Mohammad Rastegari

E-mail: mohammadr@allenai.org
Home Page: https://allenai.org/team/mohammadr/

Current Positions:

- **Research Scientist** , Allen Institute for Artificial Intelligence (AI2). Seattle, WA

Education:

- **PhD** Computer Science Department, University of Maryland College Park, MD, USA, Sep 2012 - Aug 2015. Research Area:*Computer Vision.* **Advisor:** ***Prof. Larry Davis,***
- **Visiting Scholar** Computer Science Department, University of California at Berkeley. Berkeley, CA, Will Join in April 2015.
- **Visiting Scholar** Computer Science Department, Uiniversity 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** 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*

Publications:

- ***Discovering Neural Wirings***, (M Wortsman, A Farhadi, **M Rastegari**), NeuroIPS 2019.
- ***DiCENet: Dimension-wise Convolutions for Efficient Networks***, (Sachin Mehta, Hannaneh Hajishirzi, **Mohammad Rastegari**), Under Submission 2019.
- ***Butterfly Transform: An Efficient FFT Based Neural Architecture Design***, (Keivan Alizadeh, Ali Farhadi, **Mohammad Rastegari**), Under Submission 2019.
- ***ELASTIC: Improving CNNs With Dynamic Scaling Policies***, (H Wang, A Kembhavi, A Farhadi, AL Yuille, **M Rastegari**), CVPR 2019.
- ***OK-VQA: A Visual Question Answering Benchmark Requiring External Knowledge***, (K Marino, **M Rastegari**, A Farhadi, R Mottaghi), CVPR 2019.
- ***Assisted Excitation of Activations: A Learning Technique to Improve Object Detectors***, (MM Derakhshani, S Masoudnia, AH Shaker, O Mersa, MA Sadeghi, **M Rastegari**), CVPR 2019.
- ***Two Body Problem: Collaborative Visual Task Completion***, (Unnat Jain, Luca Weihs, Eric Kolve, **Mohammad Rastegari**, Svetlana Lazebnik, Ali Farhadi, Alexander G Schwing, Aniruddha Kembhavi), CVPR 2019.
- ***Learning to Learn How to Learn: Self-Adaptive Visual Navigation Using Meta-Learning***, (Mitchell Wortsman, Kiana Ehsani, **Mohammad Rastegari**, Ali Farhadi, Roozbeh Mottaghi), CVPR 2019.

- ***Espnetv2: A light-weight, power efficient, and general purpose convolutional neural network***, (Sachin Mehta, **Mohammad Rastegari**, Linda Shapiro, Hannaneh Hajishirzi), CVPR 2019.
- ***Pyramidal recurrent unit for language modeling***, (Sachin Mehta, Rik Koncel-Kedziorski, **Mohammad Rastegari**, Hannaneh Hajishirzi), EMNLP 2018.
- ***Label refinery: Improving imagenet classification through label progression***, (Hessam Bagherinezhad, Maxwell Horton, **Mohammad Rastegari**, Ali Farhadi), arXiv 2018.
- ***Espnet: Efficient spatial pyramid of dilated convolutions for semantic segmentation***, (Sachin Mehta, **Mohammad Rastegari**, Anat Caspi, Linda Shapiro, Hannaneh Hajishirzi), ECCV 2018.
- ***Iqa: Visual question answering in interactive environments***, (Daniel Gordon, Aniruddha Kembhavi, **Mohammad Rastegari**, Joseph Redmon, Dieter Fox, Ali Farhadi), CVPR 2018.
- ***LCNN: Look-up based convolutional neural networks***, (H Bagherinezhad, **M Rastegari**, A Farhadi), CVPR 2017.
- ***XNOR-Net: ImageNet Classification Using Binary Convolutional Neural Networks***, (**M Rastegari**, V Ordonez, J Redmon, A Farhadi), ECCV 2016.
- ***" What happens if..." Learning to Predict the Effect of Forces in Images***, (R Mottaghi, **M Rastegari**, A Gupta, A Farhadi), ECCV 2016.
- ***G-CNN: an Iterative Grid Based Object Detector***, (M Najibi, **M Rastegari**, LS Davis), CVPR 2016.
- ***Newtonian Scene Understanding: Unfolding the Dynamics of Objects in Static Images***, (R Mottaghi, H Bagherinezhad, **M Rastegari**, A Farhadi), CVPR 2016.
- ***Computationally Bounded Retrieval***, (M. Rastegari, C. Keskin, P. Kohli, S. Izadi), CVPR 2015.
- ***Discriminative and Consistent Similarities in Instance-Level Multiple Instance Learning***, (M. Rastegari, H. Hajishirzi, A. Farhadi), CVPR 2015.
- ***Class Consistent Multi-Modal Fusion with Binary Features***, (A. Shrivastava, M. Rastegari, S. Shekhar, R. Chellappa, L. Davis), CVPR 2015.
- ***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.
- ***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)**
- ***On Large-Scale Retrieval: Binary or n-ary Coding?***, (M. Rastegari, M. Najibi, M. Norouzi, L. Davis), Tech Report.
- ***Sharing Subcategory Commonalities for Learning Generalizable Classifiers***, (J. Choi, M. Rastegari, A. Farhadi), Tech Report .
- ***Comparing apples to apples in the evaluation of binary coding methods***, (M. Rastegari, S. Fakhraei, J. Choi, D. Jacobs, L. Davis), Tech Report .
- ***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.
- ***Extremely Fast Nonlinear Classification via Discriminative Binning Maps***, (M. Rastegari, M. A. Sadeghi, A. Farhadi and D. Forsyth), Technical Report UIUC 2012.
- ***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.) *22^{nd} 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.) *36^{th} Annual International Mathematics Conference of Iran sept,* 2005, Yazd, Iran.
- ***Quantum approach to Image Processing*** , (M. Rastegari) *Technical Report.* Shomal University. 2007.

Research Industry Experience:

- **Research Intern at** Facebook AI Research, Menlo Park, USA, 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.
- **5^{th} 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 Program Committee:

- IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**).

- IEEE International Conference on Computer Vision (**ICCV**).
- European Conference on Computer Vision (**ECCV**).
- IEEE International Conference on Machine Learnin (**ICML**).
- Neural Information Processing Systems (**NIPS**).
- International Conference on Learning Representations (**ICLR**).
- International Journal of Computer Vision (**IJCV**).
- IEEE Transaction on Pattern Analysis and Machine Intelligence (**PAMI**).
- Neurocomputing Journal.