Payam Nikdel

Research assistant at Autonomy lab
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Education

Simon Fraser University (SFU) — Burnaby, Canada
M.Sc. Computing Science — *Sep 2016 - Dec 2018*

- Thesis Topic: Robot Follows Ahead of the Leader and describe navigational cues
- Supervisors: Richard Vaughan and Anoop Sarkar
- GPA: 4.17 out of 4.33

Shiraz university — Shiraz, Iran
B.Sc. Computer Software Engineering — *Sep 2010 - Feb 2015*

- GPA: 17.82/20; Achieved the highest GPA among all B.Sc students

Work Experience

Researcher (Internship) — Vancouver, Canada
ScopeMedia Inc. — *Jan. 2018 - Apr. 2018*

- Designed a multi-person tracker using state-of-the-art techniques (OpenPose, Yolo and different trackers)

System Developer — Tehran, Iran
Petro Gas Jahan Engineering company — *May. 2015 - Jun. 2016*

- Improved the company network performance tools and contributed to develop software

Android Application and Web Development — Tehran, Iran
Cafebazaar (a famous reputable App store in Iran) — *Apr. 2012 - Sep. 2012*

- Participated in creating the Divar Android application and the Divar website using Django

Translator Software — Tehran, Iran
Text Processing Lab at University of Tehran — *Sep. 2011 - Jan. 2012*

- Participated in making an English to Persian translator using C++ language

Publications

The Hands-Free Push-Cart — Summer 2017
Rakesh Shrestha and Dr. Richard Vaughan

Presented a human model for an autonomous mobile robot that follows a walking user while staying ahead of them. Used multi-modal person detection and a human-motion model that considers obstacles to predict the future path of the user. This paper is in proceeding of **ICRA 2018**. **Tools:** ROS, Stage, C++, Python, OpenCV

Reinforcing a Supervised Deep Network for Maximal Map Exploration — Spring 2017
Dr. Oliver Schulte and Dr. Richard Vaughan

Built a hybrid network trained by a supervised algorithm to learn preliminary tasks, like obstacle avoidance, and then used Deep Reinforcement Learning to learn maximal map exploration. This work presented as a poster in **IROS 2017**. **Tools:** Tensorflow, Keras, ROS, Stage, Python, C++, OpenCV

Research and Academic Projects

Lip Reading Using Dual Attention Model — Spring, Fall 2018

Designed an audio-visual lipreading system that can translate sequence of face images to natural language. To do so generated a data set containing a sequences of people's mouse images aligned with audio and subtitle from YouTube videos then trained a dual attention model. **Tools:** Pytorch, Python, OpenCV

Learning and Tracking Semantic Labels From Occupancy Grids — Spring, Fall 2018
Dr. Richard Vaughan

Building an occupancy grid map during online and at the same time use a neural network (Based on ResNet34 and YOLOv2) to detect, locate and say the target classes around the robot. **Tools:** Pytorch, ROS, Stage, Python, OpenCV

Describe The Path Using Attention Model Fall 2017

Dr. Anoop Sarkar and Dr. Richard Vaughan

Proposed a way to help visually impaired people navigate through an unknown indoor environment. The robot provides environmental information and navigational instructions for visually impaired or blind people. It translates sequence of laser scanner data to human readable language. **Tools:** Pytorch, ROS, Stage, Python, OpenCV

Daydream Ant Algorithm Fall 2016

Dr. Richard Vaughan

Presented a new approach based on SO-LOST algorithm by adding a thinking part. Daydream algorithm will reduce the path-finding time and it will guarantee to find an optimal path. **Tools:** ROS, Stage, Python, C++

Person Re-identification Using Point-cloud images Fall 2016

Dr. Greg Mori

Enhanced and compared several deep-learning approaches for identifying people using 3D point cloud data. **Tools:** Tensorflow, Keras, ROS, Python, OpenCV

Control the mouse cursor with eyes or hands Fall 2014

Dr. Zohreh Azimifar

controlled the mouse pointer by tracking the user's eyes or hand (two separate applications). **Tools:** C++, OpenCV

3D Multiplayer Game With AI Spring 2014

Dr. Farshad Khunjush

Developed a multiplayer online first person shooter game with AI for enemies. **Tools:** Unity3D, C#, Photon network

GPU Efficient Image Processing Fall 2013

Dr. Farshad Khunjush

Utilized GPU to apply filters on high resolution images on CUDA platform. **Tools:** OpenCL, CUDA, C++

Technical Skills

Programming Languages:

- Python
- C
- Java
- C++
- C#
- HTML
- CSS
- JavaScript
- SQL
- Matlab

Programming Platforms & Framework:

- Pytorch
- TensorFlow
- ROS
- Keras
- OPENCV
- OPENCL
- Unity
- Git
- Android
- LATEX

Selected Teaching Experiences

Computing Laboratory	Fall 2016 & Fall 2017
Intro to Computing Science and Programming II	Fall 2016 & Fall 2017
Digital Design	Fall 2014 & Spring 2014
Artificial Intelligence	Spring 2014 & Fall 2013
Advanced Programming	Fall 2013
Data Structures And Algorithms	Spring 2013
Fundamentals of Computer Programming	Fall 2012

Awards, Grants & Honours

Fellowship and RA/TA position from The Simon Fraser University	Fall 2018
Fellowship and RA/TA position from The University of Victoria	Spring 2016
Fellowship and RA/TA position from The Simon Fraser University	Spring 2016
Ranked 1st in Computer Engineering students	Fall 2014
Awarded as the Best Undergraduate Student in Computer Engineering	Spring 2014
Ranked 18th in Iranian National Computer Olympiad for university student	Spring 2014
Ranked 4th in Kashan ACM competition among all national universities	Spring 2011