H. Taherzadegan

Amirhesam Taherzadegan

Photogrammetrist , Computer vision developer

taherzadehesam@gmail.com | +989375274737 | Tehran, Iran | Educational exemption
HesamTaherzadeh | HesamTaherzadeh

Professional Experience

Algorithm Engineer - SLAM Branch, *Software Motion* — September 2023 – present, Suzhou, China
Served as one of the core members of the mapping team,
- Led the HDMap and OfflineMap of the MDC - JAC project
- Developed an online localization and mapping system with GPS disruption handling for ADAS
- Developed a imu pre-integration module using GTSAM
- Held +20 hours of training sessions for colleagues
- Helped in creating the occupancy grid of an AGV project
- Mentored two new members for 1 month

Head of Math for AI graduate course Teaching Assistant Team, — September 2023 – January 2024, Tehran, Iran
Khajeh Nasir University of Technology
- Defined the course project with CVXOPT
- Supervised students' mathematical correctness.

Course website

Head of least squares optimizations and hypothesis testing Teaching Assistant (TA) Team, *Khajeh Nasir University of Technology* — September 2021 – present, Tehran, Iran
- Held +50 hours of class and online content for the course
- Focused on Geospatial optimizations
- Taught the practical part of the course (Practical Convex Optimization).

Youtube playlist

Embedded computer vision developer, *Devspec* — June 2022 – September 2022, Tehran, Iran
Developed a deep learning based Lane Departure Warning (LDW) system for ARM CPUs (Jetson nano, Raspberry pi 3b) , using Tensorflow lite and OpenCV

Linear algebra Teaching Assistant (TA), *Khajeh Nasir University of Technology* — February 2022 – July 2022, Tehran, Iran
Assistant to Dr. M. Malek, Implementing algebraic algorithms and principles in Python programming language

Computer vision Developer, *Khajeh Nasir University of Technology* — February 2022 – July 2022, Tehran, Iran
- Developed a full-featured desktop application for 3D reconstruction using Structure from Motion (SfM).
- Utilized OpenGL and Qt to create the application with a graphical user interface.
- Implemented multi-threading to efficiently process over 50 full-size images with geotags.
- Supported both calibrated and uncalibrated cameras for input.

Education

Khajeh Nasir University of Technology, *Master of Science in Photogrammetry* — September 2023 – present, Tehran, Iran
Photogrammetry is performing accurate measurements on images, 3D computer vision

Khajeh Nasir University of Technology, September 2019 –
Bachelor of Science in Geomatics engineering June 2023
GPA : 18.45/20 (4/4) Tehran, Iran
Thesis : Developing a deep learning based visual odometry system for ARM CPUs,
First Rank of Class of 2019 in geomatics at KNTU

Skills

Python Programming
OOP, Multithreading, efficient coding in scientific modules(Numpy, Pandas, Matplotlib, etc.)

Machine learning
KNN, SVM, Random Forests in SciKit-Learn

Sensor Fusion
EKF, LKF, UKF

Image processing
Ability to process images with either traditional or modern algorithms, OpenCV (C++/Python API), Scikit-Image

Linux
Ability to work in Ubuntu and Debian based distributions

C++ Programming
OOP, Ability to get inferences of deep learning based models

Probabilistic Robotic and Computer vision
Photogrammetry, ROS , Non linear optimizations and Filters

Deep learning
Tensorflow , Keras, PyTorch, ability to implement CNNs and RNNs

Point Cloud Processing and Computer graphics
Cloud Compare, OpenGL, Open3D, PCL

Languages

English
~7 IELTS (Exam will be taken ASAP)

French
Beginner

Persian
Native

Projects

Indoor Monocular Depth Estimation, *Supervised approach*
Monocular depth estimation network for Indoor environment trained on DIODE(Dense Indoor and Outdoor DEpth) dataset

Deep learning based LDW system
written in C++ and python and also has been tested in Jetson Nano 2GB and Raspberrty pi 3b and has 3 different outputs regarding the warning

PCST
Photogrammetric Coordinate System Transformer, in short PCST, is a python based GUI program, that intends to help photogrammetrist and computer vision analyst, rapidly pick the best model on their data

Visual odometry and Triangulation using OpenCV C++ API
Self localization(6 DOF) and Triangulation of feature points of a calibrated camera embedded in raspberry pi 3b, GPS-enabled using an external module

Bundle Adjustment from Scratch
Python based program that will accept two image coordinates and GCPs(Ground Control Points) and will perform bundle adjustment to adjust the GCPs and triangulate tie points

Courses

Deep Learning Specialization (5 course), *Deep learning.AI*

Introduction to Statistics, *Standford Online*

Tensorflow developer and Advanced Tensorflow developer (8 courses), *Deep learning.AI*

Awards

Acceptanced in Photogrammetry Msc. program at KNTU through Iran National Elites Foundation (INEF) scholarship

Accepted into a flowship program in ETH zurich for RobotX center - Hosting lab : Computer vision and Geometry