# Ghazal Sadeghian

*Department of Electrical and Computer Engineering, University of British Columbia, Vancouver, Canada*

✉ sadeghian.ghazal77@gmail.com  |  ⬡ sadeghian.ghazal77  |  **in** ghazal-sadeghian-4067341b4

## Education

**Master of Applied Science in Electrical and Computer Engineering**

UNIVERSITY OF BRITISH COLUMBIA, VANCOUVER, CANADA *Sept 2021 - Present*

- Under Supervision of Prof. Mohammad Shahrad
- **Related Courses:** Trade-offs in Designing Computer Systems(90/100), Distributed Systems Abstractions(89/100), Architecture for Learning Systems(95/100), Machine Learning and Data Mining(89/100)

**Bachelor of Computer Engineering** *GPA: 18.65/20 (3.87/4)*

AMIRKABIR UNIVERSITY OF TECHNOLOGY, TEHRAN, IRAN *Sept 2016 - June 2021*

- **Related Courses:** Cloud Computing(20/20), Computer Networks(19.4/20), Information Security(19.1/20), Operating Systems(19.9/20), Engineering Statistics(20/20), Linear Algebra(20/20), Multimedia Systems(19/20), IoT(PASS-Due to COVID19), AI(PASS-Due to COVID19), DB Design(PASS-Due to COVID19)

**Diploma of Math and Physics** *GPA: 19.93/20 (4/4)*

SALAM HIGH SCHOOL, TEHRAN, IRAN *Sept 2012 - July 2016*

## Research Interests

| Serverless Computing | Cloud Computing | Applied Machine Learning (ML4SYS) |
| --- | --- | --- |

## Honors and Awards

**Awarded as University's Exceptionally Talented Student**

AS A RESULT OF OBTAINING A TOTAL GPA OF OVER 17/20 *2017, 2018, 2019, 2020*

**Ranked 6th among 130 Computer Engineering students**

**Ranked in the Top 0.47% (99.53 percentile)**

AMONG MORE THAN 168,000 PARTICIPANTS IN IRANIAN NATIONWIDE UNIVERSITY ENTRANCE EXAM *2016*

**Iranian Mathematical Olympiad**

ACCEPTED IN FIRST ROUND AS TOP 25 PERCENT OF TALENTED IRANIAN STUDENTS *2012, 2014*

**RoboCup Iran Open**

NINTH PLACE AMONG MORE THAN 100 TEAMS IN JUNIOR RESCUE LEAGUE - AWARDED AS THE SUPER TEAM OF RESCUE ROBOTS AMONG MORE THAN 30 TEAMS *2015*

## Research Experiences

**Graduate Research Assistant** *University of British Columbia*

CIRRUS LAB (UNDER SUPERVISION OF PROF. MOHAMMAD SHAHRAD) *2021-Present*

- Seamless Integration of Serverless and VM-based Cloud Applications for Increased Cost Efficiency

**Undergraduate Research Assistant** *Amirkabir University*

PROF. MARYAM AMIRMAZLAGHANI'S LAB *2020-2021*

- Prediction of Individuals' Health Insurance Cost using Multivariable Regression

**Research Intern in Institute for Research in Fundamental Sciences (IPM)** *IPM*

PROF. AHMAD KHONSARI'S LAB *2020*

- IoT traffic analysis, and applying LSTM approach for detecting malicious packets

## Teaching Experiences

**"Linear Algebra and its Applications" Teaching Assistant** *Amirkabir University*

PROFESSOR MARYAM AMIRMAZLAGHANI *2019*

**"Operating System" Teaching Assistant** *Amirkabir University*

PROFESSOR NASTOOH TAHERI JAVAN *2020*

**"Algorithm Design" Teaching Assistant** *Amirkabir University*

PROFESSOR ALIREZA BAGHERI *2020*

## Workshops

**Matlab Workshop** *Amirkabir University*

TOOLS FOR SOUND PROCESSING AND IMAGE PROCESSING *2016,2017*

**IEEE Data Science Winter School**                                    *University of Tehran*

ADVANCED TOPICS IN MACHINE LEARNING, DEEP LEARNING, AND STATISTICAL INFERENCE                *2019*

**Amirkabir Artificial Intelligence Summer Summit**                    *Amirkabir University*

ADVANCED TOPICS IN MACHINE LEARNING, DEEP LEARNING, AND NEUROSCIENCE                *2019*

# Projects

**Improving Serverless Load Balancer Performance with Reinforcement Learning**

DISTRIBUTED SYSTEMS PROJECT

- Evaluation of an RL approach to the load balancer in OpenWhisk by using the explore-resource tradeoff, in which a request is duplicated with some probability. We tried to find better decisions while still taking the best decision we know thus far at the cost of double the amount of resources.

**Secure TCP Tunnel Between Client and Server**

INFORMATION SECURITY PROJECT

- Implementation of a tunnel for having secure connection between client and server in two phases: 1) using symmetric encryption and physical key 2)using asymmetric encryption, and Diffie-Hellman algorithm for exchanging keys (Implemented in java)

**Elastic Load Balancing via Haproxy**

CLOUD COMPUTING PROJECT

- Implementing an auto scaling load balancer for balancing the load between three VMS.

**Implementation of a Dashboard for Remote Management of VMs**

CLOUD COMPUTING PROJECT

- Implementing a dashboard for remote management of virtual machines in VirtualBox with many abilities such as starting and stopping a VM, cloning a new VM, and executing commands on a remote VM

**Implementation of MapReduce Programs**

CLOUD COMPUTING PROJECT

- Setting Up a multi node Hadoop cluster on virtual machines and implementation of two MapReduce programs: 1)Word Count, 2)Matrix Multiplication

**Chatroom (Socket Programming)**

COMPUTER NETWORKS PROJECT

- The server broadcasts a UDP message for selecting the client, and then they will start to chat, using TCP socket programming (Implemented in Python)

**Communication between Nodes by Using MQTT and CoAP Protocols**

INTERNET OF THINGS PROJECT

- Exchanging data between two nodes and a server with MQTT and CoAP protocols. Implemented by using coapthon library for CoAP, and paho.mqtt for MQTT. Also, Mosquitto broker is used as MQTT server

**LoRaWan Network Simulation**

INTERNET OF THINGS PROJECT

- Analyzing effects of multiple parameters on loRaWan network by using floRa and Inet framework

**Building a NodeMCU ESP8266 Webserver and Controlling an LED from a Webpage**

INTERNET OF THINGS PROJECT

- Controlling the on board LED of a NodeMCU module from a webpage

**Foofle: an Email Management Application**

DATABASE DESIGN PROJECT

- The database of an email management system which is implemented by several triggers, functions, views and indexes (Implemented in MySQL)
- A graphical user interface (Implemented in python)

**Implementation of Multiple Search Algorithms for Sliding N-Puzzle Problem**

ARTIFICIAL INTELLIGENCE PROJECT

- Implementation of BFS, bidirectional BFS, IDS and A* algorithms for sliding n-puzzle problem (Implemented in python)

**Filling Missing Words by Using N-grams (NLP)**

ARTIFICIAL INTELLIGENCE PROJECT

- Implementation of a Text Filler by using N-grams for "Billion Word Imputation" dataset. Backoff model used for the trigram model (Implemented in python)

**Development of an Online Realtor Website Named "Kilid"**

INTERNET ENGINEERING PROJECT

- Implementation of its front-end with HTML and CSS, and adding dynamic features by using Javascript, and implementation of its back-end by using Django framework

**Facial Recognition with SVD**

LINEAR ALGEBRA PROJECT

- Three phases : 1) detection using eigenfaces, 2) image compression with SVD and DCT, 3) face recognition by SVD (Implemented in Matlab)

**Modification in XV6 OS**

OPERATING SYSTEM PROJECT

- Implementation of several scheduling policies and ticket lock for xv6 operating system, and adding new system calls to xv6 (Implemented in C)

## Skills

| | |
|---:|---|
| **Programming Languages** | Python, Java, C, SQL, Assembly, Matlab, Bash Scripting (Sorted By Proficiency) |
| **Web Development** | HTML, CSS, Javascript, PHP, Django |
| **Hardware Design Languages** | Arduino, Verilog, VHDL |
| **Simulation** | Atmel studio, Proteus, OMNet++, ModelSim, AVR studio |
| **Tools** | Git, Wireshark, LaTeX |
| **Operating Systems** | MacOS, Linux(Ubuntu), Windows |

## Languages

**English(Fluent)** TOEFL iBT Score: 107 [Reading: 30, Listening: 27, Speaking: 23, Writing: 27]

**Persian(Native),**        **German(Beginner),**        **Arabic(Familiar)**

## Personal Interests

**Travelling, Painting, Swimming, Playing the Violin**