

Parsa Kamalipour

Kerman – Iran

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Research Interests

- Design & Analysis of Algorithms
- Graph Theory & its applications
- Combinatorial Optimization
- Approximation & Randomized Algorithms
- Complexity Theory & Online Algorithms
- Social Networks Analysis

Education

Vali-e-Asr University of Rafsanjan

B.S. Computer Engineering, Major Track: Software Engineering.

Rafsanjan, Iran

Sep 2018–Jun 2023

- **CGPA:** 16.26/20 with 140 credits passed. **GPA of Specialized Courses:** 17.80/20
- **Bachelor's Thesis:** Community detection in complex network based on an improved random algorithm using local and global network information
- **Bachelor's Thesis grade:** 20/20 (4.0/4.0)

Publications

Journal papers

- Fahimeh Dabaghi-Zarandi, **Parsa KamaliPour**, "Community detection in complex network based on an improved random algorithm using local and global network information," *Journal of Network and Computer Applications*, vol.206, p.103492, Aug 2022, doi. [Q1](#), Impact factor: 7.574, link. [↗](#)
- Fahimeh Dabaghi-Zarandi, **Parsa Kamalipour**, "Community detection in complex network based on Vertex Cover algorithm." (*In preparation*), link. [↗](#)

Conference papers

- I. Hemati Moghadam, M. M. Afkhami, **P. Kamalipour**, and V. Zaytsev, "Extending refactoring detection to Kotlin: A dataset and comparative study," *In Proceedings of the 31st IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2024)*, IEEE, 2024. link. [↗](#)
- I. Hemati Moghadam, M. M. Afkhami, V. Zaytsev, **P. Kamalipour**, M. H. Ashoori and F. Ahmed, "Cross-Language Refactoring Detection: Bridging Gaps with Pre-trained Language Models," *Submitted to The 40th IEEE International Conference on Software Maintenance and Evolution (ICSME 2024)*, IEEE, 2024. link. [↗](#)

Research Experience

Remote Research Assistant

FMT group - Faculty of EE, Math and CS, University of Twente

Enschede, The Netherlands (Remote)

Aug 2023–Mar 2024

- **Field of Research:** Software Refactoring, **Supervisor:** Dr. Iman Hemati Moghadam
- **My key role consisted of:**
 - Writing Java codes, unit tests, debugging, refactoring, maintenance, and bug fixing the "KotlinCode2Text" parser + "RefDetect" tools
 - Implementing the "KotlinCode2Text" parser for the "RefDetect" tool
 - Creating two refactoring datasets
 - Running Numerous testing stages and providing new ideas to improve our research results
 - Prompt engineering and utilizing LLMs for Software Translation

Undergraduate Research Assistant

Department of Computer Engineering, Vali-e-Asr University of Rafsanjan

Rafsanjan, Iran

Aug 2021–Present

- **Field of Research:** Graph Algorithms, **Supervisor:** Dr. Fahimeh Dabaghi-Zarandi.
- **My key role consisted of:**
 - Reading and reviewing related papers (Investigation)
 - Implementing ideas in MATLAB and Python (Data curation, Software, Programming)
 - Testing and improving the written code (Validation)
 - Gathering information and writing the initial text for the paper (Writing primary draft preparation)

Teaching Experience

Undergraduate Teaching Assistant

CE Department, Vali-e-Asr University of Rafsanjan

Rafsanjan, Iran

Mar 2021–Jan 2024

Courses of Dr. Fahimeh Dabaghi-Zarandi

Data Structures: Head TA: Spring (2023 [↗](#), 2022 [↗](#), 2021 [↗](#)), Fall (2023 [↗](#), 2022 [↗](#), 2021 [↗](#))

Algorithms Design: Head TA: Spring (2023 [↗](#), 2022 [↗](#), 2021 [↗](#)), Fall (2022 [↗](#), 2021 [↗](#))

Discrete Mathematics: TA: Spring 2022 [↗](#), Fall 2021 [↗](#)

Operating Systems: Grading TA: Spring 2022 [↗](#)

Courses of Dr. Mojtaba Sabbagh-Jafari

Introduction to Information Retrieval: TA: Spring (2023 [↗](#), 2022 [↗](#))

Software Engineering: TA: Spring 2023 [↗](#)

Database: Head TA: Fall 2022 [↗](#)

Courses of Dr. Amir Hossein Hadjhamadi

Intro to Data Mining: TA: Spring 2023 [↗](#)

Fundamentals of Programming: Head TA: Fall 2022 [↗](#)

Artificial Intelligence: Head TA: Fall 2022 [↗](#)

Selected Relevant Coursework

Fundamental of Programming: 20/20

Theory of Machines and Languages: 17.9/20

Software Engineering: 18.75/20

Introduction to Data Mining: 17.5/20

Advance Programming: 16.5/20

Engineering Mathematics: 17.04/20

Design and Analysis of Algorithms: 18/20

Statistics and Probability for Engineering: 16.25/20

★ [Click here to see more](#) [↗](#)

Selected Projects

Introduction to Data Mining [↗](#)

Multiple assignments regarding to the Intro to Data Mining course

Spring 2022

Data Pre Processing, Apriori Algorithm, Data Visualization, K-Means, Agglomerative Clustering, DBSCAN, K-Nearest Neighbors Algorithm, Decision Tree, Support Vector Machines, Multi-Layer Perceptron

SYMPHONYC: The database of a music streaming service similar to Spotify. [↗](#)

One project regarding to the Database course

Fall 2021

Information Gathering, entity-relationship model, Relational Model, SQL codes, connecting the database to Django, analyzing and plotting data via matplotlib

Uncertainty: an action-adventure space-shooter game built with Unity3D [↗](#)

Null References [↗](#)

Spring 2021

○ Uncertainty is an action-adventure space-shooter game, and currently It's under development.

○ We have utilized the beta version of this game as our "Software Engineering Lab" course project.

Multiple projects regarding to Design and Analysis of Algorithms course [↗](#)

Designing and implementation of:

Fall 2020

The Closest Pair of Points Problem, Sudoku Solver, Tournament Scheduler, Huffman Coding, Bellman–Ford, Matrix Chain Multiplication, N-Queens Solver Traveling Salesman Problem

Multiple projects regarding to Data Structures and Algorithms course [↗](#)

Designing and implementation of:

Fall 2019

the Red-Black Tree, the AVL Tree, the Trie Dictionary, Threaded Binary Tree, the Sparse Matrix via Linked List, the Rat in the maze problem

★ [Click here to see more projects](#) [↗](#)

Test Scores

TOEFL: 99/120 - Reading: 26/30, Listening: 29/30, Speaking: 23/30, Writing: 21/30

Honors and Awards

- Awarded Undergraduate Researcher status among all students of Vali-e-Asr University**
Vali-e-Asr University of Rafsanjan Dec 2023
- Awarded Top Researcher status among all undergraduate students of Kerman province**
Shahid Bahonar University of Kerman Nov 2023
- Ranked 1st among all teams participating from the Vali-e-Asr University**
for ICPC Asia Tehran - Internet Programming Contest Spring 2023
- Ranked top 10 among undergraduate students of Computer Engineering**
Vali-e-Asr University of Rafsanjan, Entrance Year of 2018 Spring 2022
- ★ [Click here to see more information about me](#) ↗

Extra Curricular Activities

- Director of Research Assistant Committee** ↗
Vali-e-Asr University Scientific Association of Computer Engineering Nov 2022–Sep 2023
- Director of Teaching Assistant Committee** ↗
Vali-e-Asr University Scientific Association of Computer Engineering July 2022–Sep 2023
- Member of Teaching Staff** ↗
Vali-e-Asr Collegiate Programming Contest (VCPC) Sep 2021–Jun 2022
- Scientific Committee Member** ↗
Vali-e-Asr University Scientific Association of Computer Engineering May 2019–Jun 2021

Skills

- Programming Languages:** C, C++, Python, MATLAB, C#, Java, SQL
- Frameworks & Libraries:** Qt, Numpy, Pandas, Matplotlib, NetworkX, Scikit-learn, PyTorch
- Tools:** Jupyter, L^AT_EX, Git, Markdown, Linux, Microsoft office, Obsidian
- Software Engineering:** Refactoring, Debugging, Unit Testing, Agile mythology, Pattern Design, SOLID
- Game Development:** Unity
- Soft Skills:** Team Work, leadership, Collaboration, Teaching, Research, Problem Solving
- ★ [Click here to see more in LinkedIn](#) ↗

Languages

- Persian:** Native
- English:** Fluent
- French:** Beginner

References

Available upon Request