# Naji Khosravan

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## Education

Sep.2015 – Present **Ph.D student in Computer Science**

CRCV|Center for Research in Computer Vision, University of Central Florida, FL, USA

Sep.2010 – 2015 **B.Sc. in Electrical Engineering**

Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran
(Center of Excellence in Telecommunication)

Thesis: Image Motion Compensation For Assisting Beating-Heart Surgery

Advisor: Prof. H.A. Talebi

## Fields of Interest

- Computer Vision
  - Detection
  - Segmentation
- Machine Learning
  - Deep Learning
  - Reinforcement Learning
- Medical Computer Vision/Image analysis

## Publication & Technical Reports

2017 **Eye Tracking System for Prostate Cancer Diagnosis Using Multi-Parametric MRI**, H. Celik, B. Turkbey, P. Choyke, R. Cheng, E. McCreedy, M. McAuliffe, N. Khosravan, U. Bagci, B. Wood. *Conference of International Society for Magnetic Resonance in Medicine (ISMRM), Honolulu, Hawai'i, USA, 2017.*

2016 **Gaze2Segment: A Pilot Study for Integrating Eye-Tracking Technology into Medical Image Segmentation**, N. Khosravan, H. Celik, B. Turkbey, R. Cheng, E. McCreedy, M. McAuliffe, S. Bednarova, E. Jones, X. Chen, P. L. Choyke, B. J. Wood, U. Bagci. *Medical Computer Vision, International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI), Athens Greece, 2016.*

2016 **Improved Classification of Lung Nodules via Integrated Deep Learning and Hand-Crafted Features**, N. Khosravan, W. L. Richey, U. Bagci. *Technical report for NSF's Research Experience for Undergraduates (REU) program at CRCV.*

## Research Experience & Academic Activities

### Reviews

Since 2017 **International Conference on Image Processing Theory, Tools and Applications (IPTA)**, External reviewer.

Since 2017 **IEEE International Symposium on Biomedical Imaging (ISBI)**, Delegate reviewer.

Since 2016 **Medical Physics Journal**, Ad-Hoc reviewer.

### Research experience

Since 2015 **Research Assistant at Center for Research in Computer Vision (CRCV)**, Department Of Computer Science, University of Central Florida, FL, USA. (website)

2013 – 2015 **Research Assistant at Real-Time Lab**, Department Of Electrical Engineering, Amirkabir University of Technology, Tehran, Iran. (website)

2013 – 2015 **Research Assistant at AIMS Lab**, Department Of Electrical Engineering, Amirkabir University of Technology, Tehran, Iran. (website)

### Teaching experience

Fall 2017 **Teaching Assistant**, Department Of Computer Science, University of Central Florida, FL, USA. **Course:** Database design.

Spring 2016 **Teaching Assistant**, Department Of Computer Science, University of Central Florida, FL, USA. **Course:** Javascript Programming.

Fall 2016 **Teaching Assistant**, Department Of Computer Science, University of Central Florida, FL, USA. **Course:** Javascript Programming.

Summer 2016 **Mentor**, Center for Research in Computer Vision (CRCV), Department Of Computer Science, University of Central Florida, FL, USA. **Program:** Research Experience for Undergraduates (REU) supported by NSF.

Spring 2016 **Teaching Assistant**, Department Of Computer Science, University of Central Florida, FL, USA. **Course:** Introduction to C++.

Fall 2015 **Teaching Assistant**, Department Of Computer Science, University of Central Florida, FL, USA. **Course:** Concepts in Computer Science.

## Selected Academic Projects

"Improving Lung Nodule Classification by Integration of Deep Learning and Had-Crafted Features", In this project the Deep Learning features are combined with two had-crafted features (Bag of Frequancy and Taxonomic Features) and the classification results were improved.

"Gaze2Segment Project", During this research project at CRCV and Under the Supervision of Dr. Ulas Bagci a pilot system was designed to combine cognitive and computer vision. The system used gaze information from an eye-tracker to perform a fully automated image analysis task, Segmentation in this case. The system is totally flexible about the image analysis choice. The system was tested using eye-tracking information from a radiologist reading lung CT images and the information from gaze points was used to detect and segment abnormalities in lung CT images. This project is still ongoing.

"Automatic Image Segmentation Using Random Walks Method", During this research project at CRCV and under the supervision of Dr. Ulas Bagci a fully automated segmentation system was designed using Random Walks segmentation method. The method was tested on lung CT images.

"Extracting Characters From a Noisy Image Using Different Filters", In collaboration with Mohammad Motamedi. Detecting and extracting desirable characters from a noisy image using different filters to reduce noise and then using the histogram of images to extract characters and finally using a neural network for character detection.

"Image Motion Compensation For Assisting Beating-Heart Surgery", In order to assist a surgeon while operating on a beating heart, visual stabilization makes the beating heart appear still by providing the current heart view as stationary and non-moving. In this way, the surgeon is not disturbed during an operation by the motion of the heart and has the impression of performing conventional surgery.

## Selected Academic Courses

- 3D Computer Vision
- Computer Vision
- Machine Learning
- Knowledge Representation
- Medical Image Analysis
- Numerical Analysis

Sep. 2013 Workshop on Image Processing by MATLAB (30 hours) **Certificated from Amirkabir University of Technology (Tehran Polytechnic).**

## Internship

Summer 2013 **"Telecommunication Company of Iran (TCI)",This company is The First and the most prestigious telecommunication company in Iran.**

## Skills

### Computer skills

Programming: Python, C/C++, MATLAB, Javascipt

Engineering Softwares: Amira, 3D Slider, ITKSnap, FIJI, MATLAB Simulink and Image Processing toolboxes

Libraries and toolboxes: Tensorflow, ITK, VTK

Applications and Scripting: LaTeX, Microsoft Office

Web Design: HTML

Operating Systems: Linux (Ubuntu use)r, Mac (OS X user), Microsoft Windows

### Language Skills

English: Fluent
Certificated from Iran Language Institute (ILI) for 4 years of academic english studies.
TOEFL: Reading:25, Listening:27, Speaking:27, Writing:28, Total:107

Persian: Native