AMIRMAHDI NAMJOO

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Education

Sharif University of Technology   **September 2018 – June 2023 (Expected)**
Bachelor of Science in Computer Engineering   *Tehran, Iran*
- Overall GPA: 19.58/20.00
- Major GPA: 19.826/20.00
- Rank: 5/136

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 (Konkur)   *2018*
- **Ranked 81st** among more than 144,000 participants (top 0.06%)

National Olympiad in Astronomy and Astrophysics   *2017*
- **Bronze Medal** in National Olympiad in Astronomy and Astrophysics among more than 10,000 participants.

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*
- Research Assistant at **S4Lab (Safety and Security at Software Systems)** - Under supervision of Dr. Kharrazi
- I am researching control flow graphs and vulnerability path similarity measures. I am working on methods to generate different dynamic CFGs of vulnerable codes when they are exploited, using Intel Pin and CFGGrind to develop a vulnerability and exploit classification framework based on the similarity of CFGs.
- I am implementing a Cyberrange website, using Django for Backend API, Go for core infrastructure orchestration, Docker, and React. I Incorporated different security concepts to design multiple problem sets for the project to educate the users on DDOS, Insider and Web attacks and defenses.

Teaching Experience   *September 2019 - Now*
- Head Teaching Assistant - **Computer Networks** - Dr. Laleh Arshadi - Spring 2022
- Head Teaching Assistant - **Design of Algorithms** - Dr. Hamid Zarrabi-Zadeh - Fall 2022
- Head Teaching Assistant - **Artificial Intelligence** - Dr. Mohammad Hossein Rohban - Fall 2022
- Co-Head Teaching Assistant - **Discrete Structures** - Dr. Hamid Zarrabi-Zadeh - Spring 2022
- Head Teaching Assistant - **Advanced Programming in Java** - Dr. MohammadAmin Fazli - Spring 2022 & Spring 2021
- Head Teaching Assistant - **Fundamentals of Programming in C** - Dr. MohammadAmin Fazli - Fall 2022 & Fall 2021
- Head Teaching Assistant - **Fundamentals of Programming in C** - Mr. Reza Fakouri - Fall 2020
- Teaching Assistant - **Computer Security** - Dr. Mehdi Kharrazi - Fall 2022
- Teaching Assistant - **Operating Systems** - Prof. Hossein Asadi - Fall 2022
- Teaching Assistant - **Operating Systems** - Dr. Mehdi Kharrazi - Spring 2022
- Teaching Assistant - **Computer Networks** - Dr. Mahdi Jafari Siavoshani - Spring 2022 & Fall 2021
- Teaching Assistant - **Computer Architecture** - Prof. Hossein Asadi - Spring 2021
- Teaching Assistant - **Computer Structure and Language** - Dr. Laleh Arshadi - Spring 2021 & Fall 2020
- Teaching Assistant - **Compiler Design** - Mr. Mohammad Reza Bahrami - Spring 2022
- Teaching Assistant - **Design of Algorithms** - Dr. Hamid Zarrabi-Zadeh - Fall 2021
- Teaching Assistant - **Artificial Intelligence** - Dr. Mohammad Hossein Rohban - Spring 2022 & Fall 2021 & Spring 2021
- Teaching Assistant - **Artificial Intelligence** - Dr. Mahdieh Soleymani - Fall 2020
- Teaching Assistant - **Data Structures and Algorithms** - Prof. Ghodsi and Dr. Safarnejad - Spring 2021
- Teaching Assistant - **Discrete Structures** - Dr. Hamid Zarrabi-Zadeh - Spring 2021
- Teaching Assistant - **Probability and Statistics for Engineering** - Dr. Ali Sharifi Zarchi - Fall 2020
- Teaching Assistant - **Probability and Statistics for Engineering** - Dr. Naeemeh Omidvar - Spring 2022

- Teaching Assistant - **Computer Simulation** - Dr. Alireza Farhadi - Spring 2021
- Teaching Assistant - **Numerical Computations** - Dr. Fatemeh Baharifard - Fall 2020
- Teaching Assistant - **Advanced Programming in Java** - Dr. Mostafazadeh, Mr. Isazadeh, Mr. Malekzadeh, and Mr. Chekah - Spring 2022
- Teaching Assistant - **Fundamentals of Programming in C** - Mr. Reza Fakouri and Dr. Shirin Baghoolizadeh - Fall 2019

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. I implemented a voucher system for Digikalajet (an on-demand supermarket) from scratch, incorporating different business logic into the PHP (Symfony) code to allow batch and specialized discount voucher codes.

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 the Computer Engineering Department. It holds and organizes scientific talks, tournaments, and events targeting different audiences, from first-year undergraduate students to Ph.D. students throughout the year. Its central council consists of nine members, selected by votes of all students. I am 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* | ⌨ Website   **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.

PintOS | *C* | ⍟ Github   **March 2021 - May 2021**
- Completed a multi-phase project on PintOS using C language. It was based on Berkeley's CS162 course.
- The project included designing and implementing User Programs, Thread, Scheduling, and File System on PintOS.

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

Computer Networks Course Projects (P2P Network) | *Python* | ⍟ Github   **June 2021 - August 2021**
- Designed and implemented a Peer-to-Peer Chat application from IP to application layer using Python. The network topology was a specific form of a binary tree that connected each peer to other peers with complex rules in a fully decentralized structure.

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.
- The compiler consisted of Lexer, Parser, Code Generator, and Semantic Analyzer.

Computer Architecture Course Project | *Quartus, GEM5* | ⍟ Github   **June 2020 - July 2020**
- Designed and tested a multi-cycle CPU based on MIPS architecture using Quartus
- Designed and tested different cache configurations using GEM5

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 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.

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.

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

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.

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++.

Duelyst | *Java, JavaFX* | ⚙ Github   **March 2019 - August 2019**
- Designed and Implemented a clone of the Duelyst 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

Computer Security	Dr. Mehdi Kharrazi	20.0/20.0
Operating Systems	Dr. Mehdi Kharrazi	19.7/20.0
Computer Architecture	Prof. Hossein Asadi	20.0/20.0
Multi-core Computing	Dr. Hajar Falahti	20.0/20.0
Computer Networks	Dr. Jafari Siavoshani	20.0/20.0
Compiler Design	Dr. Gholamreza Ghassem-Sani	20.0/20.0
Realtime Systems	Dr. Mohsen Ansari	20.0/20.0
Database Design	Dr. Abbasi Heydarnoori	20.0/20.0
Digital System Design	Dr. Farshad Baharvand	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
Signals and Systems	Dr. M.T. Manzuri Shalmani	20.0/20.0
Design of Algorithms	Dr. Hamid Zarrabi-Zadeh	20.0/20.0
Data Structures and Algorithms	Prof. Mohammad 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

English: Professional working proficiency (TOEFL: 109)
Persian: Native proficiency