

# Nafiseh Valizadeh (She/Her)

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## HIGHLIGHTS OF QUALIFICATIONS

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- Second year Master's of Software Engineering student eligible for 4-12 month co-op opportunity.
- Proficient in Python and Bash scripting from diverse projects, including incident management and Kubernetes simulation models. Experienced in PyTest for effective software testing in research and development scenarios.
- Gained expertise in cloud service automation and VPS monitoring, utilizing tools like Ansible, Prometheus, and Grafana.
- Skilled in algorithms and object-oriented design principles, demonstrated by ongoing thesis project and comprehensive course projects
- Developed teamwork and communication skills through collaborative work in various industry and academic settings.

## EDUCATION

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**McMaster University**  
*Master of Applied Science in Software Engineering*

Sep 2022 - Now  
Hamilton, ON, Canada

**Alzahra University**  
*Bachelor of Engineering in Computer Engineering*

Sep. 2017 - April. 2022  
Tehran, Iran

## SKILLS

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**Programming:** Python, C++, C, Java, SQL, MongoDB, Shell Scripting, Django, HTML, CSS

**Operating Systems:** Linux-based systems

**DevOps Tools:** Git, Docker, Kubernetes, Prometheus, Grafana, PyTest, K6

**Languages:** English (TOEFL:107), Persian (Native)

## RESEARCH AND WORK EXPERIENCE

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**Kubernetes Performance Model**  
*Research Assistant*

McMaster University  
Sep. 2022 - Now

Leading the creation of a performance model for Kubernetes, focusing on simulating different applications under various conditions. This model is key to understanding Kubernetes cluster performance, particularly in managing the size and number of nodes and pods. It helps in identifying the most efficient cluster setups. In my role as the lead researcher, I also design frameworks to run and test these simulations using PyTest as a testing framework. PyTest is particularly effective for quickly identifying bugs in components of the model during development, ensuring the model accurately reflects Kubernetes' performance in diverse situations.

**Cloudzy Infrastructure as a Service**  
*DevOps Engineer Intern*

abrNOC Company  
Nov. 2021 - March. 2022

Assisted in the design of a cloud infrastructure platform based on Kuberntes architecture. Involved in maintaining various project components, with key tasks including: Automating virtual machine deployment and cloud services using Ansible. Developing Molecule tests to validate infrastructure as code. Monitored the status of cloud and VPS services using Prometheus and Grafana. Developed Python and Shell scripts to automate the resolution of recurring server resource usage issues. Supported cross-functional teams, such as SEO in data management processes using Pandas and Python scripts.

## MAIN PROJECTS

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### Azure VMs Capacity Planning

Jan 2023. - Oct 2023

Designed a capacity planning tool for suggesting the optimized number and configuration of VMs for a Cubic transportation company. Employed linear optimization. Given the key performance indicators of each VM (throughput and response time) to suggest cost effective set of VMs for each application

### McFood Delivery System

Sep. 2022 - Dec 2022

Developed a microservice web application for food delivery using Spring Boot. The application comprises various services including food-provider, user-management, tracker, billing, and cart-management, all communicating through REST API and RabbitMQ. Initially designed based on Hexagonal Architecture principles, these components were effectively transformed into individual microservices.

### API Management System

Jan. 2022 - April 2022

Designed an API management system to centralize the APIs of various companies, enhancing merchant accessibility to these services. The system's architecture includes a Gateway for handling incoming requests, a developer portal for buyer access to purchased APIs, a repository for API records, and a monitoring component for continuous health checks through load testing. Implemented continuous performance tests using K6, an open-source testing tool, and monitored real-time data using Prometheus.

### Book Management

May. 2021 - June 2021

Developed a Spring Boot web application for a bookshop, facilitating book access management for users and enabling authors to publish their works. The project is structured on MVC architecture, with components (Book, Authentication, Search) communicating via REST API. Data storage is efficiently handled using a PostgreSQL database.

### Question and Answer Forum

Sep. 2020 - Dec 2020

Developed a question-and-answer web application, akin to Stack Overflow, enabling users to post questions and provide answers. The project was architecturally designed using the MVT (Model-View-Template) framework in Django. Database models were meticulously crafted in conjunction with UML diagrams to ensure a robust and efficient structure.

## TEACHING – TEACHING ASSISTING

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### Performance Analysis of Computer Systems

Winter 2024

- Teach mathematical modeling and simulation for system behavior analysis.
- Guide hardware and software decisions based on modeling results

### Binding Theory to Practice

Fall 2023

- Assisted coding lab sessions for over 150 students
- Aided in implementing time efficient Algorithms

### Software Testing

Winter 2023

- Assisted tutorial classes for over 250 students
- Helped students in understanding various functional and non-functional testing methodologies
- Helped in using JUnit as a testing framework.

### Computer Architecture

Winter 2022

- Assisted students in grasping the concepts of CPU instructions and pipeline processing

### Operating Systems Lab

Fall 2021

- Conducted tutorial sessions to educate students about the basics of Linux kernel and Unix operating systems
- Guided them in utilizing Linux commands effectively. Instructed them on script writing within the Linux environment

### Linux LPIC1 Workshop

June 2021

- Held a workshop for teaching the LPIC1 concepts to students from different universities

## RELATED COURSES

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### Formal Courses:

- Cybersecurity Fundamentals
- Software Testing
- Internet Engineering
- Micro-service Oriented Architecture
- Analysis of Stochastic Networks
- Deep Learning