

KAHBOD AEINI

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EDUCATION

University of Calgary Master of Computer Science Supervisor: Prof. Philipp Woelfel	<i>2023 - Ongoing</i> GPA: 3.825/4
Sharif University of Technology Bachelor of Computer Engineering	<i>2019 - 2023</i> GPA: 16.24/20
National Organization for Development of Exceptional Talents High School Diploma in Mathematics and Physics	<i>2013 - 2019</i> GPA: 19.8/20

RESEARCH INTERESTS

Algorithms, Data Structures & Distributed Computing

Distributed Computing, Distributed Systems, Concurrent Algorithms, Randomized Algorithms, Online Algorithms, Data Structures, Computational Complexity, Theoretical Computer Science

Databases Systems, Bioinformatics & Machine Learning

Databases Systems, Big Data, Data Management, Data Mining, Information Retrieval, High-throughput and high-dimensional biological data analysis, Deep Learning, Artificial Intelligence

RESEARCH EXPERIENCE

Master Thesis on Distributed Algorithms, Research Assistant , Graduate Student *Jun 2024 - Ongoing*

Supervisor: Prof. Philipp Woelfel, University of Calgary

Designing space- and time-optimal randomized wait-free locks in shared memory systems.

Bioinformatics, Research Assistant (volunteer , remote)

Feb 2023- Aug 2023

Supervisor: Prof. Mehdi Pirooznia, Johns Hopkins Uni

Feature Selection and Machine Learning Modeling to Predict Immune Cell Composition in Lung Cancer

- Immune Cell Types Identification
- Identification of Differentially Expressed Genes
- Functional Enrichment Analysis
- Machine Learning Modeling of Cancer Subtypes

Code Prediction, Research Assistant Machine Learning

Aug 2022- Nov 2022

Supervisor: Prof. Abbas Heydarnoori, ISE Lab

- Designing models to predict and comprehend python codes
- Feature extraction of Jupyter notebooks in the KGTorrent dataset

Face Clustering, Research Assistant Machine Learning

Oct 2021 - Feb 2022

Supervisor: Dr. Fatemeh Baharifard & Dr. Vahid Motaghd, IPM

- GCN-based linkage prediction face clustering
- Pairwise classification face clustering

TEACHING EXPERIENCE

Randomized Algorithms, University of Calgary Graduate Course

Fall 2024

Prof. Philipp Woelfel — 25 student

- Holding Tutorial Sections for Graduate and Undergraduate Students
- Design and Analysis of Randomized Algorithms; Discrete Probability Theory; Randomized Data Structures
- Marking Assignments
- Lower Bound Techniques; Randomized Complexity Classes; Advanced Algorithmic Application

Theoretical Foundations Of Computer Science II, University of Calgary *Winter 2024, Winter 2025*

Prof. Philipp Woelfel — +280 student, +420 students

- Managing team of 7 TAs
- Holding weekly meetings for the TAs
- Managing administrative inquiries of +420 students
- Subjects: Probability Theory, Automata Theory, Theory of Computation
- Holding Three Tutorial Sections (6 in total)
- Marking Assignments and Exams

Introduction to Computer Science for Computer Science Majors I, University of Calgary

Fall 2023

Prof. Richard Zhao — +430 student

- Fundamentals of Programming, Python Programming, Data Structures and Algorithms
- Holding Two Tutorial Sections
- Marking Assignments and Exams

Data Structure and Algorithms, Sharif University of Technology

Winter 2022

Dr. Mahdi Safarnejad — +60 student

- Head-TA of the course
- Leading and managing a group of +25 TAs
- Designer of the assignments and project
- Holding TA classes

Mobile Programming, Sharif University of Technology

Winter 2022

Dr. Saeid Nari — +40 student

- Head-TA of the course
- Designer and grader of the final project

Numerical Calculations, Sharif University of Technology

Fall 2021-2022

Dr. Fatemeh Baharifard — +60 student

- Head-TA of the course
- Leading and managing a group of +10 TAs
- Designer and grader of the final project
- Holding TA classes

Other Teaching Experiences

- **Linear Algebra** — Prof. Hamidreza Rabiee — +80 students
- **Database Design** — Prof. Abbas Heydarnouri — +40 students
- **Compiler Design** — Dr. Mohammadreza Bahrami — +60 students
- **Computer Structure and Languages** — Dr. Laleh Arshadi — +100 students
- **Advanced Programming** — Dr. Vahid Salmani — +60 students
- **Logic Design** — Dr. Laleh Arshadi — +80 students
- **Python Workshop** — Sharif Uni. Chemistry Dept. — Teaching fundamentals of programming — +30 students

- **Physics and Mathematics** — Freelance Professionally — Every subject of Mathematics and Physics in Diploma

WORK EXPERIENCE

AI Lida, Data Engineering

Feb 2022- Sep 2022

- Head of one of AI Lida's main production projects
- Hiring and interviewing interns
- Data engineering and web development
- Supervising data engineering interns
- Cooperating with the Security department

PROJECTS

Fraud Detection Model. As the Bachelor thesis, titled "Fraud Detection from Sequences of Bank Transactions Using Various Machine Learning Algorithms", I developed, trained and tested three different Machine Learning models for Fraud Detection on a dataset of banking transactions. The methods then were analysed and compared to each other. (Git - Jun 2023)

Secure Chat App. Developed a secure chat app in Python in a team of three, secured by different methods of computer security as the final project of Data and Network Security course. (Git - Jun 2023)

Smart Water Supplier. Contributing to a team of four in designing and implementing a smart water container system, integrating hardware components like Raspberry Pi, proximity sensor, and water level sensors, coupled with a Django-based web app. (Git - Jun 2023)

Cloud Drive Collaborated within a six-member team to design and implement a file-sharing service. Leveraged technologies such as Django, Docker, and Minio while adhering to Agile methodology for efficient development and delivery. (Git - Dec 2022)

Users Profile Matching. Complete implementation and summarization of "User profiles matching for different social networks based on faces identification" paper as the final project of the Numerical Computation course. (Git - Jul 2021)

Information Retrieval System. Designed and implemented a retrieval system for twitter interaction and health articles with GUI, Classification and Clustering tweets and articles. (Git - Jun 2022)

Natural Language Processing. Implemented NLP methods on a speech dataset and demonstrated the conclusions. (Git - Jul 2022)

Bioinformatics. Transcriptomics study of AML to identify differentially expressed genes and associated pathways, potentially causal for the disease. (Git - Jan 2022)

Digit Recognition. Designed and developed a model to recognize digits from handwritten. (Git - Nov 2021)

Football Statistics Database. Designed and developed a database to store football statistics using MySQL RDBMS.

Garage Services App. Developed an Android app for using services of a Garage (As part of the final project in mobile programming course). (Git - Jul 2021)

Navigation App. Developed a Navigation app in Android with full functionality and identical features as Google Maps. (Git - Feb 2021)

Cryptocurrency App. Developed an android app which represents any Cryptocurrency latest price and candles online. (Git - Jan 2021)

Online Shop. Developed an online shop with GUI and client-server architecture in Java language. (Git - Jun 2020)

Chat Application. Developed a chat application in C language. (Git - Jan 2020)

RELEVANT COURSES

Randomized Algorithm: A+ - **Algorithms for Distributed Computing:** A+ - **Data Mining & Machine Learning:** A - **Advanced Information Retrieval:** A+ - **Database Design:** A - **Design of Algorithms:** A - **Artificial Intelligence:** A+ - **Data Structures and Algorithms:** A+ - **Linear Algebra:** A+ - **Numerical Computation:** A+ - **Real Time Systems:** A

SKILLS

Programming Languages and Frameworks

Python, R, JAVA, C/C++, Android, PostgreSQL, Microsoft Access, MongoDB, MySQL, Excel
Jupyter, Numpy, Pandas, Django, OpenCV, PyTorch, Tensorflow, scikit-learn, limma
Linux, bash, Git, Latex, Kali, Office

Languages

Native: Persian, Advanced Professional: English

AWARDS AND SCHOLARSHIPS

Departmental Research Award, Department of Computer Science, University of Calgary *2023*
Won the RA award, which is granted to the best students in each department to step away from TA responsibilities and focus on their research

Top 100 Students in Country *2019*
Ranked 94 (31st in the Region) in National Universities Entrance Exam among around 160,000 participants

National Elites Fellowship *2019*
Fellowship in Iran's National Elites Foundation