Moin Nabi

Contact Information

Machine Learning Research,
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Current Position

Senior Research Scientist
Machine Learning | SAP Innovation Center Network, SAP SE., Berlin — **July 2017 - Now**

Education

Italian Institute of Technology (IIT), Genova, Italy
Ph.D. of Computer Science, Pattern Analysis and Computer Vision lab. — **2012 - 2015**

- Dissertation: *Mid-level Representation for Visual Recognition.*
- Advisor: Prof. Vittorio Murino.

Amirkabir University of Technology (Tehran Polytechnic), Iran
Master of Engineering in Artificial Intelligence, Computer Engineering Dep. — **2009 - 2011**

- Thesis: *Human Action Recognition in Still Image.*
- Advisor: Prof. Mohammad Rahmati.

Shomal University of Amol (SUA), Amol, Iran
Bachelor of Engineering in Software, Computer Engineering Dep. — **2003 - 2008**

Research Experience

Postdoctoral Research Fellow, Deep Relational Learning Group, University of Trento, Italy — **July 2015 - July 2017**
Collaborating with: Prof. Nicu Sebe.

Visiting Researcher, Graphics and Imaging Laboratory (GRAIL), University of Washington, Seattle, WA, USA — **Sep 2013 - Mar 2014**
Supervisor: Dr. Ali Farhadi.

Research Assistant, Machine Intelligence and Vision Lab., Sharif University of Technology, Tehran, Iran. — **2011 - 2012**

Research Assistant, IPM Vision Group, Institute for Research in Fundamental Sciences (IPM), Iran — **2008 - 2011**
Advisor: Prof. Mehrdad Shahshahani.

Research Interests

- **Machine Learning** Deep Neural Networks, Transfer Learning, Unsupervised Learning
- **Computer Vision** Web-scale Image Understanding, Object Detection, Activity Recognition
- **Natural Language Processing** Computational Semantics, Vision and Language Integration
- **Computational Neuroscience and Brain Decoding**

Awards and Honors

- **Microsoft Best Student Paper Awards: Second place** in IEEE International Conference on Image Processing **(ICIP 2017)**. — **2017**
- **Best Paper Award Finalist** in International Conference on Image Processing **(ICIP)** — **2016**
- **Awarded a postdoctoral research grant** from EU-FP7 project **(xLime)** to work at University of Trento, Italy. — **2015**
- **Awarded a research grant** to work at University of Washington, Seattle, WA, USA. — **2013**
- **Ph.D. Fellowship award** from the PAVIS Lab at Italian Institute of Technology, Italy. — **2012**
- **Awarded a travel grant** to attend at INRIA **VRML 2012**, Grenoble, France. — **2012**
- Awarded **Outstanding Student** certificate & prize by Shomal University President, Iran. — **2005**
- **Honorable Mention** in ACM-ICPC Regional Contest, Tehran, Iran. — **2004**
- **Semifinalist** in Iranian National Olympiad in Informatics (INOI). — **2001**
- **Ranked in the top 5%** of Iranian exceptional talents (NODET). — **1999**

Publications and Preprints

- **Self-paced Adversarial Training for Multimodal Few-shot Learning**, F. Pahde, O. Ostapenko, T. Klein, P. Jahnichen, and M. Nabi, *Submitted*.
- **Making the D in GAN Matter: Training Adversarial Discriminators for Abnormality Detection in Crowds**, M. Ravanbakhsh, E. Sangineto, M. Nabi and N. Sebe, *Submitted*.
- **Human-Machine Collaboration for Medical Image Segmentation**, F. Last, T. Klein, M. Ravanbakhsh, M. Nabi, K. Batmanghelich and V. Tresp, *Submitted*.
- **Crowd Abnormality Detection with Local Binary Tracklets**, M. Ravanbakhsh, H. Mousavi, M. Nabi, L. Marcenaro and C. Regazzoni, *Submitted*.
- **Interactive Conditional GANs for Uncertainty-Driven Semantic Segmentation**, M. Ravanbakhsh, V. Tschernezki, M. Nabi, T. Klein, and K. Batmanghelich, *Submitted*.
- **Cross-modal Hallucination for Few-shot Fine-grained Recognition**, F. Pahde, T. Klein and M. Nabi, IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2018), The Fifth Workshop on Fine-Grained Visual Categorization, Salt Lake City, USA. **(Spotlight)**
- **Discriminative Hallucination for Multimodal Few-shot Learning**, F. Pahde, M. Nabi, T. Klein, P. Jahnichen, IEEE International Conference on Image Processing (ICIP 2018), Greece.
- **Self-Paced Deep Learning for Weakly Supervised Object Detection**, E. Sangineto*, M. Nabi*, D. Culibrk, and N. Sebe, IEEE Transaction on Pattern Analysis and Machine Intelligence **(T-PAMI 2018)**.* *equal contributions*
- **Abnormal Event Recognition in Crowd Environments**, M. Nabi, H. Mousavi, H.R. Rabiee, M. Ravanbakhsh, V. Murino and N. Sebe, In book on "Applied Cloud Deep Semantic Recognition", Taylor Francis Ltd (2018).
- **Plug-and-Play CNN for Crowd Motion Analysis: An Application in Abnormal Event Detection**, M. Ravanbakhsh, M. Nabi, Mousavi, E. Sangineto and N. Sebe, EEE Winter Conference on Applications of Computer Vision (WACV 2018), Lake Tahoe, USA.
- **Deferentially Private Federated Learning: A Client Level Perspective**, R. Gayer, T. Klein and M. Nabi, Conference on Neural Information Processing Systems (NIPS 2017), Workshop on Machine Learning on the Phone and other Consumer Devices, Long Beach, USA. **(Spotlight)**
- **Vision and Language Integration: Objects and beyond**, R. Shekhar, S. Pezzelle, A. Herbelot, M. Nabi, E. Sangineto and R. Bernardi, IEEE International Conference on Computer Vision (ICCV 2017), Workshop on Closing the Loop Between Vision and Language, Venice, Italy. **(Spotlight)**
- **Training Adversarial Discriminators for Cross-channel Abnormal Event Detection in Crowds**, M. Ravanbakhsh, E. Sangineto M. Nabi and N. Sebe, arXiv:1706.07680 (2017).
- **Vision and Language Integration: Moving beyond Objects**, R. Shekhar, S. Pezzelle, A. Herbelot, M. Nabi, E. Sangineto and R. Bernardi, International Conference on Computational Semantics (IWCS 2017), Montpellier, France.
- **Autonomous Crowd-sourcing through Human-Machine Collaborative Learning**, A. Abad, M. Nabi and A. Moschitti, International ACM Conference on Research and Development in Information Retrieval **(SIGIR 2017)**, Tokyo, Japan.
- **Generative Adversarial Nets for Abnormal Event Detection in Crowds**, M. Ravanbakhsh, M. Nabi, E. Sangineto, L. Marcenaro, C. Regazzoni and N. Sebe, IEEE International Conference on Image Processing (ICIP 2017), Beijing, China. **(Microsoft Best Student Paper Award)**
- **A Cross-Modal Adaptation Approach for Brain Decoding**, P. Ghaemmaghami, M. Nabi, Y. Yan, G. Riccardi and N. Sebe, IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2017), New Orleans, USA.
- **Self-Crowdsourcing for Relation Extraction**, A. Abad, M. Nabi and A. Moschitti, in Proceedings of the Association for Computational Linguistics **(ACL 2017)**, Vancouver, Canada.
- **FOIL it! Find One mismatch between Image and Language caption**, R. Shekhar, S. Pezzelle, Y. Klimovich, A. Herbelot, M. Nabi, E. Sangineto and R. Bernardi, in Proceedings of the Association for Computational Linguistics **(ACL 2017)**, Vancouver, Canada. **(Oral Presentation)**
- **Detection and Localization of Crowd Abnormal Behavior using a Novel Tracklet-Based Model**, H.R. Rabiee, H. Mousavi, M. Nabi and M. Ravanbakhsh, In International Journal of Machine Learning and Cybernetics (2017).
- **CNN-aware Binary Map For General Image Segmentation**, H. Mousavi, M. Ravanbakhsh, M. Nabi, M. Rastegari and C. Regazzoni, IEEE International Conference on Image Processing (ICIP 2016), Phoenix, USA. **(Finalist for Best Paper Award: 7/∼2000 submissions)**

- **Efficient Convolutional Neural Network with Binary Quantization Layer**, M. Ravanbakhsh, H. Mousavi, M. Nabi, L. Marcenaro, C. Regazzoni, Conference on Neural Information Processing Systems (NIPS 2016), Workshop on Efficient Methods for Deep Neural Network, Spain.
- **Emotion-Based Crowd Representation for Abnormality Detection**, H.R. Rabiee, J. Haddadnia, H. Mousavi, M. Nabi, V. Murino and N. Sebe, arXiv:1607.07646 (2016).
- **Sparse-coded Cross-domain Adaptation from the Visual to the Brain Domain**, P. Ghaemmaghami, M. Nabi, Y. Yan and N. Sebe, IEEE International Conference on Pattern Recognition (ICPR 2016), Cancun, Mexico. **(Oral Presentation)**
- **Novel Dataset for Fine-grained Abnormal Behavior Understanding in Crowd**, H.R. Rabiee, J. Haddadnia, H. Mousavi, M. Kalantarzadeh, M. Nabi, V. Murino, IEEE Advanced Video and Signal-based Surveillance (AVSS 2016), Colorado, USA.
- **Learning with Dataset Bias in Latent Subcategory Models**, D. Stamos, S. Martelli, M. Nabi, A. McDonald, V. Murino and M. Pontil, IEEE Conference on Computer Vision and Pattern Recognition **(CVPR 2015)**, Boston, USA.
- **Mid-level Representation for Visual Recognition**, M. Nabi, Doctoral Dissertation, Italian Institute of Technology, April 2015.
- **Crowd Motion Monitoring Using Tracklet-based Commotion Measure**, H. Mousavi*, M. Nabi*, H. Kiani, A. Perina and V. Murino, IEEE International Conference on Image Processing (ICIP 2015), Montreal, Canada. ** equal contributions.*
- **Abnormality Detection with Improved Histogram of Oriented Tracklets**, H. Mousavi, M. Nabi, H. Kiani, A. Perina and V. Murino, 18th International Conference on Image Analysis and Processing (ICIAP 2015), Genova, Italy.
- **Webly-supervised Discriminative Patches for Weakly-supervised Object Detection**, M. Nabi, S. Divvala and A. Farhadi, Technical Report, *University of Washington, 2014.*
- **Temporal Poselets for Collective Activity Detection and Recognition**, M. Nabi, A. Del Bue and V. Murino, IEEE International Conference on Computer Vision Workshops (ICCVw 2013), Sydney, Australia. **(Oral Presentation)**
- **Human Action Recognition in Still Images using Bag of Latent Poselets**, M. Nabi and M. Rahmati, 9th European Conference on Visual Media Production (CVMP 2012), London, England.
- **Stock trend prediction using Twin Gaussian Process regression**, M. Mojadadi, M. Nabi and S. Khadivi, Technical Report, *Amirkabir University of Technology, 2011.*
- **A Review on Vision-Based Driver Assistant Systems (ADAS)**, B. Saleh, M. Nabi, M. Rastegari and H. Shafeian, Technical Report, Pars Khodro R&D Center 2009, Tehran, Iran.
- **A Fuzzy Approach to Image Processing**, M. Nabi, BSc Thesis, Shomal University, 2008, Iran.
- **A Turorial on Digital Image Processing using MATLAB**, M. Nabi, Technical Report, Digital Image Processing Workshop, Shomal University, Aug 2007, Iran.

Project

xLime: EU-FP7 Cross-medial cross-language knowledge extraction **(ongoing)**

This project has received funding (∼3.9M Euro) from the European Unions Seventh Framework Program for research, technological development and demonstration under grant agreement No.611346.

Selected Seminar Presentations

- **Human Behavior Understanding in the Wild**. *UofTrento*, June 2016.
- **Mid-level Representation for Visual Recognition**. *IIT*, April 2015.
- **From Visual Subcategory to Webly-supervised Visual Recognition**. *UofTrento*, Feb 2015.
- **Webly-supervised Discriminative Patches**. *University of Washington*, March 2014.
- **All about Examplar-SVMs**. *IIT*, Feb 2013.
- **Temporal-Poselets for Part-based Video Representation**. *IIT*, Dec 2012.
- **Poselet-based Human Activity Recognition in Single Images**. *Sharif UT*, Aug 2011.
- **An Invitation to 3D Vision**. *IPM Computer Vision Workshop*, June 2010.

Scientific Experience

- **Reviewing Activity:**
  - **Conferences:** CVPR 2018, ICCV 2017, CVPR 2017, ECCV 2016, ICCV 2013, BMVC 2013.
  - **Journal:** IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI).
- **Member of** Scientific Committee of IPM Computer Vision Workshop *at IPM, 2010.*
- **Member of** Scientific Committee *in ACM-ICPC Programming contest at Mazandaran Univ. ,2005.*
- **Editor-in-chief of** SEA English Journal, *First Issue, summer 2006.*
- **Member of** Computer Software Association *at Shomal university, 2004-2007.*

Teaching Experience

- **Co-Instructor of** Doctoral course on Deep Learning *at University of Trento, March 2016.*
- **Teaching** Programming Languages *at National Organization for Development of Exceptional Talents, Tehran, Iran 2010.*
- **Teaching Assistant** Programming Languages, Algorithms Design, and Artificial Intelligence *at Shomal University, 2003 - 2007*

Attended Schools

- 5^{th} **PAVIS School on Scene Understanding and Context (PAVIS2014)**
  Sestri Levante (GE), Italy, 2014.
  Under supervision of ***Antonio Torralba***
- 4^{th} **PAVIS School on Matching and Recognition of Object Instances (PAVIS2013)**
  Sestri Levante (GE), Italy, 2013.
  Under supervision of ***Andrew Zisserman***
- **INRIA Visual Recognition and Machine Learning Summer School (VRML2012)**
  INRIA Grenoble RhÃ´ne-Alpes, LEAR Team, France 2012.
  Under supervision of ***Cordelia Schmid***
- 3^{rd} **PAVIS School on Component Analysis methods for Human Sensing (PAVIS2012)**
  Sestri Levante (GE), Italy, 2012.
  Under supervision of ***Fernando De la Torre*** *and* ***Jeffrey Cohn***

Skills

- **Languages**: Persian (native), English (fluent), Arabic (moderate), Italian (basic)
- **Programming Languages**: MATLAB, C/C++, Shell Scripting, Python, Caffe, Torch
- **Operating Systems**: Linux, Windows, MacOs X
- **Typing Systems**: Microsoft Office, OpenOffice, LaTeX.

Hobbies

- **Art**: Photography, Classical Music, Short Stories
- **Sport**: Basketball, Mountain Climbing
- **Science**: Cosmology, Philosophy
- **Tourism**

References

- Professor Nicu Sebe, DISI, University of Trento
  Niculae.Sebe@unitn.it
- Professor Massimiliano Pontil, University Collage London (UCL)
  m.pontil@cs.ucl.ac.uk
- Professor Vittorio Murino, Italian Institute of Technology (IIT)
  vittorio.murino@iit.it
- Professor Mehrdad Shahshahani, Stanford University.
  mehrdads@stanford.edu
- Dr. Ali Farhadi, Assistant Professor, CS&E, University of Washington (UW)
  ali@cs.washington.edu