Armin Saadat Boroujeni

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Education

- **Sharif University of Technology** — Tehran, Iran
  B.Sc. in Computer Engineering — *Sep. 2017 - Expected Jan. 2022*
  *GPA: **19.21/20** (4.00/4.00) - ranked among top 10 students.*
  GPA of last four semesters: 19.85/20 (4.00/4.00)

- **Allameh Helli High School** — Tehran, Iran
  *Diploma in Mathematics and Physics - GPA: **19.93/20** - ranked 1^{st} among 110 students.* — *Sep. 2013 - May. 2017*
  Affiliated with National Organization for Development of Exceptional Talents (NODET).

Research Interests

Computer Vision, Medical Imaging, Autonomous Driving, Deep Learning

Research Experience

Human Pose Prediction & Forecasting the Trajectory of Pedestrians — Lausanne, Switzerland

- *Research Assistant at Visual Intelligence for Transportation Lab, EPFL* — *Jul. 2021 - present*
  *Supervisor: Prof. **Alexandre Alahi***
  - Gain proficiency in PyTorch, CNNs, RNNs, GCNs, and Variational Autoencoders.
  - Developed a **novel model** to forecast human pose, outperformed baselines by **20%**.
  - Submitted an extended abstract, **accepted in ICCV** Workshops 2021.
  - Won the **3rd** Place in **Stanford Challenge** on Social Motion Forecasting: source-code
  - Developed a **library** for pose prediction, supporting over **10 models** and **8 datasets**.

Weakly-Supervised Segmentation Using RNN-Based Registration — Tehran, Iran

- *Research Assistant at Medical Imaging Lab, Sharif University of Technology* — *May. 2021 - present*
  *Supervisor: Prof. **M.Soleymani Baghshah***
  - Proposed a weakly-supervised method to label 2D slices of a 3D data, given a few labeled ones.
  - Exploited superpixel-based pseudo-labels for effective unsupervised registration.
  - Used Unets as the backbone of the spatial encoder-decoder module.
  - Utilized RNNs to take advantage of the sequential information existed between consecutive slices.
  - Achieved **better results up to 5%** on abdominal datasets compared to state-of-the-art.

Spatio-Temporal Segmentation of Myocardial Infarction — Tehran, Iran

- *Research Assistant at Robust/Interpretable ML Lab, Sharif University of Technology* — *Nov. 2020 - present*
  *Supervisor: Prof. **M.H.Rohban***
  - Used cardiac MRI to segment scar tissues of heart causing possible future heart attacks.
  - Achieved clean data from inconsistent clinical data using deformable registration techniques.
  - Combined LSTM with Conv3D to extract temporal features for infarction delineation.
  - Exploited transformers to achieve state-of-the-art results. (in progress)

Honors and Awards

- **Full Scholarship for Undergraduate Studies**
- **Member of Iran's National Elites Foundation**
- **Captain of the College Basketball Team**
  Played in Sharif basketball team, won the 2^{nd} place in Tehran, found our way to nation-wide Olympiad.
- **Ranked 14^{th} in the Nation-Wide University Entrance Examination**
  B.Sc. in Mathematics and Physics, among over 200,000 participants, 2017, Iran
- **Ranked 71^{st} in the Foreign Languages University Entrance Exam**
  B.Sc. in Foreign Languages, among over 160,000 participants, 2017, Iran
- **High School & Pre-University Top Student Award**
  Ranked 1^{st} among 110 students, Allameh Helli high school (NODET), Tehran, Iran

Relevant Coursework

- **CNNs for Visual Recognition** (Stanford CS231n, online, audited)
- **Machine Learning** (graduate): 20/20
- **Artificial Intelligence**: 20/20
- **Linear Algebra**: 20/20
- **Advanced Information Retrieval**: 19.3/20
- **Design of Algorithms**: 20/20
- **General Math 2**: 20/20
- **Probability and Statistics**: 18.5/20
- **Numerical Computation**: 20/20
- **Discrete Structures**: 19.4/20

Work Experience

- **Analysaur**
  Co-Founder and Product Manager *Jun. 2019 - Feb. 2020*
  - A Startup Company Focused on Digital Marketing and Advertisement.
  - Created an all-in-one online platform connecting buyers, sellers, and advertisers together.
  - Programmed in Python, JavaScript, GO; using frameworks like Django, ReactJs, and VueJs.

- **Weblite Company**
  Software Engineer *Jan. 2019 - May. 2019*
  - An online educational platform enabling teachers and students to present themselves, connect, conduct live sessions, and produce educational content.
  - Developed Weblite messenger, the core of the platform.
  - Designed and developed several applications used in the platform.

Teaching Assistance Experience

- **Design of Algorithms - Lead TA**, Prof. Zarrabi-Zadeh *Fall 2021*
- **Advanced Information Retrieval**, Prof. Soleymani Baghshah *Spring 2021*
- **Artificial Intelligence**, Prof. Rohban *Spring 2021*
- **Design of Algorithms**, Prof. Seddighin *Spring 2021*
- **Discrete Structures**, Prof. Abam *Fall 2020*
- **Discrete Structures**, Prof. Zarrabi-Zadeh *Fall 2020*
- **Artificial Intelligence**, Prof. Rohban *Spring 2020*
- **Linear Algebra**, Prof. Rabiee *Spring 2020*

Technical Skills

- **Programming Languages**: Python, Java, C, C++, JavaScript
- **Machine Learning Frameworks**: PyTorch, TensorFlow, Keras, NumPy, OpenCV, Scikit-Learn, Pandas
- **Web Development & Database**: Django, Vue.js, MongoDB, HTML, CSS
- **Hardware Design**: Quartus, Arduino, Proteus, ModelSim, Verilog, MIPS Assembly
- **Miscellaneous**: Git, Linux, LaTeX, Microsoft Office (word, excel, powerpoint)

Selected Academic Projects

- **Advanced Information Retrieval**: source-code
  Implemented an Information Retrieval system on text-based data in Persian and English.
  Took advantage of classification to achieve better performance, such as Naive Bayes, KNN, SVM, Random Forest.
  Studied basic principals of NLP like word2vec, implemented various types of indexing.
- **Machine Learning**: source-code
  Worked on Click-through rate (CTR) prediction in online display advertising.
  Developed several classification models, evaluate their results, and compare their strengths and weaknesses.
  Implemented Factorization Machines (FM) and Field Weighted Factorization Machines (FwFM) to further address the unbalanced nature of data.

Test Scores

TOEFL: 110 (Reading: 28, Listening: 30, Speaking: 23, Writing: 29)