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 1st 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** outperforming baselines by **20%**. Accepted in **ICCV 2021**: report
  - 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.
  - Combined Unet with RNN to take advantage of the sequential information of 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

- **Member of Iran's National Elites Foundation**
- **Captain of the College Basketball Team**
  Played in Sharif basketball team, won the 2nd place in Tehran, found our way to nation-wide Olympiad.
- **Ranked 14th in the Nation-Wide University Entrance Examination**
  B.Sc. in Mathematics and Physics, among over 145,000 participants, 2017, Iran
- **Ranked 71st in the Foreign Languages University Entrance Examination**
  B.Sc. in Foreign Languages, among over 120,000 participants, 2017, 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
- **Calculus 2**: 20/20
- **Design of Algorithms**: 20/20
- **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*

Academic Services

- **Scientific Staff**, DataDays, Iran's Largest Machine Learning and Data Science Competition *2020*
- **Scientific & Technical Staff**, Sharif AI Challenge, Iran's Largest AI Competition *2018, 2019*
- **Technical Specialist**, Sharif Winter Seminar Series, Annual Seminar in advanced topics of CSE *2018, 2019*

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.