Amir Hosein Buchali Safiee

M.Sc. In Electrical Engineering

📇 Contact Information

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🐙 Buchali   💼 Buchali   🔷 google scholar

✏ Highlights

- **Machine Learning Proficiency:** Developed practical experience in machine learning, working on projects related to motor imagery data classification, water contaminant prediction, and optimization algorithms.
- **Academic Success:** Consistently achieved strong academic performance, including 1st place among graduate students, ranking in the top 10% during my Bachelor's program, and a notable score on the nationwide university entrance exam.
- **Research Endeavors:** Engaged in research activities in the fields of computational bioengineering, electromagnetic microdosimetry, and control systems, leading to publications and thesis contributions.

🔍 Research Interests

Machine Learning in Healthcare   Bio-Data Processing   Brain-Computer Interface (BCI)   Computational Neuroscience

🏛 Education

BSc in Biomedical Engineering, Amirkabir University of Technology, Tehran, Iran

Date	2012 – 2017
Specialty	Bioelectrics
GPA	16.94/20 (3.65/4.00)
Last 2 years	17.95/20 (3.84/4.00)
Supervisor	Mehrdad Saviz
Thesis	Realistic three dimensional shape modeling based on microscopic images of cells and organelles for computational bio-engineering

MSc in Electrical Engineering, Imam Khomeini International University, Qazvin, Iran

Date	2017 - 2021
Specialty	Control systems
GPA	17.29/20 (3.78/4.00)
Supervisor	Mohsen Davoudi
Thesis	Control of a 1-DOF manipulator using EEG signals

📚 Publications

2020   A. Naghikhani, A. Jodeiri, A. Karbassi, M. Baghdadi, A. Sarang, and **A. H. Buchali Safiee**, "Investigating the artificial intelligence methods for determining performance of the NZVI permeable reactive barriers," *Groundw. Sustain. Dev.*, vol. 12, no. June 2020, p. 100516, Feb. 2021, doi: 10.1016/j.gsd.2020.100516

2019   **A. H. Buchali Safiee**, E. Sharifi, M. Saviz. "A Novel Toolbox for Generating Realistic Biological Cell Geometries for Electromagnetic Microdosimetry". *AUT Journal of Electrical Engineering*, 2019, doi: 10.22060/eej.2019.16213.5282.

2018   E. Sharifi, **A. H. Buchali Safiee**, and M. Saviz, "Creating 3D Geometric models of Cells and Organelles for Bioelectromagnetic Simulations," *Modares J. Biotechnol.*, vol. 9, no. 2, 2018. Available: http://biot.modares.ac.ir/article-22-12986-en.html

2016   E. Sharifi, **A. H. Buchali Safiee,** and M. Saviz, "Steps towards an integrated platform for computational microdosimetry: From realistic cell shape modeling to electric field distributions," in *2016 23rd Iranian Conference on Biomedical Engineering and 2016 1st International Iranian Conference on Biomedical Engineering (ICBME)*, 2016, no. November, pp. 211–214. doi: 10.1109/ICBME.2016.7890958

Skills

Language	Persian	Native
	English	**TOEFL iBT** score on Jul 2021: **98**
		Next test date: Nov 2023

Programming Languages	Python, MATLAB , SQL, C/C++
Frameworks	PyTorch, Sklearn, Pandas, Numpy

Awards and Honors

2017-2020	Ranked 1st among my fellow grad students
2012-2017	Among top 10% students in B.Sc.
2012	Ranked 711 among 230,000 participants in the nationwide university entrance exam

Selected Projects

Motor Imagery Data Classification

- Developed an Auxiliary Classifier Generative Adversarial Network to enhance motor imagery (MI) task classification.
- Processed EEG data using Hilbert-Huang Transform and fed it to a Convolutional Neural Network (CNN) to classify MI tasks.
- Combined FBCSP with conventional machine learning classifiers.
- Conduct research on time-variant signal identification in EEG data.

Other Machine Learning Projects

- Created a deep feedforward neural network for water contaminant prediction.
- Applied CNNs for image quality assessment.
- Implemented firefly algorithm for non-convex cost function optimization.
- Estimated Parameters for skin conductance response.

Side Projects

- Developed a Telegram bot for Tehran Stock Exchange portfolio management.

References can be provided upon request.