Payam Sadeghi Shabestari

Bio Engineering Lab, ETH Zurich, Mattenstrasse 26, 4058, Basel, Switzerland
Email: psadeghi@student.ethz.ch

RESEARCH INTEREST

- Computational Neuroscience
- Neuronal Signal Analysis
- Biostatistics
- Machine Learning

EDUCATION

- **ETH Researcher, Bio Engineering Lab (Prof. Hierlemann)** 2020-present
  Research Project: "Investigating the effect of bursting on spike sorting performance with computational models and experiments"
- **Politecnico di Milano, Milan, Italy.** 2018-2020
  M.Sc. Biomedical Engineering (BME), Department of Electronics, Information and Bioengineering (DEIB).
  - **GPA: *26.88/30***
- **Amirkabir University of Technology, Tehran, Iran.** 2013-2018
  B.Sc. Biomedical Engineering (BME), Department of Biomedical Engineering.
  - **Thesis**: "*Quality of Symptoms Interactions of Patients with ADHD Considering Pharmaceutical Therapy by Using Network Analysis Approach (Graph Theory)*"

PUBLICATIONS

- **Shabestari, P. S**., Rostami, Z., Jafari, S., Pham, V., & Hayat "Modeling of Neurodegenerative Diseases Using Discrete Chaotic Systems" *journal of Communications in Theoretical Physics (2019)*
- **Shabestari, P. S**., Panahi, S., Jafari, S., & Sprott, J "A new Chaotic Model for Glucose-Insulin Regulatory System" *journal of chaos solitons and fractals (2018)*
- **Shabestari, P. S**., Rajagopal, K., Safarbali, B., Jafari, S., & Duraisamyb, P "A Novel Approach to Numerical Modeling of Metabolic System: Investigation of Chaotic Behavior in Diabetes Mellitus" *Journal of complexity (2017)*
- **Shabestari, P. S**., Ahmadi, A., Zenderouh, S., & Jafari, S *"*Quality of Symptoms Interactions of Patients with ADHD Considering Pharmaceutical Therapy by Using Network Analysis Approach*"* (*Submitted to Journal of affective disorders*)
- **Shabestari, P. S**., Rezaei, A., & Nasiraei-Moghaddam, A "Electrical Simulation of Pressure Wave and Blood Flow Propagation Phenomena in the Arterial Tree and Analysis of Pulsatile Power of Left Ventricle" (*Submitted to Plos One journal*)
  https://scholar.google.com/citations?user=W5hHHuIAAAAJ&hl=en&oi=ao

ELECTIVE COURSES

- **Model Identification and Machine Learning**
  Instructors: Prof. Vercellis Carlo and Prof. Garatti Simone
  Course Summary: advanced modelling and data analysis, data mining concepts and methods, optimization theory, parametric and non-parametric identification and prediction, feature selection techniques, Classification and clustering methods.
- **Computational Biology of Heart**
  Instructor: Prof. Rodriguez Matas Jose Felix
  Course Summary: Modeling cardiac excitation and excitability, Models of cardiac action potential, Finite Element method for modeling Impulse propagation in heart, electro-mechanical simulation of the heart
- **Biomedical Informatics**
  Instructor: Prof. Bianchi Anna Maria

Course Summary: health-care information and communication technologies for both clinical and biomedical research settings

- **Bioengineering of Physiological Control Systems**
  Instructor: Prof. Baselli Giuseppe
  control system theory applied to physiological systems, Open and closed loop system identification monitoring and regulation of vital parameters
- **System Theory**
  Instructor: Prof. Colombo Alessandro
  Course Summary: theoretical and numerical analysis of nonlinear dynamical systems, Bifurcation analysis, mathematical modeling, chaos theory

WORKING EXPERIENCES

- Internship at "Daarya Teb Part"
- Member of Advanced Medical Imaging Research lab **"**AMIR lab**"**
  Under supervision of Dr. Abbas Nasiraei Moghaddam
- Member of "IPM School of Cognitive Science"
- Member of Executive Committee of 1st International Iranian Conference on Biomedical Engineering "ICBME 2016" and 21th Iranian Conference on Biomedical Engineering "ICBME 2014"
- Member of Executive Committee of the Workshop on **"**fMRI: physical principles and data analysis using FSL**"**

SKILLS

- Programming: C++, C, MATLAB, R, Python.
- Software: Microsoft Office (Word, Excel, PowerPoint), Latex, Simulink, Pspice, LTspice, Mathematica.
- Operating Systems: Windows, Linux
- Languages: English, Italian, Deutsch
- GRE scores: Quantitative Reasoning (168/170)

COURSE PROJECTS

- Investigation of defects formation in a network of neurons using modified Hindmarsh-Rose model
- Investigating the dffect of Diltiazem drug on the bioelectric Activity of Heart
  "Computational Biology of Heart" course project
- A new chaotic model for Sciatic nerve chronic constriction injury
  "Electrophysiology" course project
- Parameter Estimation in a Chaotic Biological Systems using Gaussian Mixture Model
  "Special Topics in Bioelectric" course project
- Designing Timer 555 using CMOS transistors
  "Pulse technique" course project
- Designing & printing circuit for reporting electrocardiograph.
  "Electronic lab" course project.
- Analysis of CSF Volume in Alzheimer's Disease by K-means Clustering Method
  "Introduction to Biomedical Engineering" course project
- Design and Implementation a Temperature Sensor and Analyzing Data using MATLAB
  "Electronic Mesurement" course project
- Designing High-Gain & Low Power/Noise Operational Amplifier
  "Electronic II" course project
- Designing an Audio Amplifier using BJT Transistors
  "Electronic I" course project

"A touch of madness is, I think, almost always necessary for constructing a destiny."
Marguerite Yourcenar