MOHAMMAD REZA NAJAFI

gwangju, South korea,+8210-6465-0027, website | mohamadrezanj76@gmail.com | chosun university, gwangju, south korea

SUMMARY

- Computer engineering master student at **Chosun University**, South Korea (my master thesis is in the field of computer vision , I will graduate December,2023)
- my bachelor degree is Aerospace engineering at **Sharif University of Technology**, Iran (my bachelor project is in the field of computer vision and robotics)
- **TOEFL-IBT score:108**
- Educated and experienced in Machine Learning , Deep Learning ,Computer Vision ,AI Accelerators, , linux OS , Time Series Prediction and spiking neural networks
- Research assistant in Computer system Lab in computer engineering department at Chosun University

EDUCATION

- **Master , Computer Engineering , Chosun University**   **GPA:4.1 out of 4.5** (2 semesters).
- **BSC , Aerospace Engineering , Sharif University of Technology**   **GPA:3.01 out of 4** (2016 to 2021).
- **Diploma** ,Mathematics Physics, National Organization for the Development of Talents(**NODTE**)   **GPA:3.95 out of 4**(2014 to 2016).

AWARDS AND HONORS

- 1st **Place in American Institute of Aeronautics and Astronautics(AIAA) Graduate Aircraft Design Competition "2018-2019"**
    - With the RFP of designing an E-VTOL air taxi
    - Designed "autonomy system" and "aircraft control and stability system" for this competition
- **Among Top 5 Student in Computer Engineering Department , Chosun University**
- **A patent** in the field of low-power image processing for the detection of Iced surfaces which can run on surveillance cameras (CCTVs) in Korea
- **Among Top 10 Student in Aerospace Engineering Department, Sharif University of Technology**
- **Ranked 40th in entrance exam for computer engineering master's degree in Iran**
- **Ranked 374th in entrance exam for bachelor's degree in mathematics in Iran**

RESEARCH EXPERIENCE

DHAutoware Company

Jun 2023 to now

- Research on optimizing machine learning algorithm for designing Intelligence Surround View System for Vehicle for Embedded Devices.

Chosun university and NH company(LINC project)

August 2022 to January 2023

- Research on low power crowd detection algorithm for designing crowd alert system on CCTVs(edge devices)

Chosun university

March 2022 until now

- Research on optimizing machine learning algorithms for edge devices.
- Research on low-power computer vision algorithms and deploy AI Accelerators for SVM and CNN in the field of object detection and classification
- Research on using Adaptive Neuro-Fuzzy Inference System in computer vision application

American Institute of Aeronautics and Astronautics(AIAA)

September 2018 to May 2019

- In the **AIAA** Aircraft Design Competition as the design of vertical electric aircraft with the ability to fly within the city, I was the designer of a **Autonomy system** and aircraft control system.
  The proposal of our team won the first place in this competition

Sharif University of Technology

August 2019 to 2022

- Research on using ANN as a tool for solving Financial Dynamic Systems PDEs
- Bachelor Thesis
  Using Deep reinforcement learning to grab an object in 3D from one point to another point.Practical implementation of this network on the robotic arm in the control laboratory.
- Design an automated lifeguard quad-copter that can detect drowning by its embedded camera.

Institute For Research In Fundamental Sciences (IPM)

May 2019 to 2022

- **Using a deep neural network and image processing to remove HTC Vive controller**
  - Research on deploying a deep neural network that could recognize the texture of the hand in the input image ,then connected the HTC Vive headset camera to this network. This allowed me to remove the controllers and execute all the controller commands without using the controller.

PUBLICATION

- **A Deep Learning Approach for Simulating Financial Dynamic Systems**
  Iranian National Informatics Conference.
- **ADFA: <u>A</u>bstraction and <u>D</u>ecision <u>F</u>usion <u>A</u>rchitecture for Resource-Aware Intelligent Computing**
  Under review at Neural computing journal
- **Ice Detection on Edge Device Based on Most Significant Digit First SVM**
  The 6th International Conference on Video and Image Processing
- **MSDF-SVM: Advantage of Most Significant Digit First Arithmetic for SVM Realization**
  Accepted at Asilomar Conference on Signals, Systems, and Computers 2023
- **Mapping post-earthquake landslide susceptibility using U-net, VGG-16, VGG-19, and metaheuristic algorithms**
  Under review at Natural Hazards journal

RESEARCH INTERESTS

- **Computer Vision**
- **Embedded Device Programming**
- **Machine Learning Algorithms Optimization**
- **Edge Computing**
- **AI Accelerate for Image processing on the edge device**
- **Deep Reinforcement learning**
- **Neuro-Fuzzy System**

INDUSTRY WORK EXPERIENCE

Institute For Research In Fundamental Sciences (IPM)

May 2019 to 2022

- **HPC-Admin**
  - Admin and Developer of HPC portal.
  - Admin of HPC server room.

AVAKATAN company

September 2020 to March 2021

- Developer of **face recognition and object detector** platform for **avakatan company**.

DigikalaNext

September 2019 to March 2020

- Developer of **NLP** application for analyzing Persian text data in comments and tweets of **DigiKala company**.
- Data Scientist

Industrial Training(intern)

summer 2019

- **Forex market forecast by LSTM neural networks**
- In this forecast, in addition to using the 5 main parameters in Forex, social network analysis is also used.

ParvazAfraz company

summer 2019

- **System administrator and IOT man at ParvazAfraz company**

sharif University of Technology

2016-2017

- **Executive staff of Sharif University Entrepreneurship Center**
- **Executive staff of Center of excellence in Aerospace Systems of Sharif University**

COMPUTER SKILLS

- **Linux:** Full familiarity with Linux operating system and server monitoring (LPIC 1 AND LPIC 2) ,
- **C** and **C** $\sharp$ **:** Full knowledge of C programming language,
- **OpenGL Yocto**
- **Python:** Complete mastery of Python programming language and its applications in data science and artificial intelligence,
- **Flask and Jango framework**
- **Java:**web application
- **MatLab:** Familiarity with MATLAB software and how to program in it
- **Simulink**

- **HTML and CSS:** Familiarity with HTML and CSS,
- **Yocto**
- **Tensorflow , keras , pytorch** Complete mastery of the Tensorflow framework and how to create various neural network structures with it,
- **Unity:** Using Unity software in the production of virtual reality games, Familiarity with Java Script,

OTHER SKILLS

- **Latex:** Familiarity with Latex
- **SolidWorks:** Familiarity with SolidWorks software and how to model in it
- **Microsoft Office and VBA Coding**
- **AAA** (aircraft design software)
- **Ansys**
- **Azure Functions**
- **AWS Lambda**
- **Fluent**
- **Has the spirit of group leadership and teamwork**

CERTIFICATIONS

- **LPIC 1 , LPIC 2 WORKSHOP** (Linux Hous of IRAN 2018)
- **Deep learning with Tensorflow** (sharif univesity 2018)
  Participate in a deep learning workshop with tensorflow at Sharif University and get a certificate of completion from Dr. Matin Hashemi (Faculty of Electrical Engineering).
- **Deep learning Summer school** (ACM-tehran university 2018)
  Participate in the Deep Learning Summer School at the University of Tehran and receive a certificate of completion from Dr. Amin Sadeghi(Faculty of Computer Engineering).
- **Advance workshop in data science** (IPM 2018) Has a certificate of advanced data science workshop from Institute For Research In Fundamental Sciences

ACADEMIC EXPERIENCE

- **Research Assistant in computer system Lab in computer engineering department at chosun university.**(2022 until now)
- **Undergraduate Research Assistant at the Institute for Research in Fundamental Sciences (IPM), School of Computer Science.**(2020-2022)
- **Member of the executive staff of the Fluid-structure Interaction workshop (FSI)**.(2017)
  École polytechnique Université Paris-Saclay and sharif university of technology(With certificate from Center of excellence in Aerospace Systems of Sharif University)
- **Teacher**
  Teaching recurrent neural networks and NLP at Loop Academy. (2020)
- **Teacher**
  Teaching the basic concepts of artificial intelligence in the Scientific Association of the Faculty of Aerospace Engineering at Sharif University. (2020)
- **Teaching assistant**
  Teaching assistant of Arduino laboratory.(2018)

ACADEMIC PROJECTS

- **Deploy low power crowd detection and crowd alert system on CCTVs(edge device)**, NH company and university LINC project.
- **Deploy low power iced road surface recognition on CCTVs(edge device)**, NH company and university LINC project.
- **Block point detection in which deploy on the CCTV embedded board** ,university LINC project.
- **Programming a Maze Game with C**, final project of programming course.
- **Construction of steam engine in small dimensions**, final project of thermodynamics course.
- **Scheduling a rescue quad-copter With Arduino processor** , final project of Control automatic course.
- **Design and manufacture of vibrating stand test** ,final project of Vibration course.

LANGUAGE CAPABILITIES

- **Persian (Farsi):** Native
- **English:** TOEFL-IBT score:108
- **Arabic:** Basic
- **Azeri Turkish:**Basic

HOBBIES

- **Playing Volleybal ,Playing basketball , Swimming**
- **Reading magazine ,Watching movies**

REFERENCES

- Jeong-A Lee (Professor from Department of Computer Engineering, Chosun University,South Korea)[jalee@chosun.ac.kr],
- Saeid Gorgin (from IPM, HPC center and Iranian Research Organization for Science and Technology (IROST),Iran) [gorgin@chosun.ac.kr],

- Mohammad K Fallah (Postdoctoral ResearcherPostdoctoral Researcher,Chosun University)[mkf1980@gmail.com],
- Mohamad-Bagher Malaek (Professor at the Aerospace engineering department of Sharif University of Technology,Iran)
- Maryam Kiani (Assistant Professor at the Aerospace engineering department of Sharif University of Technology,Iran)