Esra Kashaninia

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Education

- **M.Sc. - Bioinformatics** Sept. 2023 – Dec. 2025
  Sharif University of Technology, Tehran, Iran; GPA: 3.83/4
  Selected courses: NLP (19.5/20), Deep Learning (16.2/20), Bioinformatics Algorithms (19.8/20), Comp. Genomics (20/20)
- **B.Sc. - Computer Engineering (minor: Economics)** Sept. 2016 – Jul. 2020
  Sharif University of Technology, Tehran, Iran; GPA: 3.35/4
  Selected courses: AI (19.2/20), ML (20/20), Advanced Information Retrieval (16.9/20), Design of Algorithms (18.2/20), Linear Algebra (17/20), Fundamentals of Game Theory (18.7/20), Econometrics (17.9/20)

Research/Work Experience

- **Graduate Research Assistant** Dec. 2023 – present
  Supervised by Dr. E. Asgari - Language ML lab, Sharif University of Technology, Tehran, Iran
  - M.Sc. thesis title: Species-aware language modeling of proteins
- **Software Design Specialist** Dec. 2022 – Jan. 2024
  Behsazan Mellat Co.,Tehran, Iran
  - Developed and updated SQL code for banking operations and reports concerning foreign currency remittances at Mellat Bank to fit new regulations and requirements
  - Prototyped the required procedures for certain buy-now-pay-later transactions
  - Improved code documentation
- **Undergraduate research assistant** Sept. 2020 – Mar. 2022
  Supervised by Dr. H. R. Rabiee - DML lab, Sharif University of Technology, Tehran, Iran
  - Tackled the problem of circRNA-disease association prediction utilizing graph learning-based feature extraction (this paper, co-supervised by Dr. M. Kouhsar)
  - Participated in a study on protein-compound interaction prediction using structural information and similarities between protein-compound pairs (co-supervised by Dr. K. Abbasi)
- **Software Engineering Intern** Jul. – Sept. 2019
  Raya Navid Systems, Tehran, Iran
  - Implemented a remote printing web service using Spring Boot (the main Java EE framework)

Selected Projects

- Language modeling of stock market signals for market prediction — NLP project - fall 2023
- Implementing various models and training techniques, notably generative ones such as DDPM, Stable Diffusion with DreamBooth, and a simplified GPT — deep learning coursework - spring 2024
- A search mini-engine for online articles using Scrapy, Elasticsearch, and RankingSVM — advanced information retrieval project No. 3 - spring 2020
- Character analysis of the book "Romance of the Three Kingdoms" using word2vec — NLP open project - fall 2023
- Ad click rate prediction using factorization machines — ML project - fall 2020
- Co-implementation of a QA pipleline for tabluar data — a solution to SemEval 2025 task 8
- GWAS phasing — computational genomics final assignment - fall 2024
- Gene expression profiling of acute myeloid leukemia microarray samples in R — bioinformatics project - spring 2019
- A Django app for booking doctor appointments and maintaining patient records — independent project - fall 2022
- A Flutter app that sends alerts to the closest first-aiders upon an emergency — group project at HackZurich 2020
- Regression analysis on the FIFA 20 player dataset — econometrics project - spring 2020
- Participation in preparing Jupyter notebooks for a data science event on campus — Data Days 2020 and 2021
- A book exchange website — system analysis and design project - spring 2019
- Simulating an interactive P2P network in Python — computer networks project - fall 2018
- A Pascal Compiler in Java — compiler design project - fall 2019
- Facial expression recognition in MIPS assembly using Raspberry Pi — computer structure project - fall 2017
- The game "Alien Creeps" in Java — advanced programming project - fall 2017
- News classification using tf-idf vectors in C — fundamentals of programming project - fall 2016

Skills Summary

- **Programming** Python, R, Java, C++, SQL, Bash, LaTeX , HTML
- **Frameworks** PyTorch, WandB, Scikit-Learn, NLTK, spaCy, Pandas, Biopython, Selenium, Scrapy, Django, Spring Boot, Bootstrap
- **Tools** MySQL, PostgreSQL, Elasticsearch, GNU/Linux, Git, Jira, Trello, MS Project, Heroku, Postman
- **Languages** Persian (native), English (Advanced), French (A2)

TA Experience

- **Fundamentals of Image Processing** - Delivered by Dr. H. Peyvandi — spring 2025
- **Computational Drug Design (graduate course)** - Delivered by Dr. M. Kalemati — spring 2025
- **Signals and Systems** - Delivered by Dr. H. Sameti — fall 2021
- **Computer Simulation** - Delivered by Dr. B. Safaei — fall 2021
- **Data Transmission** - Delivered by Dr. A. M. A. Hemmatyar — fall 2021
- **Machine Learning (graduate course)**Delivered by Dr. A. Hosseini — spring 2021
- **Linear Algebra** - Delivered by Dr. S. Hossein Ghorban — spring 2021
- **Compiler Design** - Delivered by Mr. M. Bahrami — fall 2020
- **Design of Algorithms** - Delivered by Dr. A. Sharifi Zarchi — spring 2020
- **Compiler Design** - Delivered by Dr. Gh. Jaberipur — spring 2020
- **Computer Simulation** - Delivered by Dr. H. Peyvandi — fall 2019
- **Mathematics and physics** - Razavieh High School — Jan. 2017 – Sept. 2018

Publications

- Kouhsar, M., **Kashaninia, E.**, Mardani, B. et al. **CircWalk**: a novel approach to predict CircRNA-disease association based on heterogeneous network representation learning. *BMC Bioinformatics 23, 331 (2022).* https://doi.org/10.1186/s12859-022-04883-9