Curriculum Vitae

HAMED PIRSIAVASH

CONTACT INFORMATION
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CURRENT POSITION
Assistant Professor
Department of Computer Science and Electrical Engineering
University of Maryland, Baltimore County (UMBC)

RESEARCH INTERESTS
Computer Vision
Machine Learning

EDUCATION

University of California Irvine, Irvine, CA — 09/2007 - 09/2012
Ph.D. in Computer Science (GPA: 4.0/4.0)
- Advisor: Prof. Deva Ramanan (now at CMU)
- Co-advisor: Prof. Ramesh Jain
- Thesis: Scalable Action Recognition in Continuous Video Streams

Sharif University of Technology, Tehran, Iran — 09/2003 - 01/2006
M.Sc. in Electrical Engineering
- Advisor: Prof. Farokh Marvasti
- Co-advisor: Prof. Shohreh Kasaei
- Thesis: Moving Object Segmentation in Video Sequences

Iran University of Science and Technology, Tehran, Iran — 09/1999 - 09/2003
B.Sc. in Electrical Engineering

ACADEMIC EXPERIENCE

University of Maryland, Baltimore County (UMBC), Baltimore, MD — 08/2015 - present
Assistant Professor
- Computer vision and machine learning

Massachusetts Institute of Technology (MIT), Cambridge, MA — 10/2012 - 06/2015
Postdoctoral Research Associate with Prof. Antonio Torralba
- Human activity understanding

University of California Irvine (UCI), Irvine, CA — 09/2007 - 09/2012
Research Assistant with Prof. Deva Ramanan
- Object detection and tracking and action recognition

University of Miami, Coral Gables, FL — 08/2006 - 06/2007
Research Assistant with Prof. Shahriar Negahdaripour
- Pairing optical and sonar cameras to perform underwater 3D reconstruction

Sharif University of Technology, Tehran, Iran — 09/2003 - 01/2006
Research Assistant with Prof. Farokh Marvasti
- Segmentation, denoising, and watermarking in images and videos

INDUSTRIAL EXPERIENCE

FX Palo Alto Laboratory (FXPAL), Palo Alto, CA — 06/2009 - 09/2009
Research Intern

- Summarization and retrieval in lecture videos: www.talkminer.com
  So far, it has indexed more than 60,000 lecture videos from YouTube and other sources.

Mitsubishi Electric Research Labs (MERL), Cambridge, MA 06/2008 - 09/2008
Research Intern
- Human behavior prediction using a motion sensor network installed in a building

Payasoft Co., Tehran, Iran 05/2000 - 07/2006
Researcher and Algorithm Developer
- Optical character recognition (OCR) systems for handwritten Persian and Arabic scripts
  Currently being used in large scale in the data entry process of several national organizations in Iran with more than 20 million records annually.

Resana Afzar Co., Tehran, Iran 01/2006 - 07/2006
Researcher and Algorithm Developer
- Developed algorithms for video denoising and stabilization for National Iranian Movie Archive

TEACHING EXPERIENCE

University of Maryland, Baltimore County, Baltimore, MA 2015-present
Instructor for "Machine Learning" and "Computer Vision"

University of California Irvine, Irvine, CA 2008-2009
Teaching Assistant for "Digital Logic Design"

Sharif University of Technology, Tehran, Iran 2005
Instructor for "Wireless Communications Lab"

Sharif University of Technology, Tehran, Iran 2005
Teaching Assistant for "Advanced Image Processing" and "Digital Image Processing"

Iran University of Science and Technology, Tehran, Iran 2001
Teaching Assistant for "Electrical Circuits"

Allameh Helli Middle School (NODET), Tehran, Iran 2000-2004
Instructor for "Computer Programming and Algorithms" and "Logic Circuit Design"

SELECTED HONORS AND AWARDS

Best Paper Award at ICTAI 2017 2017

Best Paper Award at BMG Workshop at CVPR 2007 2007

Travel Grant, CVPR 2014 2014

Doctoral Consortium Travel Grant, CVPR 2012 2012

Ranked in Top 3 in hITEC Entrepreneurship Competition at UC Irvine 2009

Ranked 13/∼8,000, Nationwide Entrance Exam for Graduate Studies 2003

Ranked in Top 0.1%, National Electrical Engineering Olympiad 2003

Silver Medal in the National Physics Olympiad for high school students 1998

Admission to middle school and high school in National Organization for Development of Exceptional Talents (NODET) (success rate <0.3%) 1992 and 1995

Research Support

External: Total for UMBC: **$2,890,504** (My share: **$1,851,488**)

- DARPA (CREATE program): **$944,238**, Role: co-PI (My share: **$308,105**) 2019-2021
- DARPA (LWLL program): Role: Sole-PI of UMBC (My share: **$627,262**) 2019-2022
  (UMBC and JHU are sub to HRL Labs)
- NSF-MRI: **$300,000**, Role: PI 2019-2022
- MIPS: **$100,000**, Role: Sole-PI 2019-2020
- NSF: **$167,041**, Role: Sole-PI 2018-2020

- NIST: **$149,996**, Role: Sole-PI 2018-2020
- SAP SE: **$50,000**, Role: Sole-PI 2018-2019
- SAP SE: **$75,000**, Role: Sole-PI 2018-2019
- Northrop Grumman Corporation: **$50,000**, Role: Sole-PI 2019
- Futurewei Technologies Inc.: **$194,967**, Role: Sole-PI 2017-2018
- GE Global Research: **$67,000**, Role: Co-PI (My share: almost **$40,000**) 2016-2017
- Verisk Analytics Inc.: **$40,000**, Role: Sole-PI 2016-2017
- Lockheed Martin: **$125,000**, Role: Co-PI (My share: **$49,117**) 2016-2017

Internal: Total: **$193,671** (My share: **$45,100**)

- Cost-sharing for NSF-MRI: **$128,571**, Role: PI 2019-2022
- UMBC-COEIT Strategic Plan: **$40,000**, Role: Co-PI (My share: **$20,000**) 2016-2017
- START program at UMBC: **$19,100**, Role: Sole-PI 2016-2018
- Summer Faculty Fellowship at UMBC: **$6,000**, Role: Sole-PI 2016

ACADEMIC SERVICE

Area Chair

- CVPR 2017, 2018, 2020: IEEE Conference on Computer Vision and Pattern Recognition
- ICVGIP 2016: Tenth Indian Conference on Computer Vision, Graphics and Image Processing

Co-organizer

- Workshop on Egocentric Vision at CVPR 2012

Associate Editor

- IET Computer Vision (2017-present)

Senior Program Committee Member

- IJCAI 2019, 2020: International Joint Conference on Artificial Intelligence
- AAAI 2018: AAAI Conference on Artificial Intelligence

Program Committee Member / Reviewer

- IJCV 2012-present: International Journal of Computer Vision
- TPAMI 2012-present: IEEE Transactions on Pattern Analysis and Machine Intelligence
- JEI 2014: Journal of Electronic Imaging
- CVPR 2011-2016: IEEE Conference on Computer Vision and Pattern Recognition
- ICCV 2011-2015: International Conference on Computer Vision
- NeurIPS 2013-2016: Advances in Neural Information Processing Systems
- ICML 2016: International Conference on Machine Learning
- ECCV 2012-2014: European Conference on Computer Vision
- FG 2017-2018: IEEE International Conference on Automatic Face and Gesture Recognition
- ACCV 2014: Asian Conference on Computer Vision
- ACM MM 2013-2014: ACM Multimedia
- IROS 2011: IEEE/RSJ International Conference on Intelligent Robots and Systems
- ICMR 2011: ACM International Conference on Multimedia Retrieval
- EUSIPCO 2011: 19th European Signal Processing Conference
- Several workshops at the top-tier conferences.

SELECTED PRESS COVERAGE

- Forbes, Wired, PopSci, CNN, NPR, Associated Press, Late Show with Stephen Colbert, The New York Times, MIT News, "Algorithm Binge Watches TV to Predict Human Behavior", 06/2016.
- NBC News, WIRED-UK, GIGAOM, ScienceDaily, Technology Review, MIT News, "Techniques from Natural Language Processing Enable Computers to Efficiently Search Video for Actions", 05/2014.
- MIT Technology Review, "Random Image Experiment Reveals The Building Blocks of Human Imagination", 10/2014.

PATENT

- "Systems and methods for indexing presentation videos", FXPAL, US08280158.

SELECTED PUBLICATIONS

- Aniruddha Saha, Akshayvarun Subramanya, Hamed Pirsiavash, "Hidden Trigger Backdoor Attacks", 34th AAAI Conference on Artificial Intelligence (AAAI) 2020 **(oral presentation)**
- Akshayvarun Subramanya*, Vipin Pillai*, Hamed Pirsiavash, "Fooling Network Interpretation in Image Classification", International Conference on Computer Vision (ICCV) 2019.
  *equal contribution
- Susan Y. Quan, Shai Friedland, Hamed Pirsiavash, Ravindra Kompella, Vineet Sachdev, "Artificial Intelligence Based Computer Aided Detection System Reliably Detects Polyps Earlier Than Physicians During Colonoscopy," ACG Annual Scientific Meeting 2019.
- Hadis Dashtestani, Rachel Zaragoza, Hamed Pirsiavash, Kristine M. Knutson, Riley Kermanian, Joy Cui, J. Douglas Harrison Jr., Milton Halem, Amir Gandjbakhche, "Canonical correlation analysis of brain prefrontal activity measured by functional near infra-red spectroscopy (fNIRS) during a moral judgment task", Behavioural Brain Research 2018.
- Akshayvarun Subramanya*, Vipin Pillai*, Hamed Pirsiavash, "Towards Hiding Adversarial Examples from Network Interpretation", NeurIPS 2018 Workshop on Security in Machine Learning.
  *equal contribution
- Mehdi Noroozi, Ananth Vinjimoor, Paolo Favaro, Hamed Pirsiavash, "Boosting Self-Supervised Learning via Knowledge Transfer", International Conference on Computer Vision and Pattern Recognition (CVPR) 2018.
- Yusuf Aytar, Lluis Castrejon, Carl Vondrick, Hamed Pirsiavash, Antonio Torralba, "Cross-Modal Scene Networks", IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) (2018).
- Mehdi Noroozi, Hamed Pirsiavash, Paolo Favaro, "Representation Learning by Learning to Count", International Conference on Computer Vision (ICCV) 2017 **(oral presentation)** (acceptance rate <4%).
- Arpita Roy, Anamika Rupa, Hamed Pirsiavash, Shimei Pan, "Automated Detection of Substance Use-Related Social Media Posts Based on Image and Text Analysis", IEEE International Conference on Tools for Artificial Intelligence (ICTAI), 2017. **(Best Paper Award)**.
- Ali Diba, Vivek Sharma, Ali Pazandeh, Hamed Pirsiavash, Luc Van Gool, "Weakly Supervised Cascaded Convolutional Networks", International Conference on Computer Vision and Pattern Recognition (CVPR) 2017.
- Carl Vondrick, Hamed Pirsiavash, Antonio Torralba, "Generating Videos with Scene Dynamics", Neural Information Processing Systems (NeurIPS), 2016.
- Arsalan Mousavian, Hamed Pirsiavash, Jana Kosecka, "Joint Semantic Segmentation and Depth Estimation with Deep Convolutional Networks", International Conference on 3DVision (3DV), 2016.
- Carl Vondrick, Hamed Pirsiavash, Antonio Torralba, "Anticipating Visual Representations with Unlabeled Video", International Conference on Computer Vision and Pattern Recognition (CVPR)

2016 **(spotlight presentation)**.

- Lluís Castrejón, Yusuf Aytar, Carl Vondrick, Hamed Pirsiavash, Antonio Torralba, "Learning Aligned Cross-Modal Representations from Weakly Aligned Data", International Conference on Computer Vision and Pattern Recognition (CVPR) 2016.
- Carl Vondrick, Deniz Oktay, Hamed Pirsiavash, Antonio Torralba, "Predicting Motivations of Actions by Leveraging Text", International Conference on Computer Vision and Pattern Recognition (CVPR) 2016.
- Ali Diba, Ali Mohammad Pazandeh, Hamed Pirsiavash, Luc Van Gool, "DeepCAMP: Deep Convolutional Action and Attribute Mid-Level Patterns", International Conference on Computer Vision and Pattern Recognition (CVPR) 2016.
- Carl Vondrick, Aditya Khosla, Hamed Pirsiavash, Tomasz Malisiewicz, Antonio Torralba, "Visualizing Object Detection Features", to appear in International Journal of Computer Vision (IJCV), 2016.
- Carl Vondrick, Hamed Pirsiavash, Antonio Torralba, "Learning Visual Biases from Human imagination", Neural Information Processing Systems (NeurIPS) 2015.
- Hamed Pirsiavash, Carl Vondrick, Antonio Torralba, "Assessing the Quality of Actions", European Conference on Computer Vision (ECCV) 2014.
- Hamed Pirsiavash, Deva Ramanan, "Parsing Videos of Actions with Segmental Grammars", International Conference on Computer Vision and Pattern Recognition (CVPR) 2014 **(oral presentation)** (acceptance rate <4%).
- Joseph Lim, Hamed Pirsiavash, Antonio Torralba, "Parsing IKEA Objects: Fine Pose Estimation", International Conference on Computer Vision (ICCV) 2013.
- Hamed Pirsiavash, Deva Ramanan, "Detecting Activities of Daily Living in First-person Camera Views", International Conference on Computer Vision and Pattern Recognition (CVPR) 2012 **(oral presentation)** (acceptance rate <3%).
- Hamed Pirsiavash, Deva Ramanan, "Steerable Part Models", International Conference on Computer Vision and Pattern Recognition (CVPR) 2012.
- Hamed Pirsiavash, Deva Ramanan, Charless Fowlkes, "Globally-Optimal Greedy Algorithms for Tracking a Variable Number of Objects", International Conference on Computer Vision and Pattern Recognition (CVPR) 2011.
- Sangmin Oh et al., "A Large-scale Benchmark Dataset for Event Recognition in Surveillance Video", International Conference on Computer Vision and Pattern Recognition (CVPR) 2011.
- John Adcock, Matthew Cooper, Laurent Denoue, Hamed Pirsiavash, Lawrence Rowe, "TalkMiner: A Lecture Webcast Search Engine", ACM Multimedia 2010.
- Hamed Pirsiavash, Deva Ramanan, Charless Fowlkes, "Bilinear Classifiers for Visual Recognition", Neural Information Processing Systems (NeurIPS) 2009 **(spotlight presentation)** (acceptance rate <8%).
- Shahriar Negahdaripour, Hicham Sekkati, Hamed Pirsiavash, "Opti-Acoustic Stereo Imaging: On System Calibration and 3-D Target Reconstruction", IEEE Transactions on Image Processing, Vol 18, Issue 6, Jun 2009, PP: 1203-1214.
- Vivek Singh, Hamed Pirsiavash, Ish Rishabh, Ramesh Jain, "Towards Environment-to-Environment (E2E) multimedia communication systems", Multimedia Tools and Applications Journal, Springer Netherlands, Vol 44, Num 3, pp 361-388, May 2009.

TECHNICAL REPORTS

- Aniruddha Saha, Akshayvarun Subramanya, Koni Patil, Hamed Pirsiavash, "Adversarial Patches Exploiting Contextual Reasoning in Object Detection", arXiv, 2019.

- Soheil Kolouri, Aniruddha Saha, Hamed Pirsiavash, Heiko Hoffmann, "Universal Litmus Patterns: Revealing Backdoor Attacks in CNNs", arXiv, 2019.
- Carl Vondrick, Hamed Pirsiavash, Antonio Torralba, "Anticipating the Future by Watching Unlabeled Video", arXiv:1504.08023, 2015.
- Hamed Pirsiavash*, Carl Vondrick*, Antonio Torralba, "Inferring the Why in Images", arXiv: 1406.5472, 2014. *equal contribution
- Carl Vondrick, Hamed Pirsiavash, Aude Oliva, Antonio Torralba, "Acquiring Visual Classifiers from Human Imagination", arXiv:1410.4627, 2014.
- Agata Lapedriza, Hamed Pirsiavash, Zoya Bylinskii, Antonio Torralba, "Are all training examples equally valuable?", arXiv:1311.6510, 2013.

OTHER PUBLICATIONS

- Maxim Lazarov, Hamed Pirsiavash, Behzad Sajadi, Uddipan Mukherjee, Aditi Majumder, "Data Handling Displays", Workshops of CVPR 2009 - 6th IEEE/ACM International Workshop on Projector-Camera Systems (Procams 2009).
- Pinaki Sinha, Hamed Pirsiavash, Ramesh Jain, "Personal Photo Album Summarization", ACM Multimedia 2009 - Grand Challenge.
- Hamed Pirsiavash, Vivek Singh, Aditi Majumder, Ramesh Jain, "Shared Visualization Spaces for Environment-to-Environment Communication", NSF Workshop on Media Arts, Science, and Technology 2009.
- Vivek Singh, Hamed Pirsiavash, Ish Rishabh, Ramesh Jain, "Towards Environment-to-Environment (E2E) Multimedia Communication Systems", Workshops of ACM Multimedia 2008 - Semantic Ambient Media Experience.
- Ish Rishabh, Vivek Kumar Singh, Hamed Pirsiavash, Ramesh Jain, "Environment to environment (E2E) communication systems for collaborative work", Computer supported cooperative work (CSCW) 2008.
- Shahriar Negahdaripour, Hamed Pirsiavash, Hicham Sekkati, "Integration of motion cues in optical and sonar video imaging for 3-D positioning", Workshops of CVPR 2007 - Towards Benchmarking Automated Calibration, Orientation, and Surface Reconstruction from Images.
- Shahriar Negahdaripour, Hicham Sekkati, Hamed Pirsiavash, "Opti-Acoustic Stereo Imaging, System Calibration and 3-D Reconstruction", Workshops of CVPR 2007 - Beyond Multiview Geometry **(Best Paper Award)**.
- Amir Houmansadr, Hamed Pirsiavash, Shahrokh Ghaemmaghami, "Robust Content-based Video Watermarking Exploiting Motion Entropy Masking Effect", International Conference on Signal Processing and Multimedia Applications 2006.
- Hamed Pirsiavash, Shohreh Kasaei, Farokh Marvasti, "An Efficient Parameter Selection Criterion for Image Denoising", 5th IEEE International Symposium on Signal Processing and Information Technology 2005.
- Hamed Pirsiavash, Mohammad Soleymani, Gholam-Ali Hossein-Zadeh, "An Iterative Approach for Reconstruction of Arbitrary Sparsely Sampled Magnetic Resonance Images", The 18th IEEE International Symposium on Computer-Based Medical Systems 2005.
- Hamed Pirsiavash, Ramin Mehran, Farbod Razzazi, "A Robust Free Size OCR for Omni-font Persian/Arabic Printed Document using MLP/SVM", Lecture Notes in Computer Science, LNCS 3773, pp. 601-610, Springer Verlag, Nov. 2005.
- Ramin Mehran, Hamed Pirsiavash, Farbod Razzazi, "A Front-end OCR for Omni-font Persian/Arabic Cursive Printed Documents", Digital Image Computing: Techniques and Applications (DICTA) 2005.

- Hamed Pirsiavash, Farbod Razzazi, "Design and Implementation of a Hierarchical Classifier for Isolated Handwritten Persian/Arabic Characters", Int. Conference on Signal Processing, 2003.