Maziyar Nazari

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EDUCATION

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

- Cloud Computing, Serverless, Virtualization, ML for Systems, Systems for ML, Operating Systems
- 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

May 2021 -- August 2021 **CoreOS Software Engineering Intern**

Apple, Cupertino, CA, US

- Performance analysis and improvement of Sysdiagnose by up to 40% , System Services & Daemons team

May 2020 -- August 2020 **Software Engineer Intern**

Salesforce, Louisville, CO, US

- Implementing a proxy service for both REST and gRPC calls, intercepting REST and gRPC request/responses to generate stubs for Mocking purpose, Data Manager Setup team

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: Optimized Serverless infrastructure for data-intensive applications

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

Escra: Event-driven, Sub-second Container Resource Allocation

42^{nd} IEEE International Conference on Distributed Computing Systems (ICDCS), 2022

- Greg Cusack, Maziyar Nazari, Sepideh Goodarzy, Erika Hunhoff, Prerit Oberai, Eric Keller, Eric Rozner and Richard Han
- University of Colorado Boulder

Optimizing and Extending Serverless Platforms: A Survey

Eighth International Conference on Software Defined Systems (SDS), 2021

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

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

12^{th} ACM Asia-Pacific Workshop on Systems (APSys), 2021

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

Resource Management in Cloud Computing Using Machine Learning: A Survey

19^{th} IEEE International Conference on Machine Learning and Applications, 2020

- Sepideh Goodarzy, Maziyar 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*, Maziyar 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^{th} International Conference on emerging Networking EXperiments and Technologies (CoNEXT), 2019

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

SELECTED PROJECT

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, Boorstrap, AngularJS, JavaEE, Maven, Git, Tomcat server
  https://github.com/Maziyar-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

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

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 & SDN

- Vagrant, Docker, Kubernetes, Docker Compose, ETCD, Registrator, CONFD, Ansible, Nginx, Prometheus, OpenStack, Kolla Project, Mininet, Floodlight, RYU, ODL, GNS3

Machine Learning

- Numpy, Scikit-learn, TensorFlow, Keras

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