

# Parsa Kamalipour

Montréal, QC – Canada

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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

### Concordia University [✉](#)

Master of CS, Computer Science, Lab: Algorithms & Complexity.

Montreal, QC, Canada

Sep 2024–Aug 2026

- **GPA:** Just started!
- **Master's Thesis:** To be decided.
- **Supervisor:** Prof. Hovhannes Harutyunyan

### 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.[✉](#)

### 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.[✉](#)

## Research Experience

### Graduate Research Assistant [✉](#)

Algorithms & Complexity Lab - Department of CS & SE, Concordia University [✉](#)

Montreal, QC, Canada

Aug 2024–Present

- **Field of Research:** Algorithms Design, Graph Theory, and Social Network Analysis
- **Supervisor:** Prof. Hovhannes Harutyunyan

### Remote Research Assistant [✉](#)

FMT group - Faculty of EE, Math and CS, University of Twente [✉](#)

Enschede, The Netherlands

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–Mar 2024

- **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

**Graduate Teaching Assistant** **Montreal, QC, Canada**  
*Gina Cody School of Engineering and Computer Science, Concordia University* *Sep 2024–Present*  
**COMP/MATH 339: Combinatorics:** Tutorial & Marker TA: Fall 2024

**Undergraduate Teaching Assistant** **Rafsanjan, Iran**  
*CE Department, Vali-e-Asr University of Rafsanjan* *Mar 2021–Jan 2024*  
**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  
**Introduction to Information Retrieval:** TA: Spring (2023, 2022)  
**Software Engineering:** TA: Spring 2023  
**Database:** Head TA: Fall 2022  
**Intro to Data Mining:** TA: Spring 2023  
**Fundamentals of Programming:** Head TA: Fall 2022  
**Artificial Intelligence:** Head TA: Fall 2022

## Selected Relevant Coursework

<b>Fundamental of Programming:</b> 20/20	<b>Advance Programming:</b> 16.5/20
<b>Theory of Machines and Languages:</b> 17.9/20	<b>Engineering Mathematics:</b> 17.04/20
<b>Software Engineering:</b> 18.75/20	<b>Design and Analysis of Algorithms:</b> 18/20
<b>Introduction to Data Mining:</b> 17.5/20	<b>Statistics and Probability for Engineering:</b> 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

**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

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

## Honors and Awards

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### **Awarded Concordia Merit Scholarship (Entrance Scholarship Award)**

*Issued by Concordia University & School of Graduate Studies*

*Sep 2024*

### **Awarded Concordia Faculty of Engineering & Computer Science Financial Research Support**

*Issued by Concordia University & Gina Cody School of Engineering and Computer Science*

*Sep 2024*

### **Won Distinguished Student Award among all students of Vali-e-Asr University**

*Vali-e-Asr University of Rafsanjan*

*July 2024*

### **Awarded Top Researcher status among all undergraduate students of Kerman province**

*Shahid Bahonar University of Kerman*

*Nov 2023*

### **Ranked top 10 among undergraduate students of Computer Engineering**

*Vali-e-Asr University of Rafsanjan, Among Fall of 2018 Computer Engineering students*

*Spring 2022*

★ [Click here to see more information about me](#) ↗

## Extra Curricular Activities

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### **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

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**Programming Languages:** C, C++, Python, MATLAB, C#, Java, SQL

**Frameworks & Libraries:** Qt, Numpy, Pandas, Matplotlib, NetworkX, Scikit-learn, PyTorch

**Tools:** Jupyter, L<sup>A</sup>T<sub>E</sub>X, 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

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**Persian:** Native

**English:** Fluent

**French:** Beginner (Early A1)

## References

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Available upon Request