

# Zhivar Sourati Hassanzadeh

NLP RESEARCH INTERN AT [SPINNINGBYTES AG](#)

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## Education

### Bachelor of Science, Computer Engineering

[SCHOOL OF ELECTRICAL AND COMPUTER ENGINEERING, UNIVERSITY OF TEHRAN](#)

GPA 4.0 / 4.0

Tehran, Iran

Sept. 2017 - Sept. 2021

## Research Interests

- Applied Machine Learning
- Economics
- Reinforcement Learning
- Complex Networks
- Statistical Inference
- Natural Language Processing

## Research Experience

### NLP Research Intern under the Supervision of [Dr. Tuggener](#)

[SpinningBytes AG](#)

Oct. 2021 - Now

### Research Assistant under the Supervision of [Dr. Bahrak](#)

[Data Analytics Lab](#)

Oct. 2020 - Sept. 2021

- Learned about complex networks, carried out multiple projects in this field, and read related papers, including surveys on analysis of the network of Twitter users.
- Analyzed the popularity of fanfictions using various attributes available on fanfictions, exploiting the tools and ideas discussed in social network analysis.
- Performed network inference on complex networks using various non-parametric tests, permutation tests, and exponential random graph models.
- Managed to collect all Persian tweets published from ten years ago until 2021 September, using two remote servers, one being used as a proxy tunnel and the second one as a database to store all the data in a well-structured format on Elastic.

### NLP Research Intern under the Supervision of [Dr. Pilehvar](#)

[TeIAS](#)

Summer 2020

- Read papers about NLP and developed a deep understanding of state-of-the-art NLP models.
- Learned different topics in NLP and implemented specific tasks such as [NER](#) and [QA chatbots](#) to learn NLP more practically.

## Publications

- Sourati Hassanzadeh, Z., Sabri, N., Chamani, H., & Bahrak, B. (2021). Quantitative Analysis of Fanfictions' Popularity. *Social Network Analysis and Mining*. (under review)
- Chamani, H., Sourati Hassanzadeh, Z., & Bahrak, B. (2021). An Overview of Regression Methods in Early Prediction of Movie Ratings. *ICCKE2021*. (recently accepted)
- Setayesh, A., Sourati Hassanzadeh, Z., & Bahrak, B. (2021). Analysis of the Global Trade Network 2011 using ERGMs. (under preparation)
- Shabani Mirzaei, T., Chamani, H., Sourati Hassanzadeh, Z., Tavakoli, S., & Bahrak, B. (2021). Topic modeling of Persian tweets during the Covid-19 pandemic. (under preparation)

## Honors and Awards

**RANK 2<sup>ND</sup>** AMONG ALL COMPUTER ENGINEERING STUDENTS(103)

2017 - 2021

\* University of Tehran

**RECEIVED SCHOLARSHIP**, SUPPORTER FOUNDATION OF UNIVERSITY OF TEHRAN AS STUDENT WITH EXCEPTIONAL TALENTS

2017 - 2021

**F.O.E \* AWARD RANK 2<sup>ND</sup>** AMONG ALL COMPUTER ENGINEERING STUDENTS(103), UNIVERSITY OF TEHRAN

2017 - 2021

\* Faculty of Engineering

**RANKED 156 (TOP 0.1%)** IN IRANIAN UNIVERSITY ENTRANCE EXAM (ADMISSION TO UNIVERSITY OF TEHRAN\*)

2017

\* University of Tehran is the oldest, largest, and the most prestigious university of Iran and also the first rank university in Iran according to [U.S.News](#).

**ADMISSION TO UNIVERSITY OF TEHRAN AND SHARIF UNIVERSITY OF TECHNOLOGY** FOR THE MASTER'S DEGREE WITHOUT THE IRANIAN UNIVERSITY ENTRANCE EXAM BECAUSE OF THE EXCEPTIONAL PERFORMANCE IN THE UNDERGRADUATE STUDIES

2021

FOR A ONE-YEAR INTERNSHIP.

\* I received this offer after I got the top score in the IAESTE selection exam.(International Association for the Exchange of Students for Technical Experience).

## Notable Course Projects

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### Neural Networks

- Delved Deeper into the Memory Neural Networks from the most basic designs, like auto-associative networks, to the most complicated ones, Recurrent Neural Networks and their derivations such as LSTMs, GRUs, and Bert. Also, exploited the power of these models to train networks on various datasets such as bitcoin prices and texts extracted from tweets.
- Learned the principles of Convolutional Neural Networks and the models that fall under CNNs, including the Inception model and the U-net. Also, developed and compared different CNN models to analyze different aspects of their structures and designs.
- Analyzed the applications of Generative Adversarial Networks and their derivatives like cycle-GANs alongside Variational Auto-Encoders. Also, Implemented a cycle-GAN using the PyTorch framework.

### Reinforcement Learning

- Solved different n-armed bandit problems with different policies considering different criteria such as regret and average reward, **utilizing Prospect theory by Daniel Kahneman to investigate the monetary value of waiting in a real-world problem.**
- Develop a load balancing framework on the famous jack's rental car problem using policy iteration algorithm.
- Analyzed different On-policy and Off-policy methods by comparing their accuracy and performance on different tasks.

### Artificial Intelligence

- Learned and applied the basic models in AI such as clustering and regression models on various datasets, including the [bank churners](#) and [house prices](#) dataset.
- Analyzed different classification models such as random forests by applying them on various datasets and learning more about entropy and information-theory basics.
- Examined the performance of different searching algorithms such as A\* and IDS on custom-built datasets.

### Advanced Programming

- Learned different design patterns and also clean coding principles by implementing a handful of programs covering diverse subjects such as hotel management, social networks, and file compression & cryptography.
- Get to know the essential elements of game design by designing a game from scratch using the C++ programming language.

### Operating Systems

- Implemented an FTP-server using the C++ programming language, including different features such as tolerating a down server by switching to a UDP-based p2p network model shared between the individuals.
- Developed a load balancing system using semaphores.
- Learned the principles of multithreading and multiprocessing in operating systems by implementing a parallel classifier.

### Computer Networks and Network Security

- Implemented a p2p network with peers being able to find their neighbors and check the tolerability of the system by turning off nodes at random.
- Implemented an FTP-server from scratch using Python language and socket-programming, having various features such as logging in to the server, downloading the available files, and uploading new files to the server.
- Examined RYU-controllers and different congestion control mechanisms.
- Analyzed and used different network security protocols and algorithms used to encrypt files and also mail security (SMIME).

### Compiler

- Implemented a compiler from scratch for a given language analogous to Java programming language.
- Learned and analyzed different design patterns, particularly those used in language theory and compilers like Observer pattern, by developing different tasks on this topic.

## Teaching Experience as a Teacher Assistant

- Probability and Statistics in Engineering  
[Dr. Bahrak](#)
- Theory of Formal Languages and Automata  
[Dr. Hojjat](#)
- Advanced Programming  
[Dr. Khosravi](#)
- Design and Analysis of Algorithms  
[Dr. Mahini](#)
- Artificial Intelligence  
[Dr. Yaghoubzadeh](#), [Dr. Fadaei](#)
- Database Systems  
[Dr. Shakery](#)

## Volunteer Experience

### Member of the Organizational Committee

[FSEN 2019](#)

Spring 2019

FSEN is an international conference that aims to bring together researchers, engineers, developers, and practitioners from the academia and the industry to present and discuss their research work in formal methods for software engineering. Students were responsible for preparing anything their assigned professor needed from their arrival, during their stay, and till their departure.

### Student Staff

[IPM Cognitive Science contest](#)

Spring 2019

Brainstorming and cognitive neuroscience student competitions are planned to create interdisciplinary collaboration. Providing anything necessary for holding the contest and the conferences were part of my responsibilities.

## Work Experience

### Front-end Developer

Tehran, Iran

[TAPSELL CO.](#)

Sept. 2019 - Jan. 2019

- Developed the landing pages for two of the products owned by the company, [Tagrow](#), and [Metrix](#).
- Developed various features for the customer and management dashboard in the [Tapsell](#) product.

## Languages

### English

- TOEFL - OVERALL: 107, READING: 30, LISTENING: 29, WRITING: 27, SPEAKING: 21
- GRE - VERBAL REASONING: 150, QUANTITATIVE REASONING: 168, WRITING: 4.5

### Persian

NATIVE

### German

BEGINNER

## Skills and Qualities

### Programming Languages

PYTHON, R, C, C++, SQL, JAVA, JAVASCRIPT (ES5, ES6), TYPESCRIPT, HTML5, CSS, SCSS, VERILOG, KOTLIN, MATLAB

### Tools and Frameworks

PYTorch, KERAS, STATA, LINUX, SPRING, REACT, ANGULAR, JQUERY, AJAX, GIT, BOOTSRAP, MONGODB, LATEX, NODE JS.,  
QUARTUS, MYSQL, ANDROID STUDIO

### Personal Qualities

DILIGENT, ORGANIZED, EXPERIENCED IN TEAM-WORKING, CURIOUS FOR NEW IDEAS, FAST LEARNER, AND OPEN TO NEW SITUATIONS.