian attractors with self-excited and hidden properties: numerical dynamics, circuit realization and FPGA-based application. *The European Physical Journal Special Topics*. 2017 Dec 1;226(16-18):3827-50. (IF: 1.668)
- **Nazarimehr F**, Jafari S, Hashemi Golpayegani SM, Perc M, Sprott JC. Predicting tipping points of dynamical systems during a period-doubling route to chaos. *Chaos: An Interdisciplinary Journal of Nonlinear Science*. 2018 Jul;28(7):073102. (IF: 2.832)
- Rajagopal K, **Nazarimehr F**, Karthikeyan A, Srinivasan A, Jafari S. CAMO: Self-excited and hidden chaotic flows. *International Journal of Bifurcation and Chaos*. 2019 Oct;29(11):1950143. (IF: 2.469)
- Rajagopal K, **Nazarimehr F**, Karthikeyan A, Alsaedi A, Hayat T, Pham VT. Dynamics of a neuron exposed to integer order and fractional order discontinuous external magnetic flux. *Frontiers of Information Technology & Electronic Engineering*. 2018 :1-7. (IF: 1.604)
- Nourian Zavareh M, **Nazarimehr F**, Rajagopal K, Jafari S. Hidden attractor in a passive motion's model of compass-gait robot. *International Journal of Bifurcation and Chaos*. 2018 Dec 30;28(14):1850171. (IF: 2.469)
- Faghani Z, **Nazarimehr F**, Jafari S, Sprott JC. Simple chaotic systems with specific analytical solutions. *International Journal of Bifurcation and Chaos*. 2019 Aug;29(09):1950116. (IF: 2.469)
- **Nazarimehr F**, Rajagopal K, Khalaf AJ, Alsaedi A, Pham VT, Hayat T. Investigation of dynamical properties in a chaotic flow with one unstable equilibrium: circuit design and entropy analysis. *Chaos, Solitons & Fractals*. 2018 Oct 1;115:7-13. (IF: 3.764)
- **Nazarimehr F**, Golpayegani SMH, Hatef B. Does the onset of epileptic seizure start from a bifurcation point?. *The European Physical Journal Special Topics*. 2018 Oct 1;227(7-9):697-705. (IF: 1.668)

- **Nazarimehr F**, Ghaffari A, Jafari S, Golpayegani SMH. Sparse Recovery and Dictionary Learning to Identify the Nonlinear Dynamical Systems: One Step toward Finding Bifurcation Points in Real Systems. *International Journal of Bifurcation and Chaos*. 2019 Mar;29(03):1950030. (IF: 2. 2.469)
- Mostaghimi S, **Nazarimehr F**, Jafari S, Ma J. Chemical and electrical synapse-modulated dynamical properties of coupled neurons under magnetic flow. *Applied Mathematics and Computation*. 2019 May 1;348:42-56. (IF: 3.472)
- Liu YJ, **Nazarimehr F**, Khalaf AJM, Alsaedi A, Hayat T. Detecting bifurcation points in a memristive neuron model. *The European Physical Journal Special Topics*. 2019 Oct 1;228(10):1943-50. (IF: 1.668)
- Rajagopal K, **Nazarimehr F**, Guessas L, Karthikeyan A, Srinivasan A, Jafari S. Analysis, Control and FPGA Implementation of a Fractional Order Modified Shinriki Circuit. *Journal of Circuits, Systems, and Computers*. 2019. (IF: 1.363)
- Chen C-Y, Rajagopal K, Hamarash II, **Nazarimehr F**, Alsaadi FE, Hayat T. Antimonotonicity and multistability in a fractional order memristive chaotic oscillator, *The European Physical Journal Special Topics*. 2019 Oct 1;228(10):1969-81. (IF: 1.668)
- **Nazarimehr F**, Hosseini SS, Khalaf AJ, Jafari S, Sprott JC. Process equation as a model for the development of cells. *The European Physical Journal Special Topics*. 2020 Mar;229:921-7. (IF: 1.668)
- Rajagopal K, Kingni ST, Khalaf AJM, Shekofteh Y, **Nazarimehr F**. Coexistence of attractors in a simple chaotic oscillator with fractional-order-memristor component: analysis, FPGA implementation, chaos control and synchronization. *The European Physical Journal Special Topics*. 2019 Oct 1;228(10):2035-51. (IF: 1.668)
- Rajagopal K, Li C, **Nazarimehr F**, Karthikeyan A, Duraisami P, Jafari S, Chaotic Dynamics of Modified Wien Bridge Oscillator with Fractional Order Memristor. *Radioengineering*, 2019;28(1):1-10. (IF: 1.076)
- Navid Moghadam N, **Nazarimehr F**, Jafari S, Sprott JC, Studying the performance of critical slowing down indicators in a biological system with a period-doubling route to chaos, *Physica A: Statistical Mechanics and its Applications*. 2019. (IF: 2.924)
- **Nazarimehr F**, Pham VT, Rajagopal K, Alsaadi FE, Hayat T, Jafari S, A New Imprisoned Strange Attractor. *International Journal of Bifurcation and Chaos*. 2019 Dec 15;29(13):1950181. (IF: 2.469)
- Faghani Z, **Nazarimehr F**, Jafari S, Sprott JC, A New Category of Three-Dimensional Chaotic Flows with Identical Eigenvalues. *International Journal of Bifurcation and Chaos*. 2020 Feb;30(02):2050026. (IF: 2.469)
- S Jafari, **Nazarimehr F**, Alsaadi FZ, Alsaadi FD, Pham VT, Investigating bifurcation points of an impact oscillator. *Indian Journal of Physics*. 2020 Jun 21:1-9. (IF: 1.407)
- Rajagopal K, Akgul A, Pham VT, Alsaadi FE, **Nazarimehr F**, Alsaadi F, Jafari S. Multistability and Coexisting Attractors in a New Circulant Chaotic System. *International Journal of Bifurcation and Chaos*. 2019 Dec 15;29(13):1950174. (IF: 2.469)
- Mehran NZ, **Nazarimehr F**, Khalaf AJM, Jafari S, Sprott JC. A chaotic iterative fuzzy modeling for circulating a simple sentence. *Scientia Iranica*, 2019; doi: 10.24200/sci.2019.52747.2871 (IF: 1.017)
- **Nazarimehr F**, Pham VT, Kapitaniak T. Prediction of bifurcations by varying critical parameters of COVID-19. *Nonlinear Dynamics*. 2020 Jun 16:1-2. (IF: 4.867)

- **Nazarimehr F**, Panahi S, Jalili M, Perc M, Jafari S, Ferčec B. Multivariable coupling and synchronization in complex networks. *Applied Mathematics and Computation*. 2020 May 1;372:124996. (IF: 3.472)
- Zandi-Mehran N, Jafari S, Golpayegani SM, **Nazarimehr F**, Perc M. Different synaptic connections evoke different firing patterns in neurons subject to an electromagnetic field. *Nonlinear Dynamics*. 2020 Apr;100(2):1809-24. (IF: 4.867)
- **Nazarimehr F**, Sprott JC. Investigating chaotic attractor of the simplest chaotic system with a line of equilibria. *The European Physical Journal Special Topics*. 2020 Mar; 229:1289-97. (IF: 1.668)
- Chen L, **Nazarimehr F**, Jafari S, Tlelo-Cuautle E, Hussain I. Investigation of early warning indexes in a three-dimensional chaotic system with zero eigenvalues. *Entropy*. 2020 Mar;22(3):341. (IF: 2.494)
- Ahmadi A, Wang X, **Nazarimehr F**, Alsaadi FE, Alsaadi FE, Pham VT. Coexisting infinitely many attractors in a new chaotic system with a curve of equilibria: Its extreme multi-stability and Kolmogorov–Sinai entropy computation. *Advances in Mechanical Engineering*. 2019 Nov;11(11):1687814019888046. (IF: 1.161)
- Jafari A, Hussain I, **Nazarimehr F**, Golpayegani SMH, Jafari S. A simple guide to plot a proper bifurcation diagram. *International Journal of Bifurcation and Chaos*. 2021 Jan;31(01):2150011. (IF: 2.469)
- **Nazarimehr F**, Jafari S, Perc M, Sprott JC. Critical slowing down indicators. *Europhysics Letters*. 2020 Dec 18;132(1):18001. (IF: 1.958)
- Faghani Z, Jafari S, Chen CY, **Nazarimehr F**, Investigating bifurcation points of a neural network: Being through the epileptic seizure, *The European Physical Journal B*. 2020 Dec;93(12):1-8. (IF: 1.347)
- Panahi S, Nazarimehr F, Jafari S, Sprott JC, Perc M, Repnik R. Optimal synchronization of circulant and non-circulant oscillators. *Applied Mathematics and Computation*. 2021 Apr 1;394:125830. (IF: 3.472)
- Rajagopal K, Shekofteh Y, Nazarimehr F, Li C, Jafari S. A new chaotic multi-stable hyperjerk system with various types of attractors. *Indian Journal of Physics*. 2021 Apr 7:1-7. (IF: 1.407)
- Mehrabbeik M, Ramamoorthy R, Rajagopal K, **Nazarimehr F**, Jafari S, Hussain I. Critical slowing down indicators in synchronous period-doubling for salamander flicker vision. *The European Physical Journal Special Topics*. 2021 Apr 27:1-8. (IF: 1.668)
- **Nazarimehr F**, Shahbodaghy F, Hatef B, Rajagopal K. How can we measure the slowing down of healthy and ischemic stroke individuals?. *Scientia Iranica*. 2021 Jun 1;28(Special issue on collective behavior of nonlinear dynamical networks):1653-60. (IF: 1.017)
- Lu H, Rajagopal K, **Nazarimehr F**, Jafari S. A New Multi-Scroll Megastable Oscillator Based on the Sign Function. *International Journal of Bifurcation and Chaos*. 2021 Jun 30;31(08):2150140. (IF: 2.469)
- Li C, Rajagopal K, **Nazarimehr F**, Liu Y. A non-autonomous chaotic system with no equilibrium. *Integration*. 2021 Jul 1;79:143-56. (IF: 1.211)
- Chen M, Wang Z, **Nazarimehr F**, Jafari S. A novel memristive chaotic system without any equilibrium point. *Integration*. 2021 Jul 1;79:133-42. (IF: 1.211)

- Dehghani S, **Nazarimehr F**, Jafari S. How can cultural conditions affect society's decisions?. Physica A: Statistical Mechanics and its Applications. 2021 Jul 8:126248. (IF: 2.924)
- Foroutannia A, **Nazarimehr F**, Ghasemi M, Jafari S. Chaos in Memory Function of Sleep: A Nonlinear Dynamical Analysis in Thalamocortical Study. Journal of Theoretical Biology. 2021 Jul 15:110837. (IF: 2.691)
- Rajagopal K, Duraisamy P, Tadesse G, Volos C, **Nazarimehr F**, Hussain I. A fractional-order ship power system: chaos and its dynamical properties. International Journal of Nonlinear Sciences and Numerical Simulation. 2021 Aug 9. (IF: 2.007)

❖Conference:

- Nazarimehr, F, Montazeri N, Shamsollahi MB, Kachenoura A, and Wendung F. Detection of fast ripples using Hidden Markov Model. In Biomedical Engineering (ICBME), 2014 21th Iranian Conference on, pp. 348-352. IEEE, 2014.
- Nazarimehr F, Safarjali B, Golpayegani SMH, Jafari S. Fibrillation arrhythmia modeling based on global insight. In Biomedical Engineering (ICBME), 2016.

❖Chapter Book:

- Nazarimehr, F, Jafari MA, Jafari S, Pham VT, Wang X, Chen G. A new chaotic system with equilibria located on a line and its circuit implementation.
- Mliki E, Hasanzadeh N, Nazarimehr F, Akgul A, Boubaker O, Jafari S. In book: Recent Advances in Chaotic Systems and Synchronization: From Theory to Real World Applications Publisher: Elsevier Editors: Olfa Boubaker, Sajad Jafari. May 2018
- Rajagopal K, Nazarimehr F, Bahramian A, and Jafari S. In book: Fractional-Order Design: Devices, Circuits, and Systems Publisher: Elsevier Editors: Radwan AG, Khanday FA, Said LA. 2021

Skills

Programming Software: MATLAB, Code Vision AVR, ALTUIM Designer, C++, LaTeX

Honors and Awards

- 2012 Ranked 2th in BSc program
- 2017 Ranked 2th in Phd program
- 2018-2020 Selected by Iran Science Elites Federation as a Postdoctoral researcher
- 2019 Selected as a scientific elite by Iran's National Elites Foundation
- 2019 Selected for Shahid Kazemi Ashtiani Award by Iran's National Elites Foundation

Teaching & Work experiences

- 2014 Teaching Assistant of Digital Signal Processing, Sharif University of Technology, Spring 2014.
- 2015 Teaching Assistant of Biological Optimization, Amirkabir University of Technology, Fall 2015.
- 2014-2016 Head of Electrical Engineering Laboratory, University of Applied Science and Technology, Sapco.
- 2016 Teaching Assistant of Chaos, Amirkabir University of Technology, Fall 2016.
- 2017 Teaching Assistant of Bifurcation, Amirkabir University of Technology, Spring 2017.
- 2017 Teaching Assistant of Biological Optimization, Amirkabir University of Technology, Spring 2017.
- 2018 Teaching Assistant of Chaos, Amirkabir University of Technology, Fall 2018.
- 2020 Teaching Assistant of Chaos, Amirkabir University of Technology, Fall 2020.
- 2021 Teaching Assistant of Chaos, Amirkabir University of Technology, Fall 2021.