

# Mohadeseh Shafiei Kafraj

Aalborg – Denmark

✉ mohade3shafiei@aut.ac.ir/ mohade3shafiei@gmail.com

## Education

- **Biomedical Engineering** **Amirkabir University of Technology**  
○ **M.Sc.** , **GPA: 18.35/20** (*Distinguished student*) *Ranked 2 among Iranian universities*  
*Thesis: Effect of partial time delays on neuronal networks under electromagnetic field, Supervisor: Dr. Sajad Jafari*
- **Electrical Engineering** **Shiraz University**  
○ **B.Sc.**, **GPA: 17.84/20** (*Ranked 1*) *Ranked 6 among Iranian universities*  
*Thesis: Remote Biological Parameters Measurement, Supervisor: Dr. Mehran Yazdi*

## Research Interests

- Computational Neuroscience
- Neural Engineering
- Biomedical Signal Processing
- Chaos
- Experimental Neuroscience
- Biomedical Devices
- Biomedical Imaging
- Complex Systems

## Publications

- **1. Effects of partial time delays on synchronization patterns in izhikevich neuronal networks.**  
**Authors:** Mohadeseh Shafiei kafraj, Fatemeh Parastesh, Mahdi Jalili, Sajad Jafari, Matjaž Perc, Mitja Slavinec  
**Journal:** The European Physical Journal B, **Cited by: 26**, 2019.
- **2. Time delayed chemical synapses and synchronization in multilayer neuronal networks with ephaptic inter-layer coupling.**  
**Authors:** Mohadeseh Shafiei kafraj, Sajad Jafari, Fatemeh Parastesh, Mahmut Ozer, Tomasz Kapitaniak, Matjaž Perc  
**Journal:** Communications in Nonlinear Science and Numerical Simulation, 2020.
- **3. Firing patterns of an improved Izhikevich neuron model under the effect of electromagnetic induction and noise.**  
**Authors:** Mohadeseh Shafiei Kafraj, Fatemeh Parastesh, Sajad Jafari  
**Journal:** Chaos, Solitons, and Fractals, 2020.

## Honors and Awards

- Distinguished Student, 2019:** Award for being a **Distinguished Student** in biomedical engineering, Amirkabir University of Technology.
- Ranked 1st, 2017:** Award for being **Ranked 1st** in graduating class among electronic students who enrolled in 2013, electrical engineering department, Shiraz University.
- Honorary Admission, 2017:** Awarded honorary admission as an **Exceptional Talent** to graduate school (M.Sc.) of biomedical engineering department, Amirkabir University of Technology.
- Direct Admission, 2017:** Awarded honorary **Direct Admission** to graduate school (M.Sc.) of electrical engineering department, Shiraz University, in both communication and bio-electric fields without entrance exam.
- Electrical Engineering Olympiad, 2017:** Semi-finalist in national **Electrical Engineering Olympiad** among the electrical engineering students of Iran.
- Distinguished Student, 2017:** Award for being **Distinguished Student** in electrical engineering department, Shiraz University.
- Ranked 1st, 2001-2013:** Award for being **Ranked 1st** in all school years.
- Physics Olympiad, 2012:** Semi-finalist in national **Physics Olympiad** among the high school students of Iran.

## Notable Research and Projects

- 2020-present:** Study of mathematics behind of chimera states, Advisor: Dr. S. Jafari
- 2019-2020:** Improving Izhikevich neuron model to consider the effect of electromagnetic induction and noise, Advisor: Dr. S. Jafari
- 2017-2019:** Study of chimera states in neuronal networks, Advisor: Dr. S. Jafari
- 2017-2019:** Investigating the effect of time delay in synchronization of neuronal networks, Advisor: Dr. S. Jafari
- 2018 spring:** Set up mini incubator machine in bioelectromagnetics laboratory, Advisor: Dr. M. Saviz
- 2018 spring:** Investigating the relationship between macroscopic and microscopic levels in the human body, System biology course, Advisor: Professor. M.R. Hashemi Golpayegani

**2016 spring:** MFSK modulator and demodulator, FPGA course, Advisor: Dr. R. Sameni

## Computer Skills

---

**Basic:** C, C++

**Intermediate:** Verilog, Autocad, Pspice, Multisim, Altium, Codevision, proteus, Cst, FPGA

**Advanced:** Matlab, Latex

## Teaching Assistantship

---

**2016:** Electronic, Lecturer: Dr. M. Miri.

**2016:** Electronic laboratory, Lecturer: Dr. S. Dehghani.

## Relevant Courses

---

- Bioelectromagnetics, **Ranked 1st**
- System biology, **Ranked 1st**
- Electrophysiology, **Ranked 2nd**
- Machine Learning, Online
- Modeling of biological systems, **Ranked 1st**
- Nonlinear control, **Ranked 2nd**
- Chaos and its applications in biomedical engineering, **Ranked 2nd**
- Biostatistics, Online

## Languages

---

**English:** TOEFL Exam: 93 out of 120

**Arabic:** Familiar

**Persian:** Native

## Other Activities

---

- Active member of IEEE, Iran section, Shiraz Student Branch(2015-2017)
- Membership of the charity to support unaccompanied children(2015-present)

## Hobbies

---

- Swimming
- Listening to classical music
- Mountaineering
- Reading

## References

---

- **Dr. S. Jafari**, Thesis supervisor, School of Biomedical Engineering, Amirkabir University of Technology (Polytechnic of Tehran), Iran.
- Email: [sajadjafari@aut.ac.ir](mailto:sajadjafari@aut.ac.ir)//[sajadjafari83@gmail.com](mailto:sajadjafari83@gmail.com)
- **Dr. M. Perc**, Research supervisor, Department of Physics, Faculty of Natural Sciences and Mathematics, University of Maribor, Slovenia.
- Email: [matjaz.perc@gmail.com](mailto:matjaz.perc@gmail.com)
- **Dr. F. Parastesh**, Research advisor, School of Biomedical Engineering, Amirkabir University of Technology (Polytechnic of Tehran), Iran.
- Email: [parastesh@aut.ac.ir](mailto:parastesh@aut.ac.ir)//[F.prstsh@gmail.com](mailto:F.prstsh@gmail.com)