

# Elyas Heidari

## Curriculum Vitae

Sharif University of Technology (SUT)  
Department of Computer Engineering,  
Department of Mathematical Sciences  
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EliHei

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*Imagination is more important than knowledge. Einstein*

## Educational Background

2015

**BSc Mathematics and Applications**, Department of Mathematical Sciences  
- Sharif University of Technology.

2014

**BSc Computer Engineering**, Department of Computer Engineering - Sharif  
University of Technology.

2010

2014

**Diploma Mathematics and Physics**, Hashemi-Nezhad High school of Ex-  
ceptional Talents.

## Research Interests

- Biostatistics
- Machine Learning
- Data Science
- Computational Biology
- Mathematical Biology

## Research Experiences

### European Molecular Biology Laboratory (EMBL)

**07/18-** Multi-omics Statistical Analysis of Chronic Leukemia Lymphoma  
**ADVISORS** Dr. Junyan Lu, Dr. Wolfgang Huber

### European Molecular Biology Laboratory (EMBL)

**08/18-** Network-Based Metric on Single-cell Transcriptomics  
**ADVISORS** Dr. Laleh Haghverdi, Dr. Wolfgang Huber

### Carnegie Mellon University Sharif University of Technology

**03/18-** Prediction of Non-ribosomal Peptide Synthetase Substrates with Deep Learning  
**ADVISORS** Dr. Ali Sharifi-Zarchi, Dr. Hossein Mohimani

## Royan Institute of Stem Cell Biology and Technology Sharif University of Technology

**06/17-02/18** Investigating Role of PIN1 in Alzheimer's Disease Progression  
**ADVISORS** Dr. Ali Sharifi-Zarchi, Dr. Koorosh Shahpasand

## Yazd Cardiovascular Research Center Sharif University of Technology

**04/17-07/18** Statistical Tools for Analysis of Health Surveys  
**ADVISORS** Dr. Ali Sharifi-Zarchi, Prof. Mahmood Sadr

## Sharif University of Technology

**05/16-05/17** Extracting and Analysis of Functional Brain Connectome from fMRI Data  
**ADVISOR** Dr. Abolfazl Motahhari

## Sharif University of Technology

**10/15-05/16** Genome-wide Association Study on Iranian Data  
**ADVISOR** Dr. Abolfazl Motahhari

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## Teaching Experiences

### Teaching Assistant

**CE@SUT** Fundamentals of Programming, Advanced Programming, Engineering Probability and Statistics, Bioinformatics, Advanced Bioinformatics, Discrete Structures, Stochastic Processes, Optimization for Artificial Intelligence, Introduction to Linear Algebra

**Math@SUT** Probability and Applications, Statistics and Applications, Stochastic Processes  
**EE@SUT** Computational Genomics

### Lecturer

**IC@SUT** Java Programming

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## Related Courses

### Computer Engineering

**Advanced Programming:** 19/20

**Engineering Probability and Statistics:** 19.7/20

**Bioinformatics (Grad Course):** 20/20

**Large-scale Biological Data Analysis (Grad Course):** 20/20

**Analysis and Design of Information Systems:** 19.2/20

**Discrete Structures:** 18/20

**Database Design:** 17.2/20

### Mathematics

**Differential Equations:** 19.4/20

**Stochastic Processes:** 18.9/20

**Statistics and Applications:** 19/20

**Linear Algebra:** 17.2/20

**Topics in Statistics (Grad Course):** 18/20

**Game Theory:** 19.9/20

**Mathematical Biology:** 18/20

**Non-linear Optimization (Grad Course):** 18/20

**Data Analysis:** 20/20

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## Publications

- Finished** **Pin1 Regulatory miRNAs as Novel Candidates for Alzheimer's Disease Treatment**  
**E. Heidari**, E. Salehi Siavashani, M. Rasooli, A. Sharifi-Zarchi, K. Shahpasand  
Submitted to Journal of Alzheimer's and Dementia
- Multivariate Analysis and Visualization with R Package muvis**  
**E. Heidari**, V. Balazadeh-Meresht, A. Sharifi-Zarchi  
Submitted to Journal of Statistical Software (arXiv preprint)
- In Progress** **Comprehensive Analysis of YaHS Health Survey**  
**E. Heidari**, N. Ahmadi, A. Sharifi-Zarchi, M. Sadr
- Precise Prediction of NRPS Substrates with Multitask Learning**  
**E. Heidari**, A. Sharifi-Zarchi, H. Mohimani
- A New Network-Based Metric for Single Cell Transcriptomics**  
**E. Heidari\***, L. Haghverdi\*, W. Huber
- A Definition for TP53ness: Hypoxia**  
**E. Heidari**, J. Lu, W. Huber, T. Zenz
- SeqLearner: A Python Module for Semi-Supervised Learning of Biological Sequences**  
**E. Heidari**, A. Sharifi-Zarchi

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## Software Development

- muvis** Multivariate Analysis and Visualization in **R** (muvis documentation)
- SeqLearner** Multitask Learning for Biological Sequences (GitHub repository)

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## Skills

- Programming** Extensively experienced in **Python** (machine/deep learning and algorithmic programming), **R** (data analysis and visualization), **Java** (software development), and **Bash** (system programming).
- Languages** Persian (Native), English (Working Proficiency)

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## Other Activities

- CE@SUT** Member of Board in **Students' Scientific Chapter**

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## References

- Wolfgang Huber** Group Leader and Senior Scientist, EMBL, Heidelberg
- Ali Sharifi-Zarchi** Assistant Professor, Sharif University of Technology
- Abolfazl Motahhari** Assistant Professor, Sharif University of Technology
- Laleh Haghverdi** Postdoctoral Fellow, EMBL, Heidelberg
- Junyan Lu** Postdoctoral Fellow, EMBL, Heidelberg