



## Education

### PhD | Computer Science

University Of Windsor | 2018

- Windsor, Canada
- Human Activity Recognition
- Video content processing
- Multimedia Research Lab
- GPA: 3.84

### MS | Artificial intelligence

Sharif University of Technology | 2008

- Tehran, Iran
- Speech synthesis by unit selection
- Speech Processing Lab
- GPA: 3.83

### BS | Computer Engineering

Sadjad University of Technology | 2006

- Mashhad, Iran
- GPA: 3.55

## Technical Skills

### Senior Developer

- C/C++
- cmake
- conan
- python

### Hands-on Experience

- Machine Vision
- Machine Learning
- Deep Learning
- Camera Calibration
- Stereo Vision
- Speech Synthesis

### Machine Learning Skills

- CNN
- RNN
- LSTM
- SVM
- KMeans
- PCA
- LDA
- BoW
- GMM
- Fisher Vector
- SVD
- Eigen Vector
- Markov process
- HMM
- CART

### Tool/Libraries

- OpenGL
- dearImGu
- OpenCV
- numpy
- TensorFlow
- PyTorch
- HALCON
- STL

### Software Development

- Design Patterns
- OOD
- TDD
- git
- DevOps
- ci/cd
- gitlab
- Cross platform
- multithreading

### Development Platforms

- Linux
- Windows
- docker
- Mac
- QNX
- Raspberry
- Pi
- etc.

### Other

- C#
- java
- go
- bash scripting
- javascript
- swift
- Objective-C
- VB
- Ruby
- PHP
- scheme
- HTML
- css

## Work Experience

### Software Engineer Staff | 2023-Present

Qualcomm

- Software developer in Avante Positioning and Orion
- Developing deep neural networks for perception of environment
- Converting the multi-camera input into Birds Eye View (BEV) space
- Skills: Software development, research, machine vision, deep learning.
- Tools: C++, JIRA, OpenCV, Python, Linux, QNX, OpenMMLab, PyTorch, docker, Argo.

### R&D Software Developer | 2020-2023

Tessonics Inc.

- Implementation of online 3D volume rendering of captured data.
- Rendering the arbitrary oblique slices of 3D volume + measurement tools.
- 3D registration of surfaces from ultrasound to CT (using a variant of ICP).
- Run inference for DNN models trained on tensor-flow and torch in C++.
- Skills: Software development, research, machine vision, computer graphics, 3D volume rendering, 3D point cloud registration, shader programming
- Tools: C++, OpenGL, dearImGu, glsl, OpenCV, Python, libTorch, Tensor-Flow, U-Net.

### R&D Software Developer | 2017-2020

AIS Tech Group

- Design and implementation of an industrial machine vision system
- Designing visual targets that allow more than one million unique target ids
- Implementing the geometry-3D, a math library that performs 3D pose calculations, including averaging of poses
- Human tracking in industrial settings using deep learning methods
- Skills: research, machine vision, 3d reconstruction, vision target design, deep learning
- Tools: C#, C++, OpenCV, Python, YOLO, SSD, PyTorch, Tensor-Flow

### Machine Vision Researcher | 2016-2017

Radix Inc

- Verifying the existing camera calibration system
- Implementing improvements to increase the vision system accuracy
- Skills: research, machine vision, 3d reconstruction, calibration
- Tools: Python, Halcon, OpenCV, C#, C++

### Computer Science Colloquium Representative | 2016-2017

University of Windsor

- Coordinating weekly colloquium meetings
- Skills: Organization

### Research Assistant | 2013-2018

University of Windsor

- Improving the automatic understanding of human activities from visual inputs
- Proposing and implementing a new feature extraction method
- Skills: Research, feature engineering, SVM, Bag of Words, Fisher Vector, VLAD
- Tools: C++, OpenCV



## Honors

### best presentation | CSCON

University of Windsor

- 2015
- 3rd place

### Scholarship recipient | GSS

University of Windsor

- 2015, 2017

### Scholarship recipient | GSS

University of Windsor

- 2015, 2017

### Second best GPA | bachelor

Sadjad University of Technology

- 2006

### Best GPA | bachelor semesters

Sadjad University of Technology

- Spring & Fall 2004
- Fall 2005

### Semi-finalist | National

### Mathematics Olympiad

Mashhad, Iran

- 2002

### Semi-finalist | National

### Computer Olympiad

Mashhad, Iran

- 2001

## Hobby Projects

### Wordle Solver | 2022

Implementing a information theory based solver for any language.

- Information Theory
- C++, go



### Text Generation | 2019

Implementing a character level LSTM to generate Persian text based on trained text.

- Deep learning, LSTM
- PyTorch

### Reversi Player | 2013

This is an implementation of a reversi game player who chooses the best next action based on minimax tree search.

- Game AI
- Minimax tree
- C++



## Languages

• English • Persian

## Work Experience continued

### Senior Java Developer | 2013-2015

inextweb

- Optimizing and improving next-generation web search engines
- Improving performance by distributing the mongoDB among different nodes
- Skill: Software Development
- Tools: Java, mongoDB

### Software Developer | 2006-2009

Maharan Engineering Co

- Developing the telecommunication system which uses multiple connected network layer for automated train signaling.
- Developing GUI for displaying the location of trains, tracks and controlling railroad system.
- Skills: Software development, Software design, socket programming
- Tools: C/C++, C#, sctp

### Research Assistant | 2006-2008

Sharif University of Technology

- Creating the first practical Persian speech synthesis system
- Skills: Research, Unit selection, Classification and Regression trees
- Tools: C++, scheme, Berkeley DSP, festival

## Publications

- Pejman Habashi, Boubakeur Boufama, and Imran Shafiq Ahmad. *“Disparity-Augmented Trajectories for Human Activity Recognition”*, Evolutionary Intelligence (2021): 1-11.
- Pejman Habashi, Boubakeur Boufama, and Imran Shafiq Ahmad, *“A Better Trajectory Shape Descriptor for Human Activity Recognition”*, International Conference Image Analysis and Recognition, 330-337, Springer, 2017.
- Boubakeur Boufama, Pejman Habashi, and Imran Shafiq Ahmad, *“Trajectory-based human activity recognition from videos”*, Advanced Technologies for Signal and Image Processing, IEEE, 2017.
- Pejman Habashi, Boubakeur Boufama, and Imran Shafiq Ahmad. The bag of micro-movements for human activity recognition. In *Image Analysis and Recognition*, pages 269–276. Springer, 2015.
- Imran Shafiq Ahmad, Boubakeur Boufama, Pejman Habashi, William Anderson, and Tarik Elamsy. Automatic license plate recognition: A comparative study. In *2015 IEEE International Symposium on Signal Processing and Information Technology (ISSPIT)*, pages 635–640. IEEE, 2015.
- Siroos Madani, Poorya Mohammdi Yaghini, Pejman Habashi, and Hossein Pedram. A fast lfsr-based bist approach for testing of digital integrated circuits. In *IEEE International Conference on Circuits and Systems (ICCAS2012)*. IEEE, 2012.
- Pejman Habashi and Hossein Sameti. Unit selection method for persian speech synthesis using fastvox. In *14th Annual Computer Society of Iran Computer Conference (CSICC09)*, 2009.

References are available upon request.

Last Updated December 22, 2025

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