

MOHAMMAD RASTEGARI

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RESEARCH INTERESTS:

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

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*
Course Works: *Computer Vision, Advanced Linear Algebra, Computational Neuroscience (GPA 4.00)*
Research Area: *Computer Vision*. **Advisor:** *Prof. Lorenzo Torresani, Prof. Afra Zomorodian*, **Co-Advisor:** *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)**
Major Subjects: *Advance Algorithm Design, Advance Numerical Analysis, Linear Algebra, Stochastic Processing, Parallel Algorithm, Natural Language Processing, Expert Systems, Data Mining*
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. **(GPA 16.20/20) (GPA at major subjects: 19.2/20)**
Major Subjects: *Image Processing, Database Design, Compiler, Artificial Intelligent, Algorithm Design, Operational Research (Linear Programming), Bachelor Project*.
Thesis Subject: *Quantum Approach to Image Processing*

RESEARCH INTERNS:

- **Research Intern** Adobe Research, Seattle, WA, USA, Jun 2013 - Aug 2013.
Research Subject: *Fast Image Prior*. **Advisor:** *Prof. Aaron Hertzmann and Dr. Eli Shechtman*
- **Research Intern** 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:

- **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\$** for two years to persue PhD at University of Maryland.
- **Best Poster Award** in CSRC 2011. Dartmouth College.
- **Awarded Dartmouth Gauranteed TA grant** for five years to pursue graduate study at Dartmouth College.
- **Accepted and Awarded a grant** to attend in Computer Vision and Sport Summer School (VS3), ETH, Zurich, Switzerland August 2009.
Under Supervision of Prof. Vittorio Ferrari.
- **Awarded a grant** for research at Computer Vision and Active Perception Laboratory (CVAP), KTH, Stockholm, March 2009.
Under Supervision of Prof. Stefan Carlsson.
- **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.

PUBLICATIONS:

- *Modeling Natural Images with Shared-Basis Mixtures*, (M. Rastegari, E. Shechtman, and A. Hertzmann), Submitted.
- *Acknowledging Commonalities: improving generalization of HOG-based SVMs*, (A. Farhadi, M. Rastegari, and A. Efros, M. Hebert), Submitted.
- *Instance-Level Multiple Instance Learning via Consistency Based Similarity Ranking*, (M. Rastegari, H. Hajishirzi, A. Farhadi), Submitted.
- *Predictable Hashing: In Defense of locality sensitive hashing*, (M. Rastegari, S. Fakhraei, J. Choi, D. Jacobs, L. Davis), submitted.
- *Classifier Generalization by Multi-Sample Learning*, (J. Choi, M. Rastegari, A. Farhadi), submitted.
- *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.
- *Extremely Fast Nonlinear Classification via Discriminative Binning Maps*, (M. Rastegari, M. A. Sadeghi, A. Farhadi and D. Forsyth), In Progress.
- *Attribute Discovery via Predictable Discriminative Binary Code*, (M. Rastegari, A. Farhadi and D. Forsyth), ECCV 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.) *2nd 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:

- Predictability and its Applications *University of Illinois at Urbana Champagin, Sep 2013*.
- Binary Attribute Discovery *University of Texas at Austin, Apr 2013*.
- Predictable Discriminative Binary Codes *University of Maryland, Sep 2012*.
- Instance Level Multiple Instance Learning. *Disney Research, Aug 2012*.
- Methods for Scalable Object-Class Retrieval. *MIDWEST Workshop in Computer Vision 2011, University of Michigan, Ann Arbor*
- Action Recognition in Large Scale Domains. *IPM, October 2009*.
- Max-Margin Hough Transform. *CVAP-KTH, September 2009*.
- Shape Matching Methods. *IPM, February 2008*.
- Cartoon Motion Capturing. *IPM, January 2008*.
- Quantum Entanglement as An Idea to Solve Critical Section Problem. *University of Science and Research, December 2008*.
- Complexity Theory. *University of Science and Research. October 2007*.
- Quantum Cryptography. *Shomal University. May 2004*.

SCIENTIFIC EXPERIENCE:

- **Member of** Shomal University team in ACM-ICPC Regional Contest, *Tehran, Iran, November 2004*.
- **Member of** Computer Software Association at *Shomal University, 2004-2007*.
- **Member of** Referees and Question Designers in *Programming contest at Mazandaran University, 2005*.
- **Editor of** Computer Engineering Journal at *Shomal university, 2005*.

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*.
- **Teaching Assistant** Algorithm Design, Discrete Mathematics, Programming Languages at *Shomal university, 2004-2007*.

- **System Developer** at *Shomal Pouyesh IT Company, 2005-2007.*

SKILLS:

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