

# Maziyar Nazari

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## EDUCATION

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August 2018 -- Present

### Ph.D. degree in Computer Science

Department of Computer Science, University of Colorado Boulder

- Related Courses: DevOps in the Cloud, Machine Learning, Advanced Operating System, IP Routing, SDN
- GPA: 4/4
- Adviser: Prof. Eric Keller

2013 -- 2018

### Bachelor's degree in Information Technology

Department of Electrical and Computer Engineering, University of Tehran

## RESEARCH INTERESTS

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- Cloud Computing, Applied Machine Learning, Operating Systems, Virtualization, Orchestration, SDN
- Aiming to design and build networked systems/infrastructure or change the existing infrastructure to be more reliable, efficient, scalable, flexible and easy-to-monitor

## PROFESSIONAL EXPERIENCE

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May 2021 -- August 2021

### CoreOS Software Engineering Intern

Apple, Cupertino, CA, US

- Software Engineering Intern at App Installation team
- Performance analysis and improvement of Sysdiagnose by up to 40%

May 2020 -- August 2020

### Software Engineer Intern

Salesforce, Louisville, CO, US

- Implementing a proxy server for both REST and gRPC calls, intercepting REST and gRPC request/responses to generate stubs for Mocking purpose
- Software Engineer Intern at Data Manager Setup team, C360 product

August 2018 -- Present

### Graduate Research Assistant

Network and Security Group, University of Colorado Boulder, Boulder, CO, US

- S2OS: Multi-institute project funded by NSF and VMWare
- Current Project: Distributed Containers, A global resource management system integrated with Kubernetes that does the memory/CPU distribution among microservices of an application and improves resource utilization, efficiency and the application end-to-end performance.

2016 -- 2018

### Teaching Assistant

University of Tehran, Tehran, Iran

- Introduction to Computing systems and Programming (Skills needed: C Programming, Assembly)
- Operating Systems and Operating Systems Lab (Skills needed: C Programming, Kernel Programming)
- Computer Networks (Skills needed: SDN, Floodlight, Mininet)
- Computer Architecture (Skills needed: Verilog HDL, Mealy & Moore state Machines, Design Datapath & Controllers)
- Artificial Intelligence (Skills needed: Python, Algorithms like uninformed search, heuristics, FOL, Graph, CSP, etc)

Summer 2016

### Software Developer Intern

Social Network Lab, University of Tehran, Tehran, Iran

- Implementing a text mining program to extract time from news' text and create a news timeline

## PUBLICATION

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### Optimizing and Extending Serverless Platforms: A Survey

In submission, 2021

- Maziyar Nazari, Sepideh Goodarzy, Eric Keller, Shivakant Mishra
- University of Colorado Boulder

## SmartOS: Towards Automated Learning and User-Adaptive Resource Allocation in Operating Systems

12<sup>th</sup> ACM Asia-Pacific Workshop on Systems (APSys), 2021

- Sepideh Goodarzy, Mazyar Nazari, Richard Han, Eric Keller, Eric Rozner
- University of Colorado Boulder, Macquarie University

## Resource Management in Cloud Computing Using Machine Learning: A Survey

19<sup>th</sup> IEEE International Conference on Machine Learning and Applications, 2020

- Sepideh Goodarzy, Mazyar Nazari, Richard Han, Eric Keller, Eric Rozner
- University of Colorado Boulder

## Shimmy: Shared Memory Channels for High Performance Inter-Container Communication

USENIX Workshop on Hot Topics in Edge Computing (HotEdge 19), USENIX Association, 2019.

- Marcelo Abranches\*, Sepideh Goodarzy\*, Mazyar Nazari\*, Shivkant Mishra, and Eric Keller.
- University of Colorado Boulder
- \* Contributed equally to the project

## (Poster) Efficient Microservices with Elastic Containers

Proceedings of the 15<sup>th</sup> International Conference on emerging Networking EXperiments and Technologies (CoNEXT), 2019

- Greg Cusack\*, Mazyar Nazari\*, Sepideh Goodarzy, Prerit Oberai, Eric Rozner, Eric Keller, Richard Han
- University of Colorado Boulder
- \* Project Co-lead

### SELECTED PROJECT

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*Systems & Networking*

#### Mini Internet

IP routing course project, Department of Computer Science, University of Colorado Boulder

- Design and configure a small scale backbone network running OSPF as IGP and BGP. Tools & Concepts: GNS3, Cisco Router, route reflection, redistribution, BGP attributes manipulation

#### Rootkit Module in Linux

Advanced Operating Systems course project, Department of Computer Science, University of Colorado Boulder

- LKM to intercept Linux kernel predefined syscall and change "ls" command functionality (Kernel version: 4.x)

#### Microservice Version Updating

DevOps in the Cloud course project, Department of Computer Science, University of Colorado Boulder

- Automated the microservice version updating process, Tools & Techs: Vagrant, Docker, Ansible, Etcd, Registrator, Confd, Nginx, Bash script

#### Virtual Machine Live Migration

B.Sc. final project, Department of Electrical & Computer Engineering, University of Tehran

- Virtual machine live migration using OpenStack, NFS and Vsphere.

#### Synchronization

Operating Systems course project, Department of Electrical & Computer Engineering, University of Tehran

- Validate and update bank transaction files using shared memory, and mutex lock

#### Kernel Programming (Kernel version 2.6.x)

Operating Systems Lab course projects, Department of Electrical & Computer Engineering, University of Tehran

- 3 new system calls to sort and analyze running processes, using kernel linked list
- Added new semaphore to the kernel, having Priority Inheritance Protocol to avoid Priority Inversion

*Applications, Software  
Engineering, Internet  
Engineering*

#### Library System

Object Oriented Analysis and Design course project, Department of Computer Science, University of Colorado Boulder

- Library workflow automation, single-Page web application implemented in Java, using HTML, CSS, Bootstrap, AngularJS, JavaEE, Maven, Git, Tomcat server  
<https://github.com/Mazyar-Na/OOAD-2019/tree/master/Final%20Version/Library>

#### Airplane Reservation Web App

Internet Engineering course project, Department of Electrical & Computer Engineering, University of Tehran

- An airplane reservation web app, using MVC, Object Oriented Patterns, HTML, CSS, JS, Bootstrap, AngularJS, JSP, JavaEE, Socket Programming in Java, Tomcat, Log4J, JUnit, Git, Maven, Docker, Kubernetes, Minikube, HSQL DB, Session State, and handling SQL Injection, CSRF issues, and Access Control
- <https://gitlab.com/maziar/UT.IE96>

## Customs House Software

System Analysis & Design course project, Department of Electrical & Computer Engineering, University of Tehran

- An application to automate a Customs house workflow, Design (prototype, Domain Modeling, System Sequence Diagram, Class Diagram), implementation(C#, SQL Server database), Test(Unit Test, Integration Test)

Algorithm & AI & Machine  
Learning

## Prediction and characterization of application power use in a high-performance computing environment

Machine Learning course project, Department of Computer Science, University of Colorado Boulder

- Re-implementing the paper (with the same title) and improving the results by using feature engineering techniques and using LSTM

## Genetic Algorithm

Artificial Intelligence course project, Department of Electrical & Computer Engineering, University of Tehran

- An algorithm using Genetic approach to solve a minimization problem

## Dots & Boxes

Artificial Intelligence course project, Department of Electrical & Computer Engineering, University of Tehran

- An agent playing Dots & Boxes game using alpha beta pruning algorithm written in Python.

## Map

Data Structure course project, Department of Electrical & Computer Engineering, University of Tehran

- Map of Tehran, having zoom function and find shortest path, written in Python

## AWARDS & HONORS

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July 2019 **USENIX ATC 2019 Grant Sponsored by NSF and VMWare**

2019 USENIX Annual Technical Conference, Renton, WA, USA

Feb 2019 **Best Prize in Entrepreneurship Track**

T9Hacks Hackathon, University of Colorado Boulder

August 2018 **Early Career Professional Development Fellowship**

Department of Computer Science, University of Colorado Boulder

Feb. 2018 **Best Undergraduate Project Award**

Department of Electrical and Computer Engineering, University of Tehran

- Build and deploy live migration in cloud environment, using OpenStack

2015 – 2016 **Ranked 4th among All Information Technology Students**

Department of Electrical and Computer Engineering, University of Tehran

Summer 2013 **Ranked 790th in Nationwide University Entrance Exam for B.Sc. Program**

Among More than 350,000 Participants i.e. in Top 0.2%

## SKILLS

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### Programming Skills

Languages

- C++ – Guru
- C, Java, Python, Objective C, Bash Scripting, C#, SQL, MATLAB, JS, Verilog, VHDL

Web Programming & Databases

- HTML, CSS, JS, Angular, Bootstrap, JQuery, MySql, MSSQL, Java EE, Tomcat, JSP, Hibernate, JUnit, Log4J

DevOps

- Vagrant, Docker, Kubernetes, Docker Compose, ETCD, Registrator, CONFD, Ansible, Nginx, Prometheus, OpenStack, Kolla Project

Software Defined Network

- Mininet, Floodlight, RYU, ODL, GNS3

Project Management/Version Control

- Maven, Git

### Operating Systems, Tools, IDEs

Operating Systems:

- Linux, Windows, MacOS

Tools & IDEs:

- Visual Studio, Intelij IDEA, XCode, SQL Server, SQL Server Management Studio, Wireshark, OpenSSL, MATLAB, Modelsim, Quartus