First name: Alireza

Last name: Bahramian

Birthdate   11/07/1994

Mail addresses: Bahramianalireza30@gmail.com
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Education

Master of Science (M.S)
Biomedical Engineering- bioelectric Engineering   (Graduated)

Amirkabir University of Technology (AUT)   (2016-2019)
Iran, Tehran

Total average score: **18.79
(Top student)**

Thesis score: **20**

Bachelor of Science (B.S)
Electrical Engineering- Control Engineering   (Graduated)

Iran University of Science and Technology   (2012-2016)
Iran, Tehran

Total average score: 16.14

Thesis score: 20

Teaching experience

T.A.
Course (**M.s**): **Neuro-Muscular Systems Control**
Duties:
- Designing practical questions and scoring them
- Helping Prof. Towhidkhah to design the questions of exams
- Teaching software (Matlab related toolboxes and OpenSim)
- Teaching some mathematical materials of the course

Research interests

Computational neuroscience	Dynamic neuronal networks	Machine learning
Cognitive processes modeling	Neural networks	Signal processing

Published articles

Introducing a chaotic map with a wide range of Long-term memory as a model of patch-clamped ion channels current time series,

Alireza Bahramian[1] Ali Nouri, Golnaz Baghdadi, Shahriar Gharibzadeh, Farzad Towhidkhah, Sajad Jafari,

Journal: Chaos, Solitons & Fractals, (Impact factor: 3.764, Q1)

Introducing a nonlinear coupling for Central Pattern Generator (CPG): improvement on robustness by expanding basin of attraction, and performance by decreasing the transient time

Alireza Bahramian,[1] Ali Nouri, Farzad Towhidkhah, Hamed Azarnoush, Sajad Jafari,

Journal: Journal of vibration and control (Impact factor: 2.865, Q1)

Visual deprivation is met with active changes in ground reaction forces to minimize worsening balance and stability during walking

Otella Shoja, Alireza Farsi[*], Farzad Towhidkhah, Anatol G. Feldman, Behrouz Abdoli, **Alireza Bahramian**

Journal: Experimental Brain Research (Impact factor: 2.395, Q3)

Submitted articles

Hip retraction enhances walking stability on a ramp: an equilibrium point hypothesis-based study

Alireza Bahramian, Elham Shamsi, Farzad Towhidkhah,[1] Sajad Jafari

BioRxiv address: https://www.biorxiv.org/content/10.1101/638635v1.full

A simple CPG-based model to generate human hip moment pattern in walking by generating stiffness and equilibrium point trajectories

Alireza Bahramian, Farzad Towhidkhah[1], Sajad Jafari,

BioRxiv address: https://www.biorxiv.org/content/10.1101/737031v1

Ready to submit (These papers have been written. They are almost already to submit. However they need still few revisions. If it is needed, I can send them to you)

Collective behaviors in a two-layer neuronal network with time-varying chemical connections that are controlled by a Petri net

Candidate names:

Alireza Bahramian , Fatemeh Parastesh , Viet-Thanh Pham, Tomasz Kapitaniak, Sajad Jafari, Matjaž Perc

Introducing a convolutional neural network (CNN) as a model to represent human and primates internal model for their decision-making processes in an uncertain reversal environment

Candidate names:

Alireza Bahramian, Sajad Jafari,

Reaction of human walking to transient block of vision: analysis in the context of indirect, referent control of motor actions

Candidate names:

Otella Shoja, Hamidollah Hassanlouei, Farzad Towhidkhah, Alireza Farsi, **Alireza Bahramian** and Anatol G. Feldman

Book chapters

A double pendulum model for human walking control on the treadmill and stride-to-stride fluctuations: Control of step length, time, velocity, and position on the treadmill

Alireza Bahramian, Farzad Towhidkhah, Sajad Jafari, Olfa Boubaker,

Elsevier Book*: Control Theory Applications in Biomedical Engineering*
Status: Published

Estimating Causal Relations in a System with Inner Connectivity Using Fractional Moments

Farnaz Ghassemi, Zahra Tabanfar, **Alireza Bahramian**, Ali Nouri, Ensieh Ghaffari Shad, Sajad Jafari.

Elsevier Book*: Fractional-order systems in biological applications*
Status: Under review

A chaotic system with equilibria located on a line and its fractional-order

Karthikeyan Rajagopal, Fahimeh Nazarimehr, Alireza Bahramian, Sajad Jafari

Elsevier Book*: Fractional-order systems in biological applications*
Status: Under review

Conference paper

Introducing a Neural-Network based model and a pre-training method to design Central Pattern Generator (CPG)

Alireza Bahramian [1,] Ali Nouri, Farzad Towhidkhah, Sajad Jafari, Olfa Boubaker,

*Status: (Published, **IEEE**)*

*26th national and 4th **international** Iranian Conference of **Biomedical Engineering***

My skills:

Neuroscience and electrophysiology	**Deep learning and machine learning**
Analytical psychology	**Python**
Matlab	**C, C++**

Audit classes

Model predictive control
System biology

Workshops

MRI pre-clinical imaging workshop	In this workshop, I become familiar with MRI & fMRI hardware and technology and the concept of this type of imaging. I also became familiar with the process of image recording of some animals like mouse, rate, and monkey practically.	National Brain Mapping Lab (NBML)
13rd EEG Signal Processing, Analysis and Processing Workshop	In this workshop, I became familiar with the process of recording EEG practically. In addition, I reach an experience of preprocessing EEG signals with the EEG-lab toolbox of Matlab. Eliminating artifacts (ECG and EMG, and other types of noise) by ICA, Extracting connectivities based on Granger causality, source localization, and elicit some famous feature of ERP in this workshop.	National Brain Mapping Lab (NBML)
3-Day Workshop on MRI and fMRI data analysis in Freesurfer	The material of the workshop can be seen in the following link: *https://nbml.ir/EN/workshops/3-Day-Workshop-on-MRI-and-fMRI-data-analysis-in-Freesurfer*	National Brain Mapping Lab (NBML)