Zahra Nasr

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Education

2016–2020 B.Sc. in Bio-electrical Engineering, University of Isfahan *GPA*: 18.04/20.0 (3.84/4.0)

2012–2016 Diploma in Math, Farzaneganeamin High school (NODET) *GPA*: 19.46/20.0

Research Interests

- **Biological signal processing**
- **Machine learning**
- **Wearable sensor computing**
- **Robotics**
- **Rehabilitation systems**
- **Game development**

Publications

- *"Designing and Developing Four Games for Rehabilitation of the Wrist Complex and Forearm Complex: An Action Research"* Moradi-Shahrbabak Z, **Nasr-Esfahani Z**, Garousi H, Rezaeian ZS. J Res Rehabil Sci 2020; 15(6): 319-26" **CGCO** (2020).
- *"Prosthesis control using undersampled surface electromyographic signals"* Hamid Reza Marateb, Mohammad Reza Mohebbian, Farzad Ziaie Nezhad, Marjan Nosouhi, **Zahra Nasr Esfahani**, Farzaneh Fazilati, Fatemeh Yusefi, Golnaz Amiri, Negar Malekifar, Mohsen Rastegari, Mislav Jordanic, Joan Francesc Alonso, Marjan Mansourian, Khan A. Wahid, and Miguel Ángel Mañanas. Book. **CRC Press Book** (2021).
- *"A Comprehensive Review of Myoelectric Prosthesis Control"* Mohammad Reza Mohebbian, Marjan Nosouhi, Farzaneh Fazilati, **Zahra Nasr Esfahani**, Golnaz Amiri, Negar Malekifar, Fatemeh Yusefi, Mohsen Rastegari, Hamid Reza Marateb. **arXiv preprint** arXiv:2112.13192(Submitted on 25 Dec 2021).

Research Experience

- **Spring 2021 - Present**: Research Intern at Behyaar, Isfahan : Working on improving PET image reconstruction.
- **Summer 2020**: Intern at PEDRA, Isfahan: Designed test procedures of laparoscopic cameras.
- **Summer 2019**: Intern at Video Game Developing Center, Isfahan: Developed two rehabilitation games.

Awards and Honors

- Top 4 among 60 students in Bio-electrical engineering, University of Isfahan, 2020
- Granted merit-based admission to masters program in Bio-electrical at engineering department of University of Isfahan, 2020

Projects

- Verification of Laparoscopic Cameras, ***Internship Project***, *Summer 2020*

  Extracting relevant factors from ISO and IEC standards for designing test procedures laparoscopic cameras verification .

- Processing of Aliased Multi-Channel Surface Electromyographic Signals Recorded by Myo-Arm Band, ***B.Sc.Thesis***, *2020*

  Recording sEMG signal using Myo-Arm Band, statistical analyse of EMG data using *MedCalc*, and hand gesture recognition using machine learning in *MATLAB*.

- Video game design for rehabilitation using LeapMotion sensor, ***Internship Project***, *Summer 2019*

  Developing hand rehabilitation games using *Unity*

- **Selected Class Projects**:
  - Health Information System Design based on Client-Server Networks

    Designing telecommunication software between patient and physician using *C#*.
  - Biological signal recording and processing using *ADInstruments systems* and *MATLAB*
    * Auto detection of QRS complex from recorded ECG signals.
    * Analysing alpha wave in recorded EEG signals.

Workshops

- Therapeutic Game Workshop Series(held by Video Game Developing Center, University of Isfahan), *Summer 2019*
- Virtual BCI Neurotechnology Spring School (held by g.tec medical engineering GmbH), *April 2021*

Conferences

- The 5th International Conference on Computer Games; Challenges and Opportunities (Therapeutic Games), *U*niversity of Isfahan Center of Entertainment Industry, Isfahan, Iran, *February 2020*
  - Collaborated as one of the executive committee members
  - Presentation: Moradi-Shahrbabak Z, **Nasr-Esfahani Z**, Garousi H, Rezaeian ZS. Designing and Developing Four Games for Rehabilitation of the Wrist Complex and Forearm Complex: An Action Research

Software Engineering Skills

- **Programming Languages**
  Python,C#, C/C++, AVR, Matlab
- **Machine Learning Frameworks**
  Matlab
- **Simulators**
  Matlab Simulink, Proteus, PSpice, PSim
- **Statistical Analyser**
  SPSS, MedCalc
- **Game Development**
  Unity
- **Laboratory**
  ADInstruments systems for recording biological signals

Languages

- **Persian** (Native)
- **English**: IELTS score 7.0 (December 2021)

References

References provided upon request.