Mehran Khodabandeh

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» Research Experiences

Internship at Google Research, Seattle, WA — Summer 2018

- Worked on person segmentation in 360 images
- Developed a rotation equivariant and distortion aware convolutional layer for 360 images that can be applied directly on equirectangular images

Research Internship at D-Wave, Burnaby, Canada — Spring 2018

- Modeled domain adaptation for object detection as a noisy labelling approach
- Designed and developed a method for enabling object detectors (e.g. Faster R-CNN) to perform well in unseen environments
- Achieved state-of-the-art results on three public datasets. Paper got accepted to ICCV 2019

Research Internship at Microsoft, Redmond, WA — Summer 2017

- Worked on generation of realistic human action videos using generative models (GAN) for action recognition task
- Patented; and presented at CVPR Workshop 2018

Research Internship at National Institute of Informatics(NII), Tokyo, Japan Summer 2016 and 2015

- Worked on active learning for structured data, implemented in Caffe (Python)
- Designed a novel criterion for selecting the most informative persons in a scene by computing the expected entropy change
- Designed an algorithm for embedding the supervoxels and learning a similarity metric that is used for video segmentation, under supervision of Prof. Shin'ichi Satoh. Presented the work at ICPR 2016 (oral)

» Education

- **Simon Fraser University,** Burnaby, BC, Canada. — Sept 2015 – present
  Ph.D. in Computing Science (Computer Vision and Machine Learning)
  Thesis Supervisor: Dr. Greg Mori (http://www.cs.sfu.ca/~mori)
- **Simon Fraser University,** Burnaby, BC, Canada. — Jan 2013 – Jan 2015
  Master of Science in Computing Science (Computer Vision and Machine Learning) – GPA: A/A+
  Supervisor: Dr. Greg Mori
- **Sharif University of Technology,** Tehran, Iran. — Sept 2008 – June 2012
  Bachelor Degree in Computer Engineering (Hardware Engineering) – GPA: 17.45/20

» Projects and Publications

- **A Robust Learning Approach to Domain Adaptive Object Detection1** — 2019
  ICCV 2019
  (M. Khodabandeh, A. Vahdat, M. Ranjbar, W. G. Macready)
  https://arxiv.org/abs/1904.02361
- **Human Action Video Generation for Training Activity Recognition Models** — 2018
  CVPR Workshop 2018

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(M. Khodabandeh, Hamidreza Vaezi Joze, Ilya Zarkhov, Vivek Pradeep)
PDF

- **Distribution Aware Active Learning** 2018
  (A. Mehrjou, M. Khodabandeh, G. Mori)
  https://arxiv.org/abs/1805.08916
- **Revisiting Active Learning: A Reinforcement Learning Approach** 2017
  (M. Khodabandeh, S. Muralidharan,F. Tung, and G. Mori)
  https://github.com/mkhodabandeh/rl-active
- **Active Learning for Structured Prediction from Partially Labelled Data.** 2017
  https://arxiv.org/abs/1706.02342
  (M. Khodabandeh, M. Ibrahim, Z. Deng, S. Satoh, and G. Mori)
- **Unsupervised Learning of Supervoxel Embeddings for Video Segmentation.** 2016
  Presented at *ICPR 2016 (Oral)*
  (M. Khodabandeh, S. Muralidharan, A. Vahdat, N. Mehrasa, E.M. Pereira, S. Satoh, and G. Mori)
  https://github.com/mkhodabandeh/embedding_segmentation
- **Discovering Human Interactions in Videos with Limited Data Labeling.** 2015
  Workshop on Group and Crowd Behavior Analysis and Understanding (at CVPR 2015)
  (M. Khodabandeh, A. Vahdat, G.-T. Zhou, H. Hajimirsadeghi, M. Roshtakhir, G. Mori, and S. Se)
  https://github.com/mkhodabandeh/interaction_discovery
- **Strongest Path: A Cytoscape Plugin to Find The Most Confident Paths in Protein-Protein Interactions Networks.** 2015
  Submitted to Bioinformatics: Oxford Journal (impact factor 4.9)
  (Z. Mousavian, M. Khodabandeh, A. Sharifi Zarchi, A. Masoudi Nejad)
  http://apps.cytoscape.org/apps/strongestpath, https://github.com/strpaths/release
- **Object Detection in Surveillance Video from Dense Trajectories.** 2015
  IAPR Conference on Machine Vision Applications (MVA 2015)
  (M. Zhai, L. Chen, M. Khodabandeh, J. Li, and G. Mori)

» Professional Experiences

Research & Software Development (PickerDrones), Vancouver, Canada Nov 2016 - June 2017

- Worked part time and was responsible for the vision section of the harvesting quadruples
- Developed and implemented real-time object detection algorithms for drones

Research & Software Development, BasirTech Co, Tehran, Iran Jun – Sept 2010

- Under supervision of Dr. Hamid Mahini
- Developed a method for gender detection from frontal face images and achieved high accuracy

Software Development, Lithis, Tehran, Iran Feb – Jul 2012

- Worked on the front-end of a social network for an online education system (Javascript, JQuery, CSS/HTML)

Web Development (Freelance) 2011 - 2012

- NoteShare - Created a website for sharing documents, using .NET

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- MyTutor - Created a website that matched students and tutors, using Python/Django
- Students Works Automation System (for Sharif University) – Created a website for our university that automated registrations and reduced paper works, using Python/Django
- YSC Portal - Designed a website for Young Scolar Club (Iran), using Python/Django

» Honors and Awards

- Received Graduate Fellowship at Simon Fraser University (Canada) 2013 - 2017
- Granted admission for Master of Science from Talented Students Office of Sharif University of Technology (Iran) Fall 2012
- Ranked (248th) among top 0.1 percent in Iranian National University Entrance Exam Fall 2008
- Semifinalist in National Olympiads of Informatics (Tehran, Iran) Fall 2006