

Curriculum Vitae



Saeed Karimimehr

Status: Single
Gender: Male
Date of Birth: 1988.12.9
Nationality: Iranian

Contact information:

Department of Biomedical Engineering
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Research Interests:

- Computational Neuroscience
- Signal Processing
- Machine Learning
- Neural Decoding and Encoding

Educations:

- **Bachelor of Science, Electrical Engineering (Electronics)** (finished: Sep-2013)
Isfahan University of Technology, Isfahan, Iran
 - **Passed Courses:**
 - *Signals and Systems*
 - *Digital Signal Processing (grad. course)*
 - *Advanced Topics in Digital Signal Processing (grad. course)*
 - *Information Theory (grad. course)*

**Audit courses: Image Processing, Advanced Image Processing, Game Theory*

- **Master of Science, Biomedical Engineering** (finished: Oct-2015)
University of Isfahan, Isfahan, Iran
 - **Passed Courses:**
 - *Principles of Biomedical Signal Processing*
 - *Advanced Topics in Biomedical Signal Processing*
 - *Statistical Pattern Recognition*
 - *Biological Systems Modeling*
 - *Medical Imaging Systems*
 - *Control of Neuromuscular Systems*
 - *Bioinstrumentation*
 - *Digital Image Processing*
 - *Human Physiology*

Research Experiences and Projects:

- **Watermarking and Data Hiding in Image and Audio Signals**
Collaborators: Prof. Shadrokh Samavi, Prof. Mojtaba Mahdavi, Hoda Rezaei
Publication:
1- “Robust Audio Watermarking Based on HWD and SVD”, ICEE, May 2012, Tehran, Iran.
- **Compressed Sensing and Sparse Signal Processing**
Collaborators: Prof. Shadrokh Samavi, Ali Mir Saeidi
- **BSc Thesis: The Application of Bayesian Inference and Computational Neuroscience in Face Recognition**
Supervisor: Prof. Saeed Sadri
Publications:
1- Oral Presentation, First Iranian Congress on Basic and Clinical Neuroscience, November 2012, Tehran, Iran.
2- “A Novel Face Recognition System Inspired by Computational Neuroscience”, EuroCon, July 2013, Zagreb, Croatia.
- **A Study on the Role of Attention in Cortex Inspired Models of Visual System**
Collaborator: Prof. Mohammad Reza Yazdchi
Publication:
1- “How Computational neuroscience could Help Improving Face Recognition Systems?”
ICCKE, October 2014, Mashhad, Iran.
- **A Linear and Non-Linear Approach for Kinematics Extraction from Electromyographic Recordings**
Collaborator: Prof. Mehran Emadi Andani, Parviz Ghaderi
Publications:
1- “Hand Kinematics Estimation Using Non-Invasive Surface Sensors: A Linear System Identification Approach”, ICBME, November 2015, Tehran, Iran.
2- “Hand Kinematics Estimation to Control Prosthetics Devices: A non-Linear Approach for Simultaneous and Proportional Control of 15 DoFs”, ICBME, November 2015, Tehran, Iran.
- **MSc Thesis: Automatic Neural Decoding of Brain and Muscle Using Pattern Recognition Techniques**
Supervisor: Prof. Hamid Reza Marateb
Publications:
1- Oral Presentation, XX ISEK conference, July 2014, Rome, Italy.
2- Oral Presentation, 4th Basic and Clinical Neuroscience Congress, December 2015, Tehran, Iran.
3- “A Real-time Method for Decoding the Neural Drive to Muscles”, submitted.
4- “A Density Based Spike Sorting Algorithm for Decoding the Behavior of a Large Number of Neurons”, submitted.
5- “A Discriminative Feature Space for Reducing the Dimensionality of Spikes in Spike Sorting”, in preparation.
6- “Feature extraction and Selection in Intramuscular Electromyographic signal Decomposition”, in preparation.

Honors and Awards:

- Ranked 0.1% among 400,000 applicants in the Iranian Nationwide University Entrance Exam
- Best paper award in the first student paper contest, department of electrical and computer engineering, Isfahan University of Technology, Isfahan, Iran
- Best BSc thesis award in the department of electrical and computer engineering, Isfahan University of Technology, Isfahan, Iran
- Travel grant to EuroCon 2013 (Zagreb, Croatia) as one of the finalists of IEEE Region8 Student Paper Contest
- Second prize in IEEE Region8 SPC
- Among the best papers of ICCKE2014, Mashhad, Iran
- Financial grant from “The Cognitive Science and Technology Council of Iran” for Master thesis.

Publications:

Journals:

[J1] **Saeed Karimimehr**, Hamid Reza Marateb, Silvia Muceli, Dario Farina, "A Real-Time Method for Decoding the Neural Drive to Muscles", submitted to the International Journal of Neural Systems (IF: 6.085).

[J2] **Saeed Karimimehr**, Hamid Reza Marateb, Miquel Angel Mañanas, Dario Farina, "A Density based Spike Sorting Algorithm for Decoding the Behavior of a Large Number of Neurons", submitted to the Journal of Neuroscience Methods.

[J3] **Saeed Karimimehr**, Hamid Reza Marateb, “A Discriminative Feature Space for Reducing the Dimensionality of Spikes in Spike Sorting”, in preparation.

[J4] **Saeed Karimimehr**, Hamid Reza Marateb, “Feature Extraction and Selection in Intramuscular Electromyographic Signal Decomposition”, in preparation.

Conferences:

[C1] **Saeed Karimimehr**, Shadrokh Samavi, Hoda Rezaei Kaviani, Mojtaba Mahdavi, "Robust Audio Watermarking based on HWD and SVD," *Electrical Engineering (ICEE), 2012 20th Iranian Conference on*, vol., no., pp.1363, 1367, 15-17 May 2012.

[C2] **Saeed Karimimehr**, "A novel face recognition system inspired by computational neuroscience," *EUROCON, 2013 IEEE*, vol., no., pp.2129, 2133, 1-4 July 2013.

[C3] **Saeed Karimimehr**, Mohammad Reza Yazdchi, "How computational neuroscience could help improving face recognition systems?" *Computer and Knowledge Engineering (ICCKE), 2014 4th International eConference on*, vol., no., pp.410,413, 29-30 Oct. 2014.

[C4] **Saeed Karimimehr**, Parviz Ghaderi, Mehran Emadi Andani, "Hand Kinematics Estimation

Using Non-Invasive Surface Sensors: A Linear System Identification Approach," *ICBME, 2015 22nd Iranian Conference on*, 25-27 Nov 2015.

[C5] Parviz Ghaderi, **Saeed Karimimehr**, Mehran Emadi Andani, Hamid Reza Marateb, "Hand Kinematics Estimation to Control Prosthetic devices: A Nonlinear Approach for Simultaneous and Proportional Estimation of 15 DoFs," *ICBME, 2015 22nd Iranian Conference on*, 25-27 Nov 2015.

Abstracts:

[A1] **Saeed Karimimehr**, Saeed Sadri, "A novel method for face recognition inspired by computational neuroscience", *1st basic and clinical neuroscience congress*, Tehran, Iran, Nov, 2012.

[A2] **Saeed Karimimehr**, Hamid Reza Marateb, Silvia Muceli, Dario Farina, "Online neural decoding from the intramuscular EMG signal", *The XX ISEK Conference*, Rome, Italy, July, 2014.

[A3] **Saeed Karimimehr**, Hamid Reza Marateb, Zahra Navardi, "A Density Based Spike Sorting Algorithm for Decoding Large Number of Neurons", *4th basic and clinical neuroscience congress*, Tehran, Iran, Dec 2015.

Technical Reports:

[T1] **Saeed Karimimehr**, "ECG Signal Enhancement: A Comparative Study Among Empirical Mode Decomposition Family".

Participated Workshops:

- Three days workshop on FPGA held by Iranian robotics society.
- One day workshop on "The application of intelligent systems in gait analysis", Isfahan University of Medical Science.
- One day Workshop on "The applications of electrical engineering in cognitive neuroscience", held by the Institute for Physics and Mathematics (IPM).
- One day workshop on "EEG signal processing", Tehran University of Medical Science.
- Six days workshop on "introduction to statistical models of neural spike train data", by Hideaki Shimazaki, RIKEN brain science institute Japan, held by the Institute for Physics and Mathematics (IPM).
- fMRI journal club titled "Functional parcellation of human visual cortex" by Dr.Reza Rajimehr, held by Institute for Physics and Mathematics (IPM)
- Two days symposium on brain dynamics by Prof. Gyogy Buzsaki held by Ferdowsi University of Mashhad, Mashhad, Iran.

Computer Skills:

- Expert in **MATLAB** Programing

- Good familiarity in: SPSS, Endnote, EMGlab, EEGlab, Libsvm, Rapidminer, Verilog, C/C++, Weka, R, Python ...

Languages:

- Farsi : Native
- English: Fluent

References:

Hamid Reza Marateb

Assistant Professor of Biomedical Engineering, University of Isfahan, Isfahan, Iran
Researcher in the biomedical engineering research center, Universitat Politècnica de Catalunya.
BarcelonaTech (UPC), Barcelona, Spain

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Mehran Emadi Andani

Assistant Professor of Biomedical Engineering, University of Isfahan, Isfahan, Iran
Associate Researcher, Faculty of Motor Science, University of Verona, Verona, Italy

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Shadrokh Samavi

Professor of Electrical and Computer Engineering, Isfahan University of Technology, Isfahan, Iran

Adjunct Professor of engineering, University of McMaster, Canada

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Mohammad Reza Yazdchi

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