



Sara Soltaninejad

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OVERVIEW

Research Area: Pattern Recognition, Machine Learning, Computer Vision, Medical Image and Signal Processing.

EDUCATION

- **PhD, Computer Science** 2016-Now
Department of Computing Science, [University of Alberta](#), Edmonton, Canada.
 - Thesis Topic: A multi-modal approach to detect neurological and movement disorder symptoms
 - Advisor: [Professor Anup Basu](#), [Dr Irene Cheng](#)
 - Total Cumulative GPA: 4/4
 - Area of Study: Medical Image and signal Processing.
- **M.S, Computer Engineering** 2013
Department of Computer Engineering, [Shiraz University](#), Shiraz, Fars, Iran.
 - Thesis Topic: Computer aided diagnostic system for lung nodule detection based on texture features
 - Advisor: [Dr Farshad Tajeripour](#)
 - Area of Study: Artificial Intelligence (AI)
 - Total Cumulative GPA: 18.03/20
- **B.S, Information Technology Engineering** 2010
Department of Electrical and Computer Engineering, [Isfahan University of Technology](#), Isfahan, Iran.
 - Thesis Topic: Risk management of the information systems
 - Advisor: [Professor Mehdi Berenjkoub](#)
 - Area of Study: Information Technology Engineering (IT)
 - Total Cumulative GPA: 16.74/20
- **Diploma, High School, Middle School** 2006
[Center of National Organizations for Development of Exceptional Talents \(NODET\)](#), Shahre-Kord, Iran.
 - Area of Study: Physics & Mathematics
 - Total Cumulative GPA: 19.75/20

PROMINENT COURSES

- **PhD**

Probabilistic graphic modeling: 4/4, Convolutional neural network: 4/4, Computer vision & applications: medicine & industry: 4/4, Teaching & research methods: 4/4

- **M.S**

Statistical pattern recognition: 17.5/20, Neural networks: 17.25/20, Fuzzy systems: 17/20, Machine learning: 17.5/20, Evolutionary computing: 19/20, Digital image processing: 18/20, Machine vision: 16.5/20, Seminar: 19/20

- **B.S**

Basic programming: 19.25/20, Advanced programming: 17.25/20, Discrete structures: 17/20, Computer basics: 18, Engineering statistics and probability: 18, Computer architecture: 19/20, Operating systems: 19/20, Software engineering: 17/20, Introduction to artificial intelligence: 19/20, Digital electronic: 19

PROJECTS AND RESEARCH EXPERIENCE

- Course Project

- Removal of batch effects from fMRI Images using probabilistic graphic techniques, Under Supervision of Professor **Russell Greiner**. 2016.
- Image super resolution using deep convolutional neural network, Under Supervision of Professor **Nilanjan Ray**, 2016.
- Implemented a new texture descriptor based on non-uniform patterns in Local Binary Pattern, Under Supervision of Dr **F.Tajeripour**. 2012.
- Implementing a novel supervised thresholding algorithm based on PSO optimization algorithm, in matlab, Under Supervision of Dr **F.Tajeripour**. 2012.
- Implementing a scheme for person handwritten digits based on MLP neural network, in matlab, Under Supervision of Dr **F.Mansouri**. 2011.
- Implementing an evolutionary image segmentation based on multiobjective clustering, in matlab, Under Supervision of **Dr A.Hamzeh**. 2010.
- Research about semantic characteristic of lung nodule, under supervision of **Dr.Z.Azimifar** 2010.

- Research Project

- White matter injury detection in preterm Infant's MR Brain Image, Under supervision of professor **Anup Basu** and Dr **Irene Cheng**. 2016-2017.
- Robust lung segmentation combining adaptive concave hulls with active contours, under supervision of professor **Anup Basu** and Dr **Irene Cheng**. 2016.
- Computer Aided diagnostic System for Lung Nodule Detection in CT Images based on the novel texture features, in matlab, under supervision of Dr **F.Tajeripour**, Dr **Z.Azimifar** and Dr **R.Boustani**. 2013.
- Computer Aided diagnostic system for lung nodule detection in CT images based on KNN classifier and active contour model, under supervision of Dr **F.Tajeripour**. 2012.

- Lung segmentation method based on concavity degree of border points, under supervision of Dr **F.Tajeripour**. 2012.
- Implemented a novel supervised bi-level thresholding technique based on Particle Swarm Optimization, under supervision of Dr **F.Tajeripour**. 2011.

PUBLICATIONS

- **Sara Soltaninejad**, Andres Rosales-Castellanos, Fang Ba, Mario Alberto Ibarra-Manzano, Irene Cheng, Body movement monitoring for parkinson's disease patients using a smart sensor based non-invasive technique, [IEEE International Conference on E-health Networking, Application & Services \(IEEE-Healthcom\)](#), 2018.
- **Sarah Soltaninejad**, Irene Cheng, Anup Basu, Towards the identification of parkinson's disease using only T1 MR Images, [International Conference on Smart Multimedia \(ICSM\)](#), 2018.
- Chirag Balakrishna, Sarshar Dadashzadeh, **Sarah Soltaninejad**, Automatic detection of lumen and media in the IVUS images using U-Net with VGG16 Encoder, [International Conference on Smart Multimedia \(ICSM\)](#), 2018.
- David Yee, **Sarah Soltaninejad**, Deborsi Hazarika, Gaylord Mbuyi, Rishi Barnwal, Sara Soltaninejad, Anup Basu, Medical image compression based on region of interest using Better Portable Graphics (BPG), [IEEE International Conference on Systems, Man, and Cybernetics \(SMC\)](#), 2017.
- **Sarah Soltaninejad**, Irene Cheng, Anup Basu, Robust lung segmentation combining adaptive concave hulls with active contours, [IEEE International Conference on Systems, Man, and Cybernetics \(SMC\)](#), 2016.
- **Sarah Soltaninejad**, Mohammad Hossein Shakoor, Farshad Tajeripour, Lung nodule segmentation based on modified local binary pattern, [International Journal of Scientific and Engineering Research](#), 2015.
- Alimohammad Nickfarjam, **Sarah Soltaninejad**, Farshad Tajeripour, Supervised bi-level thresholding based on Particle Swarm Optimization (PSO), [Arabian journal for science and engineering \(AJSE\)](#), 2014.
- **Sarah Soltaninejad**, Farshad Tajeripour, Lung segmentation method based on concavity degree of border points, [11th Intelligent Systems Conference \(ICIS\)](#), 2013.
- Alimohammad Nickfarjam, **Sarah Soltaninejad**, Farshad Tajeripour, An supervised bi-level thresholding method based on Particle Swarm Optimization (PSO), [Artificial Intelligence and Signal Processing \(AISP\)](#), 2012.
- **Sarah Soltaninejad**, Mohsen Keshani, Farshad Tajeripour, lung nodule detection by KNN classifier and active contour modeling and 3D visualization, [Artificial Intelligence and Signal Processing \(AISP\)](#), 2012.

AWARDS & HONORS

- Admitted as top 15 team from Alberta Innovate and selected to get the travel grand for the **Inventure conference, 2018** in Calgary, AB, Canada. 2018
- Admitted for **special session organizer for ICSM-2018**. 2018
- Admitted for getting the travel grant for participating to the **Grad Cohort for Women 2018 (CRA-W)**. 2018
- Admitted for **AITF Scholarship** at University of Alberta. 2017
- Admitted for **operation chair for IEEE-SMC-2017**. 2017
- Admitted for **Recruitment Scholarship Doctoral**, Department of computing science, University of Alberta, Edmonton, Canada 2016
- Admitted for **Ontario Trillium Scholarships (OTS)**, University of Ontario Institution of Technology, Toronto, Canada. 2015
- Candidate as graduated for Amirkabir University of Technology, Tehran, Iran. 2010
- Admitted to Shiraz University as a master student in a field of Computer Engineering - Artificial Intelligence major, Shiraz, Fars, Iran. 2010
- Admitted to entrance English exam at Shiraz University, Shiraz, Iran. 2010
- Admitted to Isfahan University of Technology as a graduate student in a field of Information Technology Engineering, Isfahan, Iran. 2006
- Selected for National Organizations for Development of Exceptional Talents (NODET) Middle school and High school Iran. 1999 & 2002
- Ranked 1st in programming Contest for Game on Linux at school. 2004
- Semifinalist of National Inform astronomy Olympiads. 2004

TEACHING EXPERIENCE

- **PhD**
 - Graphics Animation 3DS MAX, Lab Instructor. Fall 2016
Instructor: professor Anup Basu
 - Introduction to Computing, Lab Instructor. Fall 2016
Instructor: professor Anup Basu, Professor Osmar Zaiane
 - Introduction to Data Structure, Lab Instructor. Winter 2016
Instructor: professor Janelle Harms
 - Introduction to Multimedia Technology, Lab Instructor, Lecturer. Winter 2016, 2017
Instructor: professor Anup Basu
 - Graphics Animation 3DS MAX, Lab Instructor. Fall 2017
Instructor: Nassim Hajari, Professor Paul Lu

- **M.S**

- Logical Circuit, Lab Instructor, Lecturer. Fall & Spring 2010-2011
Instructor: Associate Professor Fariborz Sobhanmanesh
- Image Processing , Lab Instructor, Lecturer. Fall & Spring 2011-2012
Instructor: Associate Professor Farshad Tajeripour
- [Design of Urban Railway Recruitment Test.](#), Recruitment Entrance Exam for Shiraz Railway Spring 2012
Instructor: Associate professor Farshad Tajeripour

- **B.S**

- Advanced Programming, Lecturer. Fall 2007-2009
Instructor: Associate Professor Mohammad H. Mahdavi
- Neural Network, Tutoring. 2010-2012
- Advanced Programming, Tutoring. 2009-2014
- Logical Circuit, Tutoring. Fall 2009-Fall 2011

EXTRA CURRICULAR ACTIVITIES

- Member of CSGSA at university of Alberta. 2018 - now
- Member of Cs-crackers soccer-ball team at university of Alberta. 2016 - now
- Member of Dance Club at university of Alberta. 2017 - now
- Member of Multiplying Equality Community at University of Alberta. 2017 - now
- Volunteer Member of artist group for Iranian student at the university of Alberta (ISAUA). 2015 to now
- Member of Toastmasters clubs of university of Alberta. 2015 to now
- Member of Ada's Team of university of Alberta which is a group of sciences women. 2015 to now
- Member of digital painting group of the art department of university of Tehran. 2013 to 2015
- Member of paint night group of university of Alberta. 2015 to now
- Member of aerobic group of university of Tehran. 2013 to 2015
- Member of Movie and music community of Shiraz university. 2010 to 2013
- Special Member of English Chat Room of Shiraz university. 2010 to 2012
- Chairman of Persian Literature community of NODET School, Shahre-kord, Iran 2002-2006
- Proficient in drawing, sketching and digital painting. 2000-now

TECHNICAL SKILLS

- Proficient in programming: Matlab, Python, C++, C#, C, Qt, Java, VB, Pascal, Delphi, VHDL.
- Proficient in medical packages Freesurfer, SPM/CAT, FSL, nipy and other medical neuroimaging libraries.
- Proficient in Deep learning libraries: Theano, Tensorflow, Keras in Python.
- Proficient in Operating Systems: Linux, Dos, Windows.
- Proficient in Typesetting: TEX, LATEX, Microsoft office
- Proficient in Graphical Software: 3DsMax, Motion Blender.
- Familiar with: OpenCV, Perl, Prolog, Photoshop, OpenGL.

REFERENCES

Available upon request.