Mohammad Sadegh Majidi Yazdi

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Education

Purdue University **August 2024 – Present**
Ph.D. in Computer Science *West Lafayette, IN, United States*
- Advisor: Prof. Kazem Taram
- Overall GPA: 3.90/4.00

Sharif University of Technology **September 2019 – March 2024**
Bachelor of Science in Computer Engineering *Tehran, Iran*
- Overall GPA: 19.19/20.00
- Major GPA: 19.30/20.00

Honors and Awards

National University Entrance Exam (Konkur) *2019*
- **Ranked 2^{nd}** among more than 160,000 participants

Research Interests

- Computer Security
- Large Language Models
- Computer Architecture
- Distributed Systems

Academic Experience

Purdue University **August 2024 - Present**
Research Experience *August 2024 - Present*
- Research Assistant at **SecArch Lab (Computer Security and Architecture Lab)**, Supervisor: Prof. Kazem Taram
- I am currently working on the security and privacy of Large Language Models. We are investigating whether timing side channels in direct black-box API access can be used to infer some architectural characteristics or deployment information of a production LLM.

Sharif University of Technology **September 2019 - July 2024**
Research Experience *February 2023 - July 2024*
- Research Assistant at **DiSysLab (Distributed and Multiagent Systems Lab)**, Supervisor: Dr. Mohammad Izadi
- I worked on WIDESim, A simulator for resource management and scheduling of workflows in a distributed computing environment with graph topology. This simulator enables users to efficiently simulate the execution of real-world workflows across a wide range of complex cloud, fog, and edge computing environments.

Teaching Experience *September 2019 - February 2024*
- Teaching Assistant - **Theory of Machines and Languages** - Dr. Mohammad Izadi - Fall 2023
- Teaching Assistant - **Systems Analysis and Design** - Dr. Alireza Aghamohammadi - Fall 2023
- Teaching Assistant - **Operating Systems** - Mr. Mohammad Ali Mirzaei, Ms. Mohaddeseh Mirbeygi - Fall 2023
- Teaching Assistant - **Operating Systems Lab** - Prof. Hamid Beigy - Fall 2023
- Teaching Assistant - **Artificial Intelligence** - Dr. Mohammad Hossein Rohban - Fall 2023
- Teaching Assistant - **Compiler Design** - Dr. Gholamreza Ghassem-Sani - Spring 2022
- Teaching Assistant - **Artificial Intelligence** - Dr. Gholamreza Ghassem-Sani - Spring 2022
- Teaching Assistant - **Data Structures** - Dr. Masoud Seddighin Fall 2021
- Teaching Assistant - **Advanced Programming in Java** - Dr. MohammadAmin Fazli - Spring 2021

Working Experience

Yektanet **February 2021 - October 2021 & October 2022 - April 2023**
Software Engineer
- As a backend software engineer, I designed and developed an online affiliate marketing platform (*Chavosh*) and product retargeting services using Django, Typescript, Postgresql, and Redis.

Gharar **June 2022 - August 2022**
Software Engineer
- As a full-stack software engineer, I developed a new chat system (backend & frontend) for webinars using Django, React, and Lua, and also reduced live streaming latency by properly using the HLS protocol over Nginx.

Publications

- M.A. Rayej, H. Siar, **M.S. Majidi Yazdi***, A.R. Hamzei*, P. Mohammadian*, M. Izadi, "WIDESim: A toolkit for simulating resource management techniques of Workflows in Distributed Environments with graph topology," *Published in Springer Journal of Grid Computing 22, 63*, August 2024, (* equal contribution), (doi:10.1007/s10723-024-09778-y).

Projects

WIDESim | *Java* | Github **February 2023 - February 2024**

- A simulation environment for concurrent execution of multiple workflows in a distributed computing environment (cloud, fog, edge) written in Java. This project was the practical component of my bachelor's thesis research and the basis for a subsequent paper.

Chavosh | *Python (Django), Postgres, Redis, Kafka, Ansible* | Website Link **February 2021 - October 2021**

- Contributed to the design and development of an online affiliate marketing platform mainly using Django. Additionally, worked with advanced technologies, including Kubernetes, Apache Kafka, Docker, and Redis Cluster, throughout this project. This was my primary project during the first part of my experience at Yektanet.

Secure Messaging Application | *Python* | Github **June 2023 - July 2023**

- Designed and implemented a secure messaging application using Python as part of the Data & Network Security course. To satisfy a wide range of security goals, we used a simplified version of the Double Ratchet algorithm and public-private key encryption, and concepts like hashing and signing. This project is also well-structured regarding software development standards.

System Design Final Project | *Python (Flask), JS, HTML/CSS* | Gitlab **February 2023 - March 2023**

- Designed and implemented an online storage drive, similar to Google Drive, using Flask and Jinja templates, with additional use of JavaScript, HTML, and CSS. This drive supports file sharing, metadata storage, and folder and file management features, among other capabilities. Additionally, implemented a full CI/CD pipeline for the project using GitLab Runner.

UEFI Weather Application | *C, Python (only for weather API)* | Github **September 2023 - January 2024**

- This project is part of the Hardware Lab course, featuring a UEFI application designed to display weather information and forecasts for users. The primary focus lies in the ability to interact with a network interface card (NIC) within the UEFI environment and initiate a simple HTTP request using the tools provided by EDK II, the standard UEFI implementation. This project serves as an excellent learning opportunity for working with the fundamentals of the UEFI environment and stands as a valuable reference for those seeking to utilize network interfaces within this setting.

Tweet Categorization NLP Project | *C++, C* | Github **May 2021 - June 2021**

- Implemented a tweet categorization NLP model in C/C++ efficiently to achieve higher performance and speed, and lesser resource usage. This model categorizes tweets based on their contents.

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

- Implemented a Compiler for CMinus Language, a simplified subset of the C language, using Python and its standard libraries. The compiler consisted of Lexer, Parser, Code Generator, and Semantic Analyzer.

MIPS Simulator | *Verilog, C++* | Github **May 2022 - July 2022**

- Implemented a simplified MIPS processor simulator using Verilog. It supports pipeline and caching.

SnappFood Minus | *Java, Android, SQLite* | Github **March 2022 - August 2022**

- An online food ordering and delivery app on Android.

Online Shop Application | *Java, JavaFX, Hibernate* | Github **March 2020 - August 2020**

- Designed and implemented a simplified online shop as part of the Advanced Programming course using mainly Java and based on MVC architecture.

Socket Chat Application | *C* | Github **Fall 2019**

- Implemented a Server/Client-based chat application in C as my fundamental programming course final project.

Technical Skills

General Programming Languages: **C**, **C++**, **Python**, Java, Bash, JavaScript, C#
Data Science/ML Tools & Libraries: PyTorch, Transformers, VLLM, Matplotlib, Numpy, Pandas
Assembly Programming Languages: x86, MIPS, IBM assembly language
Typesetting Languages: LaTeX, Markdown
Domain Specific Languages: Verilog, UEFI (EDK II C implementation)
System Tools/Technologies: Linux, GDB, Angr, Radare2, Ghidra, iptables, Wireshark
Web Development Tools/Frameworks: Django, React, Postgres, MongoDB, Redis, Docker, Nginx, Apache Kafka
Hardware Development Boards: FPGA, Raspberry Pi
Soft Skills: Teamwork, Problem Solving, Presentation