# Amirmahdi Namjoo

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## Education

**Sharif University of Technology** **September 2018 – June 2023 (Expected)**
*Bachelor of Science in Computer Engineering* *Tehran, Iran*

- GPA: 3.916/4.00 (19.58 / 20.00)
- Major GPA: 3.9652/4.00 (19.826 / 20.00)
- Rank: 5/136

**Shahid Beheshti NODET (SAMPAD) High School** **Fall 2015 – Spring 2018**
*High School Diploma in Mathematics & Physics* *Bojnord, Iran*

- GPA: 3.98/4.00 (19.90 / 20.00)

## Honors and Awards

*Cornell, Maryland, Max Planck Pre-doctoral Research School 2021* *2021*

- I was among about 80 talented students who got accepted and participated in **CMMRS 2021**

*National University Entrance Exam on Mathematics (Konkour)* *2018*

- **Ranked 81$^{st}$** in the National University Entrance Exam on Mathematics (Konkour) among more than 144,000 students nationwide.

*National Olympiad in Astronomy and Astrophysics* *2017*

- **Bronze Medal** in National Olympiad in Astronomy and Astrophysics

## Research Interests

- Computer Security & Privacy
- High Performance Computing
- Operating Systems
- Computer Architecture

## Experience

**Sharif University of Technology** **September 2020 – Now**
*Research Experience* *January 2022 - Now*

- Undergraduate Research Assistant at **S4Lab (Safety and Security at Software Systems)**
- Under supervision of Dr. Mehdi Kharrazi
- Researching on control flow graph and vulnerability path similarity measures
- Implementing a Cyberrange website, using Django, Go, Docker, React for the website core. incorporating different security concepts to design multiple problem sets for the project.

*Teaching Experience* *Fall 2022*

- Head Teaching Assistant - **Artificial Intelligence** - Instructor: Dr. Mohammad Hossein Rohban
- Head Teaching Assistant - **Design of Algorithms** - Instructor: Dr. Hamid Zarrabi-Zadeh
- Head Teaching Assistant - **Fundamentals of Programming in C** - Instructor: Dr. MohammadAmin Fazli
- Teaching Assistant - **Computer Security** - Instructor: Dr. Mehdi Kharrazi
- Teaching Assistant - **Operating Systems** - Instructor: Prof. Hossein Asadi

*Teaching Experience* *Spring 2022*

- Head Teaching Assistant - **Computer Networks** - Instructor: Dr. Laleh Arshadi
- Head Teaching Assistant - **Advanced Programming in Java** - Instructor: Dr. MohammadAmin Fazli
- Co-Head Teaching Assistant - **Discrete Structures** - Instructor: Dr. Hamid Zarrabi-Zadeh
- Teaching Assistant - **Operating Systems** - Instructor: Dr. Mehdi Kharrazi
- Teaching Assistant - **Computer Networks** - Instructor: Dr. Mahdi Jafari Siavoshani
- Teaching Assistant - **Artificial Intelligence** - Instructor: Dr. Mohammad Hossein Rohban
- Teaching Assistant - **Compiler Design** - Instructor: Mr. Mohammad Reza Bahrami

*Teaching Experience* *Fall 2021*

- Head Teaching Assistant - **Fundamentals of Programming in C** - Instructor: Dr. MohammadAmin Fazli
- Teaching Assistant - **Computer Networks** - Instructor: Dr. Mahdi Jafari Siavoshani
- Teaching Assistant - **Design of Algorithms** - Instructor: Dr. Hamid Zarrabi-Zadeh
- Teaching Assistant - **Artificial Intelligence** - Instructor: Dr. Mohammad Hossein Rohban

*Teaching Experience* *Spring 2021*

- Head Teaching Assistant of Project - **Advanced Programming in Java** - Instructor: Dr. MohammadAmin Fazli
- Teaching Assistant - **Data Structures and Algorithms** - Instructors: Prof. Mohammad Ghodsi and Dr. Mahdi Safarnejad
- Teaching Assistant - **Computer Architecture** - Instructor: Prof. Hossein Asadi
- Teaching Assistant -**Discrete Structures** - Instructor: Dr. Hamid Zarrabi-Zadeh
- Teaching Assistant - **Artificial Intelligence** - Instructor: Dr. Mohammad Hossein Rohban
- Teaching Assistant - **Computer Structure and Language** - Instructor: Dr. Laleh Arshadi
- Teaching Assistant - **Computer Simulation** - Instructor: Dr. Alireza Farhadi

*Teaching Experience* *Fall 2020*

- Head Teaching Assistant of Assignments - **Fundamentals of Programming in C** - Instructor: Mr. Reza Fakouri
- Teaching Assistant - **Artificial Intelligence** - Instructor: Dr. Mahdieh Soleymani
- Teaching Assistant - **Probability and Statistics for Engineering** - Instructor: Dr. Ali Sharifi Zarchi
- Teaching Assistant - **Numerical Computations** - Instructor: Dr. Fatemeh Baharifard
- Teaching Assistant - **Computer Structure and Language** - Instructor: Dr. Laleh Arshadi

*Teaching Experience* *Spring 2020*

- Teaching Assistant - **Probability and Statistics for Engineering** - Instructor: Dr. Naeemeh Omidvar
- Teaching Assistant - **Advanced Programming in Java** - Instructors: Dr. Mahdi Mostafazadeh, Mr. Iman Isazadeh, Mr. Amir Malekzadeh, and Mr. Ali Chekah

*Teaching Experience* *Fall 2019*

- Teaching Assistant - **Fundamentals of Programming in C** - Instructors: Mr. Reza Fakouri and Dr. Shirin Baghoolizadeh

### Digikala **July 2021 - July 2022**

*Software Engineer*

- Digikala is the largest e-commerce company in Iran.
- Worked on Supernova platform, Digikalajet and Pindo using PHP, MySQL, Elasticsearch, Jenkins, and Swagger

## Academic Service

### Sharif University of Technology **September 2019 – Now**

*President of Central Council of Students' Scientific Chapter* *September 2022 - Now*

- Students' Scientific Chapter (SSC) is a scientific association consisting of all students of Computer Engineering Department. It holds scientific talks and events throughout the year. Its central council consists of nine members, selected by votes of all students.
- I have been selected as the president of SSC for one academic year by gaining the most votes in the general election and then gaining the votes of other central council members.

*Staff* *Fall 2019 - Now*

- Technical Staff of DataDays 2022
- Scientific Staff of Webelopers 2022
- Scientific Staff of Hardwar 2022
- Scientific Staff of Winter Seminar Series (WSS) 2022
- Scientific Staff of DataDays 2021
- Technical Staff of ICPC 2019 Asia West Continent Final
- Technical Staff of ICPC 2019 Asian Regional - Tehran Site

## Projects

**Peykar** | *Django, React, Docker, Go, Grafana, Splunk* | Github **May 2022 - Now**

- Peykar is a Cyber-Range platform that is being designed to provide different challenges to security specialists to improve their ability and make them ready for real threats.
- This project is being done in the S4Lab under supervision of Dr. Mehdi Kharrazi.
- I have roles in different parts of the project, including its core infrastructure, backend API, and designing some of the challenges offered on the site.

**Arno** | *Django, React, Docker, Visual Paradigm* | Github **May 2022 - September 2022**

- Designed and implemented an online service requesting system using the UP methodology in this project.
- The final product includes extensive documentation of requirements, use cases, class, activity, sequence, ER, and deployment diagrams.

**Health Monitoring System** | *Raspberry Pi, Arduino, Simplify3D* | Github **February 2022 - August 2022**

- Implemented and designed a Health Monitoring System that can measure a patient's SpO2, heart rate, body temperature, ECG, and Environmental Temperature and Humidity.
- It features a complete monitoring system that can be viewed on displays with different sizes. This product sends the collected data to a central server for further analysis.

**Multi-Core Computing Course Projects** | *Open MP, CUDA, SIMD* | Github **February 2022 - August 2022**

- Sobel Edge-detection Filter using Nvidia CUDA
- Green screen replacement using Nvidia CUDA and Intel CPU's Vector Processing (SIMD)
- N-Queens solver using Open MP

**Realtime Systems Course Project** | *Realtime Java, Swing* | Github **June 2022 - July 2022**

- Implemented a real-time Clock management system using threading capabilities of Realtime Java, alongside a minimalistic GUI using Swing.

**TeleNurse** | *Django, Postgres, Docker, Bootstrap* | Github **October 2021 - February 2022**

- Telenurse is a logistic project for providing healthcare and nursing.
- It is an integrated system so that both nurses and people who need nursing and medical services at home can use it and communicate easily with each other.

**CMinus Compiler** | *Python* | Github **September 2021 - January 2022**

- Immplemented a Compiler for CMinus Langauge, a simplified subset of the C language using Python and its standard libraries.

**Computer Networks Course Projects (P2P Network)** | *Python* | Github **June 2021 - August 2021**

- Designed and implemented a Peer-to-Peer network with a binary tree structure using Python.

**PintOS** | *C* | Github **March 2021 - May 2021**

- Completed a multi-phase project on PintOS using C language.
- The project included designing and implementing User Programs, Threads, and FileSystem on PintOS.
- The Project was based on Berkeley's CS162 course.

**Acute Myeloid Leukemia Microarray Analysis** | *R, limma, ggplot2* | Github **January 2021 - February 2021**

- Used the R programming language for Acute Myeloid Leukemia Micro-array Analysis using NCBI GEO dataset.

**Rosalind Bioinformatics Problems** | *C++* | Github **September 2020 - January 2021**

- Solved problems of Rosalind website that were related to the Introduction to Bioinformatics course and Bioinformatics Algorithms book using C++.

**Tarakav** | *ASP.NET Core, Elasticsearch, Kibana, Angular, Ogma, Kibana APM* | Github **September 2020**

- Tarkav is a Graph Analysis Web Application for bank transaction analysis, featuring path finding and max flow, which can be used to detect financial fraud.

**AI Course Projects** | *Python, Sklearn, Tensorflow, Matplotlib , PyQt* | Github **March 2020 - August 2020**

- Local Search Algorithms - Hill Climbing and Simulated Annealing
- Genetic Programming for Symbolic Regression
- Decision Tree Classifier
- SVM Classifier
- Multilayer Perceptron Neural Networks

**Computer Architecture Course Project** | *Quartus, GEM5* | Github **June 2020 - July 2020**

- Designed and tested a pipeline CPU loosely based on MIPS architecture using Quartus
- Designed and tested different cache configurations using GEM5

**Duelyst** | *Java, JavaFX* | Github **March 2019 - August 2019**

- Designed and Implemented a clone of the Duelyst game as part of the Advanced Programming course using Java and JavaFX.

## Publications

- S.P. Neshaei*, **A.M. Namjoo***, P. Chavoshian, P. Saremi, M.T. Jahani-Nezhad, A. Kousheshi, M.A. Fazli, "Novel Distance-Learning Methods to Overcome Challenges Caused by Covid-19 in Undergraudate Programming Courses," *14th International Conference on Education and New Learning Technologies (EDULEARN 2022)*, 2022, (doi:10.21125/edulearn.2022.2233), (* equal contribution).

## Coursework

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|---|---|---|
| Computer Security | Dr. Mehdi Kharrazi | 20.0/20.0 |
| Multi-core Computing | Dr. Hajar Falahti | 20.0/20.0 |
| Operating Systems | Dr. Kharrazi | 19.7/20.0 |
| Computer Architecture | Prof. Asadi | 20.0/20.0 |
| Computer Network | Dr. Jafari Siavoshani | 20.0/20.0 |
| Realtime Systems | Dr. Mohsen Ansari | 20.0/20.0 |
| Object Oriented Design | Dr. Raman Ramsin | 19.9/20.0 |
| System Analysis and Design | Dr. Jafar Habibi | 20.0/20.0 |
| Compiler Design | Dr. Gholamreza Ghassem-Sani | 20.0/20.0 |
| Signals and Systems | Dr. Manzuri | 20.0/20.0 |
| Design of Algorithms | Dr. Zarrabi-Zadeh | 20.0/20.0 |
| Database Design | Dr. Heydarnoori | 20.0/20.0 |
| Intro to Bioinformatics | Dr. Sharifi Zarchi & Dr. Koohi | 20.0/20.0 |
| Digital System Design | Dr. Baharvand | 20.0/20.0 |
| Artificial Intelligence | Dr. Abdi | 20.0/20.0 |
| Data Structures and Algorithms | Prof. Ghodsi | 20.0/20.0 |

## Technical Skills

**General Programming Languages**: C, C++, Go, Python, Java, Javascript, PHP, C#, R
**Assembly Programming Languages**: MIPS, x86
**Typsetting Languages**: LaTeX, Markdown
**Hardware Description Languages**: Verilog
**Developer Tools**: Git, Docker, Swagger, Jenkins
**Web Technologies/Frameworks**: Django, Symfony, ASP.net Core, React, MySQL, Postgres, MongoDB, Elasticsearch
**Security Related Tools**: IDA Pro, Radare2, nmap, John, Wireshark, AFL, CFGGrind, Intel Pin
**High Performance Computing Tools**: CUDA, Open MP, Intel SIMD Instructions
**Data Science Libraries**: Sklearn, Matplotlib, Numpy, Pytorch, Tensorflow
**Hardware Development Boards**: Raspberry Pi, Arduino

## Languages

**Persian**: Native Proficiency
**English**: Professional Working Proficiency (TOEFL: 109)
**Arabic**: Elementary Proficiency