ILYA RAVAND

Computer Science

✉ Mail 📞 +98 9306409245 📍 Tehran, Iran ⌂ Github in Ilya Ravand 🔗 Portfolio

FIELDS OF INTEREST

- Computational Methods in Cancer Research
- Artificial Intelligence and Machine Learning
- Data Science and Statistical Modeling
- Bioinformatics and Computational biology
- Deep learning and Predictive Analytics

EDUCATION

Bachelor of Computer Science

📅 Sept. 2022 – present 📍 Amirkabir University of Technology, Tehran, Iran

- GPA: 17.13/20 with total 99 passed credits

Mathematic and Physics high school diploma

📅 Sept. 2019 – Aug. 2022 📍 Atomic High School, Tehran, Iran

- GPA: 19.3/20

SKILLS

Programming & Scripting: Python, C, C++, R, Bash, Git/GitHub.

Bioinformatics tools: Monocle3, Harmony, pySCENIC, CellOracle, TradeSeq, SCPA, InferCNV, GROMACS.

Machine learning & Statistics: Machine learning pipelines, statistical testing (Wilcoxon, differential tests), scikit-learn, Transformers-related project and local LLM deployment.

Visualization & Integration: ggplot2, matplotlib, BioRender, Cytoscape.

HPC & Reproducibility: High-performance computing workflows, containerization ideas (conda, docker, reproducible paths), pipeline development.

Databases & Data Engineering: MySQL, MongoDB, Redis.

ARTICLES & PROJECTS

Bioinformatics

Molecular Dynamics Simulation of Doxorubicin Binding to DNA and Topoisomerase II

📅 Jun. 2025 – present

- Collaborating with biologists and computational physicists to validate computational predictions.
- Assistant Supervisors: Dr. Arash Boochani and Dr. Fatemeh Zare-Mirakabad

Integrative Single-Cell Transcriptomics to Identify Regulatory Drivers in the Dedifferentiation of Thyroid Cancer

📅 Sep. 2024 – present

- Identified candidate transcription factors and genes driving transitions from **Normal → PTC → ATC**, with results currently under experimental validation in collaboration with biologists.
- Assistant Supervisors: Dr. Kaveh Kavousi and Dr. Vahid Haghpanah

Contribution to Master's Thesis Project: Identification of driver genes in Glioblastoma based on single-cell gene expression data utilizing pseudotime and phylogenetic analysis

📅 Dec. 2024 – present

- Assisted in writing the article draft and preparing a research poster.
- Supervisors: Dr. Kaveh Kavousi and Dr. Fatemeh Zare-Mirakabad

Advanced Programming

- Packman with QT

Artificial Intelligence

- Packman reflex agent
- Maze solver
- Implementation of CSP on four color map theorem
- Implementation of KNN and Kmeans on Bank Dataset
- Clustring Dry beans Dataset with Genetic Algorithm

WORK EXPERIENCE

Research Center Memberships

- Member, Computational Biology Research Center (CBRC), Amirkabir University
- Member, Complex Biological Systems and Bioinformatics (CBB), Tehran University

Teaching Assistant

📅 2023 – 2024

- Advanced programing (Dr. Mohammad Reza Kazemi, Fall 2023)
- Basic programing (Dr. Zahra Ghorbanali, Fall 2023)
- Data structure and Algorithms (Dr. Mohammad Reza Kazemi, Spring 2023)
- Data Structures and Algorithms (Dr. Zahra Ghorbanali, Fall 2024)
- Data Structure and Algorithms (Dr. Ardeshir Dolatimalekabad, Fall 2024)

Teaching International Olympiad in Informatics Algorithms to high school students

📅 2022 – present   📍 Allameh Tabatabaei High School, Tehran, Iran

PRESENTATIONS

Predicting protein–protein interactions by the attention between sets of gene ontology terms

📅 Fall 2024

- Presented the paper in multiple graduate-level classes, explaining methodology and findings.
- Explored and implemented the core concepts, gaining hands-on experience with attention mechanisms in biological networks.

HONORS🏆

- ICPC (International Collegiate Programming Contest, Asia Region, Tehran site)

  Qualified by ranking 4th in Amirkabir Collegiate Programming Contest (ACPC). Competed at ICPC Tehran site in 2023 and 2024, with best result placing among top 20 teams.

  📅 2023–2024   📍 Tehran, Iran

- Iran's Olympiad in Informatics

  Ranked 3th (Bronze medal)

  📅 Jan. 2020

LANGUAGES

English
Persian
Germany

REFERENCES

Dr. Kaveh Kavousi

Associate Professor, Dept. of Bioinformatics, Institute of Biochemistry & Biophysics, University of Tehran
kkavousi@ut.ac.ir

Dr. Fatemeh Zare-Mirakabad

Assistant Professor, Dept. of Mathematics & Computer Science, Amirkabir University of Technology
f.zare@aut.ac.ir

Dr. Vahid Haghpanah

Associate Professor of Molecular Medicine, Endocrinology and Metabolism Research Center, Clinical Sciences Institute, Tehran University of Medical Sciences
v.haghpanah@gmail.com, vhaghpanah@tums.ac.ir