Seyed Mehran Pesteie

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INTERESTS

Deep learning,
Variational inference,
Probabilistic latent variable models,
Unsupervised representation learning,
Computer vision.

EDUCATION

PhD *Electrical and Computer Engineering*
University of British Columbia, Vancouver, Canada.
Supervisor: Professor Robert N. Rohling
Dissertation: **Machine learning in ultrasound-guided spinal anesthesia.**

Master of Science *Artificial Intelligence and Robotics*
University of Isfahan, Isfahan, Iran.
Supervisors: Professor Amirhassan Monadjemi (University of Isfahan) and Professor Shohreh Kasaei (Sharif University of Technology)
Thesis: **Real-time multi-scale and multi-directional texture segmentation.**

Bachelor of Science *Computer Engineering*
University of Isfahan, Isfahan, Iran.
Capstone Project: **An automatic driver assistance system based on Hough transform and morphology.**

CONFERENCE PUBLICATIONS

- **Variational Mandible Shape Completion for Virtual Surgical Planning**, *in International Conference on Medical Image Computing and Computer Assisted Intervention (***MICCAI***) 2019, Shenzhen, China.*

- **Echocardiography Segmentation by Quality Translation Using Anatomically Constrained CycleGAN**, *in International Conference on Medical Image Computing and Computer Assisted Intervention (***MICCAI***) 2019, Shenzhen China.*

- **Semi-Supervised Learning For Cardiac Left Ventricle Segmentation Using Conditional Deep Generative Models as Prior**, *in IEEE International Symposium on Biomedical Imaging (***ISBI***) 2019, Venice, Italy.*

- **Deep Neural Maps**, *in International Conference on Learning Representations (***ICLR***) 2018, Vancouver, Canada.*

- **Transfer Learning for Domain Adaptation in MRI: Application in Brain Lesion Segmentation**, *in International Conference on Medical Image Computing and Computer Assisted Intervention (***MICCAI***) 2017, Quebec City, Canada.*

- **DeepInfer: open-source deep learning deployment toolkit for image-guided therapy**, *in SPIE Medical Imaging 2017, Florida, United States.*

- ***Identification and tracking of vertebrae in ultrasound using deep networks with unsupervised feature learning***, SPIE Medical Imaging 2017, Florida, United States.

- ***Automatic Recognition of the Target Plane in 3D Ultrasound with Epiguide***, International Conference on Medical Image Computing and Computer Assisted Intervention, Image Guided Therapy workshop 2014, Boston, United States.

- ***A new Bayesian Scheme for Texture Classification based on the Hadamard and Gabor Features***, Annual Conference of Iranian Computer Science Society 2012, Tehran, Iran.

JOURNAL PUBLICATIONS

- ***Adaptive augmentation of medical data using independently conditional variational auto-encoders***, IEEE Transactions on Medical Imaging 2019, pp 1-14, 2019.

- ***Deep neural maps for unsupervised visualization of high-grade cancer in prostate biopsies***, International Journal of Computer Assisted Radiology and Surgery 2019, Volume 14, Issue 6, pp 1009-1016.

- ***Automatic localization of the needle target for ultrasound-guided epidural injections***, IEEE Transactions on Medical Imaging 2017, Volume 37, Issue 1, pp 81-92.

- ***Real-time Ultrasound Classification for Spine Anesthesia Using Local Directional Hadamard Features***, International Journal of Computer Assisted Radiology and Surgery 2015, Volume 10, Issue 6, pp 901-912.

PATENTS

- *Methods of, and apparatuses for, real-time ultrasound image classification of the spine.* **U.S. Provisional Patent** *Application 15-067 USP.*

- *Methods of, and apparatuses for, producing augmented images of a spine.* **U.S. Patent US10105120B2.**

- *Methods of, and apparatuses for, driver drowsiness detection.* **I.R.I Patent 80586.**

WORKSHOPS AND TALKS

- *Artificial Intelligence in Healthcare, University of British Columbia, March 2019, Vancouver, Canada.*

- *Deep Learning Tutorial, University of British Columbia, November 2018, Vancouver, Canada.*

- *Workshop on Computer Vision with OpenCV, University of British Columbia, March 2018, Vancouver, Canada.*

- *Real-time ultrasound image classification for spine anesthesia.*, June 2015, Technical University of Munich (TUM), Munich, Germany.

- *Workshop on Image Processing with OpenCV, Introductory to Advanced, 6th Machine Vision and Image Processing Conference 2011, Isfahan, Iran.*

- *Neuro-fuzzy Texture Segmentation, Fall 2011, University of Isfahan, Iran.*

- *Quantum Cellular Automata and Designing Circuits, Fall 2010, University of Isfahan, Iran.*

WORK EXPERIENCE

Data science research intern   *Sep. 2016 - Dec. 2016*
Qi-Leap Analytics (now Find.ai), Vancouver, B.C, Canada

Project director   *Sep. 2012 - May 2013*
Advanced Image and Signal Processing research center, Isfahan, Iran.

Project director   *Dec. 2011 - Jul. 2012*
Isfahan University of Technology, Isfahan, Iran.

Software developer   *May 2007 - Aug. 2007*
Rasis Sanat Asia

HONORS AND AWARDS

- *Best paper award finalist, IEEE International Symposium on Biomedical Imaging 2019.*
- *Bronze medal in Kaggle Ultrasound Nerve Segmentation Challenge 2016.*
- *UBC international student tuition award.*
- *Ranked 1st 2006-2010 in Computer Engineering.*
- *Awarded as the top talented student and credited for MSc. without entrance exam.*
- *Ranked 19'th in the National Association of Mathematics and Informatics Olympiad in 2004.*
- *Honorable Mention in Regional ACM/ICPC 2010*

TECHNICAL SKILLS

C/C++/C#, Python, Java, MATLAB, OpenCV, Theano, TensorFlow, Keras, Lasagne, Pandas, Latex, Emacs.