Pooria Ashrafian

Curriculum Vitae

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Education

September 2017–Present **B.Sc in Electrical Engineering**, *Major: Biomedical Engineering, Minor: Computer Science*, GPA: 17.56/20 (3.84/4), Electrical Engineering Department, Sharif University of Technology, Tehran, Iran.

Research Interests

- **Biomedical Signal and Image Processing**
- **Machine Learning and Deep Learning (Theory and Applications)**
- **Artificial Intelligence for Healthcare**
- **Algorithm Design and Theory of Computation**

Research Experiences

July 2021–September 2021 **Internship**, Artificial Intelligence and Signal Processing Group, Nabzgroup, Tehran, Iran.

- **Project Title**: Heartbeat Classification Using Machine Learning Methods
- Implementing a new **ECG segmentation algorithm** that addresses some of the issues with currently used algorithms in the literature (Like missing successive abnormal beats and performance variability on different datasets).
- Learning to work with **Scikit-learn** and **Keras** for training machine/deep learning models

September 2020–June 2021 **B.Sc Project**, Electrical Engineering Department, Sharif University of Technology, under the supervision of Mohammad Bagher Shamsollahi and the advice of Hossein Arabi.

- **Project Title**: Applications of Deep Neural Networks in EEG Signal Processing [github]
- Reviewing nearly 50 articles of deep learning applications in different EEG domains like BCIs, epilepsy, emotion recognition, etc.
- Learning to work with Python libraries like **PyTorch** and **Scipy**.
- Implementing successful articles for classification, feature extraction, and generation of EEG (esp. Motor Imagery EEG) using deep learning

Related Courses

- Computational Intelligence
- Introduction to Machine Learning
- Deep Learning
- Digital Signal Processing
- Convex Optimization
- Linear Algebra
- Numerical Analysis
- Probability and Statistics
- Discrete Mathematics
- Data Structures and Algorithms
- Theory of Languages and Automata
- Theory of Computation
- Statistical Inference (Online)
- Computer Vision (Online)

Related Course Projects

Fall 2020 **Computational Intelligence (EE25-729)**, Instructor: Sepideh Hajipour.

- Feature extraction and classification of Motor Imagery EEG using MLP and RBF networks in MATLAB

Fall 2019 **Numerical Analysis (EE25-745)**, Instructor: Iman Golampour.

- Implementation of a user-friendly application using MATLAB that solves differential equations using various numerical approaches

Spring 2019 **Signals and Systems (EE25-742)**, Instructor: Babak H. Khalaj.

- Feature extraction and classification of Motor Imagery EEG signals using SVM in MATLAB

Fall 2017 **Introduction to Computer Programming (CE40-153)**, Instructor: Ali Asghar Nazari Shirehjin.

- Real-time localization of moving objects on RFID tag array using C++

Teaching Experiences

September 2021–Present **Teaching Assistant**, *Computational Intelligence*, Sharif University of Technology, Tehran, Iran, Instructor: Sepideh Hajipour.
Task: Designing and grading homework exercises and designing course project

September 2021–Present **Teaching Assistant**, *Probability and Statistics*, Sharif University of Technology, Tehran, Iran, Instructor: Seyed Mohammad Karbasi.
Task: Grading homework exercises

June 2021–September 2021 **Teacher**, *Python Programming and Machine Learning Models*, Nabz AI Academy, Nabzgroup, Tehran, Iran.
Three sessions (4.5 hours) for an introduction to Python programming and three sessions (4.5 hours) for an introduction to basic machine learning concepts and models.

September 2019–February 2020 **Teaching Assistant**, *Theory of Electrical Circuits*, Sharif University of Technology, Tehran, Iran, Instructor: Mahtab Mirmohseni.
Task: Designing homework exercises

Honors & Awards

- **Recipient** of the grant for undergraduate students, courtesy of the National Elite Foundation, Tehran, Iran, 2017
- **Rank 46th** among approximately 150000 participants in the National Entrance Exam for Bachelors, Tehran, Iran, 2017
- **Rank 153th** among approximately 6500 participants in National Entrance Exam for Bachelor of Foreign Languages, Tehran, Iran, 2017

Skills

- **Advanced Knowledge**
  Python (Scipy, Scikit-learn, PyTorch, Tensorflow, Keras), MATLAB, C/C++
- **Intermediate Knowledge**
  Java, LaTeX, Git, Verilog, MIPS Assembly, HSpice, Altium Designer

Languages

- **English**: Fluent
  TOEFL iBT (Taken in October 2021)
  Overall Score: 109/120
  Reading: 29/30 Listening: 30/30
  Speaking: 24/30 Writing: 26/30
- **Persian:** Mother tongue

References

- **Mohammad Bagher Shamsollahi (Professor)**
  Electrical Engineering Department
  Sharif University of Technology, Tehran, Iran
  Email: mbshams@sharif.edu
- **Hossein Arabi (Senior Researcher)**
  Division of Nuclear Medicine
  University of Geneva, Geneva, Switzerland
  Email: hossein.arabi@unige.ch
- **Sepideh Hajipour (Assistant Professor)**
  Electrical Engineering Department
  Sharif University of Technology, Tehran, Iran
  Email: hajipour@sharif.edu