

Mahdi Nikdan

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RESEARCH INTERESTS

Machine Learning, Deep Learning, Computer Vision, Natural Language Processing

EDUCATION

- **B.Sc. in Computer Engineering.** GPA: 17.15/20 (18.19/20 last year)
– Sharif University of Technology, Tehran, Iran. Sep. 2016 - Expected Jul. 2021
- **Diploma in Mathematics and Physics.** GPA: 19.47/20
– Allame Amini High School, Tehran, Iran. Sep. 2014 - May. 2016
– Shahid Rajaei High School, National Organization for Development of
Exceptional Talents (NODET), Tehran, Iran. Sep. 2012 - May. 2014

PUBLICATIONS AND MANUSCRIPTS

- P1 **M. Nikdan***, H. Zakerinia*, M. Bahari, Y. Liu, and A. Alahi, “Out of Distribution Detection and Recovery in Vehicle Trajectory Prediction using Cross-Modal Contrastive Learning.” Manuscript in preparation. To be submitted to *Robotics: Science and Systems (RSS) Conference* 2021.
- P2 A. Bitarafan, **M. Nikdan**, and M. Soleymani Baghshah, “3D Image Segmentation with Sparse Annotation by Self-Training and Internal Registration,” in *IEEE Journal of Biomedical and Health Informatics*. [early access](#)

RESEARCH EXPERIENCE

- **Ecole Polytechnique Fédérale de Lausanne**, Lausanne, Switzerland Jul. 2020 - now
Remote intern at [VITA Lab](#) under the supervision of Prof. Alexandre Alahi.
– Used cross-modal contrastive learning and test-time training to detect and recover from distribution shifts in vehicle trajectory prediction. [P1]
- **Sharif University of Technology**, Tehran, Iran Jul. 2019 - now
Research Assistant at [ML Lab](#) under the supervision of Prof. Mahdiah Soleymani.
– Worked on artifact removal for sparse-view CT reconstruction.
– Employed self-training and 2D registration to address the problem of medical volumetric image segmentation with weak supervision, where only one 2D slice of each 3D sample is labeled. [P2]
– Working on an extension of this project, using recurrent registration models.

HONORS AND AWARDS

- **Artificial Intelligence Challenge in Medical Imaging (AIMIN-2019)** Nov. 2019
One of seven teams from around the country reaching the final stage (in a team of four). [certificate](#)
- **National EEG Data Analysis Competition with Clinical Applications** Oct. 2019
Ranked 3rd. I was a member of a team of four. [link](#) [certificate](#)
- **National JavaCup Standard Edition Competition** Oct. 2019
Ranked 2nd among 200+ participants from around the country. [certificate](#)
- **Aparat PHP-MySQL Competition** Sep. 2019
Ranked 3rd among 300+ participants from around the country. [link](#)
- **Sharif ICT Fintech 2019 Challenge** Aug. 2019
Ranked 1st among 65 chosen teams from around the country (in a team of four). [link](#)
- **National University Entrance Exam (Konkur)** Sep. 2016
Ranked 292nd Among 150 000+ participants in Mathematics and Physics.

- **Iran's National Mathematical Olympiad** Sep. 2015
Won a silver medal. Awarded **National Elites Foundation Fellowship**.

TEACHING EXPERIENCE

- **Teacher of Graph Theory** at Association of Elite Scholars, Tehran, Iran Nov. 2019 - now
- **Teaching Assistant** at Sharif University of Technology, Tehran, Iran
 - **Design of Algorithms**, Instructor: Prof. Mohammad Ali Abam Fall 2020
Instructed the discussion classes. Graded exams.
 - **Data Structures and Algorithms**, Instructor: Dr. Masoud Seddighin Falls 2020, 2019
Instructed the discussion classes. Designed assignments. Graded exams.
 - **Deep Learning (graduate)**, Instructor: Prof. Mahdieh Soleymani Spring 2020
Designed and graded the final project (RefCOCO Referring Expressions, Generation and Comprehension). Designed and graded assignments.
 - **Fundamentals of Programming**, Instructor: Mr. Mehran Rivadeh Fall 2017
Designed assignments.
- **Machine Learning Instructor** at University of Tehran, Tehran, Iran certificate Winter 2020
IEEE Data Science Winter School, IEEE Student Branch
Designed and instructed the **Regression Hands-On** (in a team of three).
- **Scientific Staff of HardWar** at Sharif University of Technology, Tehran, Iran May. 2019
A hardware contest. Designed and instructed the challenge (in a team of two).

OTHER PROJECTS

- **Drug-Target Binding Affinity Prediction** Aug. 2020
The final project of the course Machine Learning for Bioinformatics (graduate).
- **Telegram Data Clustering Contest: Round 2** (in a team of two) Jul. 2020
Developed a news aggregator, categorizing and clustering them. [link](#)
- **Nutricula Trade Management Expert Advisor** (one of four developers) Nov. 2019
A trade management plugin for MetaTrader, used by 200+ forex traders in Iran.
- **KhoshKhabar Android Application** (front-end and back-end developer) Apr. 2018
A Persian news application with 300 000+ lines of code, mainly in Java and php.
- **Rafsanjan Android Application** (front-end and back-end developer) Feb 2018
A multi-functional Persian application, providing news, advertisements, etc.

TEST SCORES

- **TOEFL iBT**: 107 (Reading: 29, Listening: 29, Speaking: 23, Writing: 26)

TECHNICAL SKILLS

- General Skills:
 - Advanced: Java, Python (specifically PyTorch framework)
 - Intermediate: c, cpp, php, MySQL, Git, \LaTeX
- Android and Website Development: Java, xml, js, React-js
- MetaTrader Indicator/Expert-Advisor Development: MQL4, MQL5