

MOHAMMAD RASTEGARI

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RESEARCH INTERESTS:

- Computer Vision (*Large Scale Image Retrieval, Object Recognition, Shape Analysis, Motion Capture*)
- Machine Learning (*Large-Scale Learning, Compact Feature Learning*)
- Natural Language Processing (*Semantic Understanding of Texts*)
- Computer Graphics (*Rigid shape manipulation and deformation, Triangular mesh*)

EDUCATION:

- **PhD Student** Computer Science Department, University of Maryland College Park, MD, USA, Sep 2012 - Now. Research Area: *Computer Vision*. **Advisor:** *Prof. Larry Davis*,
- **Visiting Scholar** Computer Science Department, University of Illinois at Urbana Champaign (UIUC). Urbana, IL, USA, Apr 2011 - Aug 2011.
Research Subject: *Large Scale Object Category Recognition*. **Advisor:** *Prof. David Forsyth*
Co-Advisor: *Dr. Ali Farhadi*
- **PhD Student** Computer Science Department, Dartmouth College Hanover, NH, USA, Sep 2010 - Aug 2012. *Transferred to University of Maryland*
Research Area: *Computer Vision*. **Advisor:** *Prof. Lorenzo Torresani, Prof. David Forsyth*
- **Graduate Research** Computer Vision and Active Perception Laboratory (CVAP), Royal institute of technology (KTH) Stockholm, Sweden, March 2009 - September 2009.
Research Subject: *Capturing and Visualizing Large Scale Human Action*. **Advisor:** *Prof. Stefan Carlsson*. **Co-Advisor:** *Dr. Josephine Sullivan*
- **Graduate Research** Computer Vision Group, Institute for Research in Fundamental Science (IPM) Tehran, Iran, 2007-2010.
Research Subject: *Cartoon Motion Capturing and Shape Analysis* **Advisor:** *Prof. Mehrdad M. Shahshahani*. **Co-Advisor:** *Dr. Niloofar Gheissari*
- **Master of Engineering** University of Science and Research Computer Engineering Department Tehran, Iran, 2007-2009. (**GPA 18.69/20**)
Thesis Subject: *Cartoon Motion Capturing and Retargeting* **Advisor:** *Prof. Mehrdad M. Shahshahani*. **Co-Advisor:** *Dr. M. Mohsen Pedram*
- **Bachelor of Engineering** Shomal University of Amol (SUA) Computer Engineering Department Tehran, Iran, 2003-2007.
Thesis Subject: *Quantum Approach to Image Processing*

RESEARCH INTERNSHIPS:

- **Research Intern** at Facebook AI Research, Menlo Park, USA, *will join at* Jan 2015 - Apr 2015.
- **Research Intern** at Microsoft Research, Redmond, USA, Nov 2014 - Jan 2015.
Research Subject: *Real-Time Accurate Pose-Estimation via Large-Scale Retrieval* **Advisor:** *Dr. Shahram Izadi, Dr. Pushmeet Kohli, Dr. Cem Keskin*
- **Research Intern** at Microsoft Research, Cambridge, UK, Jun 2014 - Sep 2014.
Research Subject: *Fast Image Hashing*. **Advisor:** *Dr. Pushmeet Kohli and Dr. Cem Keskin*
- **Research Intern** at Adobe Research, Seattle, WA, USA, Jun 2013 - Aug 2013.
Research Subject: *Fast Image Prior*. **Advisor:** *Prof. Aaron Hertzmann and Dr. Eli Shechtman*
- **Research Intern** at Disney Research Lab, Pittsburgh, PA, USA, Jan 2012 - Aug 2012.
Research Subject: *Semantic Understanding of Professional Soccer Commentaries*. **Advisor:** *Prof. Jessika Hodgins* **Co-Advisor:** *Dr. Hannaneh Hajishirzi*

AWARDS AND HONORS:

- **Winner of Facebook PhD Fellowship 2014-2015 for \$30,000** (*Worldwide selection of 12 graduate students*) at Facebook Academia.
- **Microsoft Research PhD Fellowship Finalist 2014.**
- **Facebook Fellowship Finalist 2013-2014** at Facebook Academia.
- **Adobe Research Award \$10000** for one semester research on PhD at University of Maryland.
- **Dean Award \$5000** at University of Maryland.
- **5th rank** among over 9000 participants, National Graduate Entrance Exam in Computer Engineering, Iran 2007.
- **Ranked first** in the graduating class in Master of Computer Engineering, University of Science and Research, 2009.
- **Ranked second** in the class of 2007 in Computer Engineering, Shomal University, 2007.

SERVED AS REVIEWER:

- IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**).
- IEEE International Conference on Computer Vision (**ICCV**).
- IEEE Transaction on Pattern Analysis and Machine Intelligence (**PAMI**).
- European Conference on Computer Vision (**ECCV**).
- Journal on Computer Vision and Image Understanding (**CVIU**).
- Neurocomputing Journal.
- IEEE Transaction on Circuit and System for Video Technology (**TCSV**).

PUBLICATIONS:

- ***On Large-Scale Retrieval: Binary or n-ary Coding?***, (M. Rastegari, M. Najibi, M. Norouzi, L. Davis), Submitted to CVPR 2015.
- ***Computationally Bounded Retrieval***, (M. Rastegari, C. Keskin, P. Kohli, S. Izadi), Submitted to CVPR 2015.
- ***Discriminative and Consistent Similarities in Instance-Level Multiple Instance Learning***, (M. Rastegari, H. Hajishirzi, A. Farhadi), Submitted to CVPR 2015.
- ***Class Consistent Multi-Modal Fusion with Binary Features***, (A. Shrivastava, M. Rastegari, S. Shekhar, R. Chellappa, L. Davis), Submitted to CVPR 2015.
- ***Sharing Subcategory Commonalities for Learning Generalizable Classifiers***, (J. Choi, M. Rastegari, A. Farhadi), Submitted to CVPR 2015.
- ***Comparing apples to apples in the evaluation of binary coding methods***, (M. Rastegari, S. Fakhraei, J. Choi, D. Jacobs, L. Davis), PAMI 2014, Under review .
- ***Modeling Natural Images with Shared-Basis Mixtures***, (M. Rastegari, E. Shechtman, and A. Hertzmann), Technical Report. Adobe Research 2014
- ***Acknowledging Commonalities: improving generalization of HOG-based SVMs***, (A. Farhadi, M. Rastegari, and A. Efros, M. Hebert), Technical Report CMU 2014.
- ***Domain Adaptive Classification***, (M. Rastegari*, F. Mirrashed*), ICCV 2013. (*equal contribution)
- ***Predictable Dual-View Hashing***, (M. Rastegari, J. Choi, S. Fakhraei, H. Daume, L. Davis), ICML 2013.
- ***Multi-Attribute Queries: To Merge or not to Merge?***, (M. Rastegari, D. Parikh, A. Farhadi), CVPR 2013.
- ***Adopting Unseen Examples to a Category by Learned Attributes***, (J. Choi, M. Rastegari, A. Farhadi, L. Davis), CVPR 2013.
- ***Semantic Understanding of Professional Soccer Commentaries***, (H. Hajishirzi, M. Rastegari, A. Farhadi and J. Hodgins), UAI 2012.
- ***Attribute Discovery via Predictable Discriminative Binary Code***, (M. Rastegari, A. Farhadi and D. Forsyth), ECCV 2012.
- ***Extremely Fast Nonlinear Classification via Discriminative Binning Maps***, (M. Rastegari, M. A. Sadeghi, A. Farhadi and D. Forsyth), Technical Report UIUC 2012.

- **Scalable Object-Class Retrieval with Approximate and Top-k Ranking**, (M. Rastegari*, C. Fang* and L. Torresani), *International Conference on Computer Vision (ICCV)* 2011, Barcelona, Spain. (*equal contribution)
- **Object Detection using Pictorial Structure from Active Basis**, (B. Saleh and M. Rastegari), *International Conference on Computer Vision Theory and Applications (VISAPP)* 2010, Angers, France. (Oral)
- **Action Recognition in Large Scale Domain**, (M. Rastegari, J. Sullivan and S. Carlsson), Technical Report, KTH 2009.
- **Cartoon Motion Capturing and Retargeting by Rigid Shape Manipulation**, (M. Rastegari, M. Rouhani, N. Gheissari, and M.M. Pedram.) *IEEE proceeding, Digital Image Computing Technique and Application (DICTA)* 2009, Melbourne, Australia. (Oral)
- **System of linear differential equations and collocation method**, (M.Saravi, E. Babolian and M. Rastegari) *Mathematic Scientific Journal (MSJ)*, Volume 5, NO.2, Autumn-Winter 2009-2010, Page: 79-87.
- **Multi-scale Cartoon Motion Capture and Retargeting without Shape Matching**, (M. Rastegari and N. Gheissari.) *IEEE proceeding, Digital Image Computing Technique and Application (DICTA)* 2008, Canaberra, Australia.
- **Solution of linear ODEs by a pseudo-spectral method with coefficient singularity**, (M. Rastegari, M. Saravi, R. England, M.T Bromilow.) *22nd Biennial Conference on Numerical Analysis University of Dundee* 2007, Dundee, Scotland.
- **An experimental method for modifying pseudo-spectral method for solving ODEs with singularity point**, (M. Saravi, E. Babolian and M. Rastegari.) *36th Annual International Mathematics Conference of Iran sept*, 2005, Yazd, Iran.
- **Quantum approach to Image Processing**, (M. Rastegari) *Technical Report*. Shomal University. 2007.

INVITED TALKS:

- *Visual and Geometry Group at Oxford University, Oxford, UK, Sep 2014*. Rich and Efficient Visual Data Representation
- *University of Illinois at Urbana Champagin, Sep 2013*. Predictability and its Applications
- *University of Texas at Austin, Apr 2013*. Binary Attribute Discovery
- *University of Maryland, Sep 2012*. Predictable Discriminative Binary Codes
- *Disney Research, Aug 2012*. Instance Level Multiple Instance Learning.
- *Sharif University of Technology, Tehran, Iran, May 2014*. Rich and Efficient Visual Data Representation
- *IPM, October 2009*. Action Recognition in Large Scale Domains.
- *CVAP-KTH, September 2009*. Max-Margin Hough Transform.
- *IPM, February 2008*. On Shape Matching Methods.

WORK EXPERIENCE:

- **Teaching Assistant** Machine Learning *University of Maryland 2012-Fall*. Computer Vision, Numerical Linear Algebra, Security and Privacy *Dartmouth College 2010-2011*. Algorithm Design, Discrete Mathematics, Programming Languages at *Shomal university, 2004-2007*.
- **Developer of** Vision-Based Advanced Driver Assistant System (ADAS) at *Pars-Khodro Auto-mobile Manufacture, 2008*.
- **Teaching** Programming Languages at *National Organization for Development of Exceptional Talents (NODET), 2009*.
- **Teaching** for preparing students in Iranian National Olympiad in Informatics, *Iran, 2005*.
- **System Developer** at *Shomal Pouyesh IT Company, 2005-2007*.

SKILLS:

- **Languages:** Persian (native), English (fluent)
- **Programming Languages:** MATLAB, C++, Python
- **Operating Systems:** Linux, Windows, MacOS X