

# Amirhossein Najafizadeh — Cloud Engineer (DevOps / SRE)

East Setauket, NY

+1 (123) 456-7890 • ✉ Amirhossein.Najafizadeh  
in linkedin.com/in/amirhnajafiz21 • 🌐 github.com/amirhnajafiz

## Education

### Stony Brook University

Ph.D. in Computer Science, GPA: 3.92

Stony Brook, New York

Aug 2024 – Aug 2029

**Relevant Coursework:** System Security, Distributed Systems, Computer Networks, Visualization

**Scholarships:** Awarded a one-year full scholarship for being among the top applicants

### Amirkabir University (Tehran Polytechnic)

Bachelor of Engineering in Computer Engineering, GPA: 3.63

Tehran, Iran

Aug 2018 – Dec 2023

**Relevant Coursework:** Cloud Computing, Data Security, Database Design, Web Engineering

**Honors:** Graduated among top 10% of class 2024

## Technical Skills

**Programming Languages:** Go, Python, ShellScript (5 years), C, JavaScript (4 years), C++, Java (2 years)

**Operating Systems:** Linux, Ubuntu, Debian, MacOS, Windows (5 years)

**Cloud Systems:** Kubernetes, OpenShift (3 years), OpenStack, VMware vSphere (1 year)

**Storage Systems:** SQL/MySQL, PostgreSQL, MongoDB, Redis (4 years), Prometheus (2 years)

## Professional Experience

### File systems and Storage Lab (FSL)

Research Assistant

CS Department, Stony Brook University, New York

Jan 2025 – Present

- Leading a team of five in the SUNY/IBM collaborative project under supervision of Prof. Erez Zadok.
- Responsible for task management, report writing, setting project objectives, designing cloud solutions, system administration, and managing cloud operations.

### Snapp Cloud!

Cloud Engineer

Tehran, Iran

Nov 2023 – Aug 2024

- Maintained and deployed Operators on Kubernetes and OpenShift platforms, utilizing tools such as OLM and Helm Charts for applications including StreamZ, RedisCluster, and PostgreSQL.
- Developed Kubernetes Operators, including the Ceph-S3 Operator and Quota Operator.
- Managed centralized monitoring tools such as Prometheus, Grafana, Loki, and Thanos.
- Facilitated application delivery using ArgoCD for both public and private applications.
- Managed over 1,000 VMs, 200 bare-metal servers, and 5 clusters using OpenShift and OpenStack.

### Snapp

Software Engineer

Tehran, Iran

Nov 2021 – Oct 2023

- Manage central message queues and real-time services, utilizing technologies such as NATS, EMQX, and Kafka.
- Administer the shared cabs' panel and reporting services using Go, Redis, and MySQL.
- Implement user authentication for EMQX clusters using Go.
- Develop and support in-app communication tools, including call and chat functionalities using Go and WebRTC.

## Academic Research & Projects

### SUNY / IBM

Multi-cloud Hybrid GPU Clusters for AI Workloads

Stony Brook, New York

Jan 2025 – Present

- Deployed a 3-node Kubernetes cluster using Ansible and Terraform with NVIDIA GPU support.
- Installed monitoring tools, app delivery plugins, and essential operators for AI/ML workload orchestration.
- Migrated cluster storage from local volumes to NFS as a staging layer for high-speed GPFS integration.
- Investigated GPU failures during AI/ML execution.
- Designed a reinforcement learning-based model to predict failures and detect infrastructure issues in cloud-native environments.
- Contributed to **Autopilot**, an IBM Research open-source Kubernetes-native daemon that continuously monitors GPU, network, and storage health to identify infrastructure-level issues in real time during AI workload execution.

## Amirkabir University

*PTaaS (Penetration Testing as a Service)*

Tehran, Iran

May 2022 – Dec 2023

- Developed a full-stack service using Golang, Vue.js, and PostgreSQL to perform automated penetration testing.
- Used Nmap to detect system vulnerabilities.
- Wrote simple Go scripts to perform various tests.
- Developed an orchestration system to run tests in parallel within isolated environments.

## Independent Projects

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**NFS Metrics Exporter:** Go, Prometheus, NFS

- Developed a cloud native Prometheus exporter for exporting NFS computation metrics from client side.

**Amazon E2E Practice:** Go, PostgreSQL, Docker, NginX, Terraform

- Developed a full-stack application, containerized it using Docker, and deployed it with Nginx on a virtual machine set up using Terraform.

**Radosh:** C++, Librados, Ceph, RadosGW

- Developed a C++ CLI tool (RADOS Shell) for direct interaction with Ceph object storage.

**Kubernetes Local Storage Metrics Exporter:** Go, Prometheus, Kubelet

- Built a Prometheus exporter to collect and expose local storage usage metrics for Kubernetes pods.

**MQTT Blackbox Exporter:** Go, Prometheus, Jaeger, EMQX, Helm Charts

- Developed a system to connect, subscribe and publish over MQTT broker to check its status.

**Apaxos:** Go, MongoDB, gRPC

- Developed a distributed transaction management service designed to replicate transactions across multiple nodes, ensure data consistency, and tolerate node failures using PAXOS.

**PBFT:** Go, MongoDB, TLS/SSL, Threshold Signature

- Developed a transaction management system that operates in an insecure environment using the Linear-PBFT consensus protocol.

**System-call Blocker:** C, eBPF, BCC, LSM

- Used eBPF and LSM probes to block file creation, command execution, and network connections for subjects.

**Stallion:** Go, Docker

- A fast message broker implemented with Golang programming language.

**ELK Operator:** Go, Operator-SDK, Kubernetes

- An operator for setting up Elasticsearch, Logstash, and Kibana instances on Kubernetes clusters.

**SafeX:** C, Ptrace, Function-hooking

- Built a sandbox that redirects file writes to /tmp and blocks access to paths listed in ~/.safenoread.

## Leadership Experience

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### Stony Brook University

*Operating Systems Teaching Assistant*

Stony Brook, New York

Aug 2024 – Dec 2024

- Led lab and recitation sessions for 40 students, focusing on operating systems, Linux, and XV6.
- Collaborated with faculty and fellow TAs to design and evaluate assignments, provide one-on-one student support, and enhance course materials.

### Amirkabir University

*Cloud Computing Teaching Assistant*

Tehran, Iran

Jan 2023 – May 2023

- Led lab sessions for 70 students, teaching virtualization, QEMU, Docker, and Kubernetes.
- Delivered live sessions on practical Docker and Kubernetes usage for developers.

### Amirkabir University

*Secretary and organizer of the 13th Linux Festival*

Tehran, Iran

Apr 2022 – May 2022

- Organized a weekly festival focused on Linux and open-source projects.
- Hosted over 14 technical talks and workshops for more than 120 participants.

## Publications & Recognitions

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**Publication:** Amir Zadeh. *Having Your Kubernetes Over NFS*. Published on the ITNEXT platform on Medium. Visit at <https://itnext.io/having-your-kubernetes-over-nfs-0510d5ed9b0b>