M. SINA
ALLAHKARAM

Computer Vision Expert
Full stack Developer
Roboticist

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PROFILE

- As an expert Python programmer who has more than 6 years of experience working on various Computer Vision tasks and web /desktop applications development, Now I'm ready to utilize my experiences in your projects.

LANGUAGES

Persian Native

English Fluent

EDUCATIONAL BACKGROUND

Master's degree | K. N. Toosi University of Technology
Mechatronics, Engineering 2019-2023
Thesis Title: Development of an image-based deep neural network for human parsing for human behavior classification

Bachelor's degree | K. N. Toosi University of Technology
Electrical and Electronics Engineering 2014-2019
Thesis Title: Hardware implementation of motion estimation function in H.264 video encoder

HARD SKILLS

Python	★★★★★
Computer Vision	★★★★★
Deep Learning	★★★★★
Git	★★★★★
Linux	★★★★★
Embedded Sys.	★★★★★
Clean Code	★★★★★
SW Architecture	★★★★★

FRAMEWORKS & LIBRARIES

Detectron2 PyTorch TensorFlow Keras
OpenCV NumPy scikit-learn Flask Django MySQL SQLite SQLAlchemy
Qt HTML5 CSS3 Bootstrap jQuery WordPress Jet Engine

SOFT SKILLS

Teamwork	★★★★★
Problem Solving	★★★★★
Leadership skill	★★★★★

EXPERINCES

Freelancer | Self Employed

- Software Developer
- Computer Vision Expert
- Full-Stack Developer

2023-Now

Computer Vision Researcher | ARAS Laboratory

- Computer Vision Researcher
- Machine Learning Researcher
- Software Developer

2018-2023

Full Stack Developer | IT Team of ICRoM Conference

- Software Developer
- Full-Stack Developer

2018-2023

COO and Software-Hardware designer | Rahbin Sanat Nasir Company

- Chief Operating Officer
- Human Resources Management
- Software-Hardware Designer
- Computer Vision Expert

2022-2023

hardware developer | Ride-On company

- Digital Electronics Engineer
- Embedded Systems Developer

2017-2018

Team Leader, Software-Hardware developer | KN2C Robotic Team

- Human Resources Management
- PCB Designer
- Digital Electronics Engineer and Embedded Systems Developer
- Software Developer and Desktop Application Designer
- Junior computer vision engineer

2014-2018

NOTABLE PROJECTS

open source

Parsing-Detectron | A Deep Learning Framework For Human Parsing Task

- https://github.com/msinamsina/Parsing-Detectron
- In this project detectron2 framework has been modified. Parsing-Detectron can ether used for detection and segmentation tasks or human parsing task.

open source

PyAutoMail | A Python Package For Large Scale Email Automation

- https://github.com/msinamsina/pyautomail
- https://pyautomail.readthedocs.io/en/latest/
- This python package has can be used for easy email automation an additionally it has an Command-Line interface for creating email queues and send personalized email to your contact lists

closed source

ESEL| Eye Surgery Evaluation and Labelling

- https://drive.google.com/file/d/1oLa4BN6Livk69FaOX7VSaMq09awFhbCD/view
- ESEL is a desktop application which can be used for Capsulorhexis Eye Surgery evaluation based on surgery video. Furthermore this application is used for semi-automated labeling for pupil and surgical instrument detection and tracing task.

closed source

Persian Chair | A Web Application For Evaluating the Articles

- Persian Chair (PCH) is a Django web application which is developed based on ICRoM Conference request.

open source

ARAS Deep Learning Framework| A Deep Learning Framework For object detection

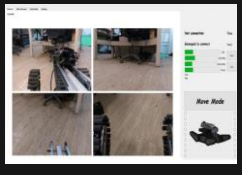
- https://github.com/msinamsina/ARAS-DeepLearning-FW
- In This project a deep learning frame work is created from scratch for object detection task which is specially used for pupil and Capsulorhexis surgery instrument detection.

closed source

Hazmat Detection | Hazardous Materials (HAZMAT) Sign Detection

- In This project a hazardous materials (HAZMAT) sign dataset is prepared and used to train Yolo to create a hazmat detector.

closed source



Rescue Robot Remote Control APP | A GUI For Tele-Operating of UGV Robot

- This is a desktop application which is prepared a graphical user interface for control and interact with KN2C Rescue Robot. This application has several sub-application which can handle some tasks automatically like hazmat detection, path-planning and inverse kinematics for 7 DOF Robotic Arm.

TEACHING EXPERINCES

- Computer Vision & Deep Learning Course | ARAS Academy
  2022
- Robotics for kids | ARAS Academy
  2019
- Teacher Assistance of Robotics Course | K. N. Toosi university of Technology
  2017,2016
- Teacher Assistance of Micro-Processors Course | K. N. Toosi university of Technology
  2015
- Electronic in robotic | KN2C Laboratory
  2016
- Robotics for kids | Seyidkhandan neighborhood hall
  2017

PUBLICATIONS

https://scholar.google.com/citations?user=ejhATTMAAAAJ&hl=en

- ARAS-Farabi Experimental Framework for Skill Assessment in Capsulorhexis Surgery
  https://ieeexplore.ieee.org/document/9663494/
  In this article a new dataset for Capsulorhexis Surgery and a new deep learning frame-work are proposed.
- Surgical Instrument Tracking for Capsulorhexis Eye Surgery Based on Siamese Networks
  https://ieeexplore.ieee.org/document/10025355/
  Surgical Instrument Tracking is a challenging task which can be used for surgeon performance evaluation. This paper present a new method for tracking the Surgical Instrument of Capsulorhexis Surgery.
- Closed-form Inverse kinematics Equations of a Robotic Finger Mechanism
  https://ieeexplore.ieee.org/document/9663448
  Obtaining Closed-form Inverse kinematics Equations for serial arms with arbitrary structure is a challenging task but in this article a Closed-form Inverse kinematics Equations is proposed which can be use for a large group of serial robots which have less than 5 links.
- RoboCup rescue 2017 team description paper KN2C
  https://robocup-rescue.github.io/team_description_papers/2017/Champ2017_Iran_KN2C.pdf
  This article is about introducing an UGV, built with the focus on minimizing the reliability on prebuilt parts (both electrical and mechanical) and reducing the total cost as well not only for the robotic competitions but with the goal of later, global uses in rescue missions.

ACHIVMENTS AND HONOR

- Top Rank (Second Place) | In the undergraduate Level (M. Sc) 2023
- IEE Reviewer | Review in IEEE Transactions on Medical Robotics and Bionics 2023
- Third place | RoboCup Asia-pacific Rescue robot league 2018
- Third place | Iran Open Rescue robot league 2017, 2018
- Second place | ICRoM Creative Exhibition 2016
- Fifth place | RoboCup Rescue robot league 2017