Mohammad Hossein Rohban

Rochester Institute of Technology
Center for Quality and Applied Statistics
98 Lomb Memorial Dr.
Rochester, NY 14623-5604
Phone : 857-210-8020
Email : mhrohban@bu.edu
mhrcqa@rit.edu
Homepage : http://blogs.bu.edu/mhrohban/

Academic Positions

- **Rochester Institute of Technology**, The John D. Hromi Center for Quality and Applied Statistics, [*Aug. 2013 - Now*].
  Part-time Lecturer. I teach "Probability and Statistics for Engineers 1" for Biomedical and Industrial Engineering (undergraduate) students.
- **Boston University**, Electrical and Computer Engineering Department, [*Sep. 2013 - Feb. 2014*].
  Part-time Postdoctoral Associate, under the Supervision of Prof. Venkatesh Saligrama. Working on different problems in Machine Learning including Topic Modeling, Sparse Recovery for Poisson Statistics, Anomaly Detection over the Graphs, and Provable Dictionary Learning.
- **Boston University**, Electrical and Computer Engineering Department, [*Sep. 2012 - Aug. 2013*].
  Postdoctoral Associate, under the Supervision of Prof. Venkatesh Saligrama and Prof. Prakash Ishwar. Working on different problems in Machine Learning including Topic Modeling, Sparse Recovery for Poisson Statistics, and Restrictions of High Dimensional Classification.

Education

- **Sharif University of Technology**, Computer Engineering Department.
  Ph.D. in Computer Engineering (Artificial Intelligence) Jul. 2012.
  Thesis Title: *Semi-Supervised Kernel Learning for Pattern Classification*
- **Sharif University of Technology**, Computer Engineering Department.
  M.Sc. in Computer Engineering (Artificial Intelligence), Sep. 2008.
  Thesis title: *Face Recognition in Low Quality Video*
  GPA : 3.8/4
  Relevant coursework : Stochastic Processes, Machine Learning, Pattern Recognition, Advanced Image Processing, Neural Networks.
- **Sharif University of Technology**, Computer Engineering Department.
  B.Sc. in Computer Engineering (Software Engineering), Sep. 2006.
  Project title: *Focused Crawling in Web*
  GPA : 3.7/4
  Relevant coursework : Data Structures and Algorithms, Algorithm Design, Advanced Computer Programming, Database Design, Compiler Design, Advanced Software Engineering, Operating Systems, Computer Networks, Internet Engineering, Network Security.

Honors

- Ranked **180**th in Nationwide University Entrance Exam among about 400,000 students, Iran, July 2002.
- Ranked **4**th in GPA (BSc.) among about 100 students, Computer Eng. Dept., Sharif University of Technology, June 2006.
- Admitted to the MSc. program as **exceptional talented** undergraduate student at Computer Eng. Dept., Sharif University of Technology, June 2006.

- ◇ Ranked $\mathbf{3}^{rd}$ in GPA (MSc.) among about 30 students, Computer Eng. Dept., Sharif University of Technology, June 2008.
- ◇ Admitted to the PhD program as **exceptional talented** graduate student at Computer Eng. Dept., Sharif University of Technology, June 2008.

RESEARCH INTERESTS

Supervised Learning in High Dimensional Settings

Sparse Coding and Compressive Sensing

Topic Modeling and Discovery

Manifold and Graph-based Semi-Supervised Learning

Applications of Machine Learning to Computer Vision Problems

PUBLICATION

1. D. Motamedvaziri, V. Saligrama, **M. H. Rohban**, "Sparse Signal Recovery under Poisson Statistics for Online Marketing Applications, *International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2014, (accepted).
2. W. Ding*, **M. H. Rohban***, P. Ishwar, V. Saligrama, "Efficient Distributed Topic Modeling with Provable Guarantees," 17^{th} *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2014, (accepted, * equal contribution).
3. W. Ding, P. Ishwar, **M. H. Rohban**, V. Saligrama, "Necessary and Sufficient Conditions for Novel Word Detection in Separable Topic Models," *NIPS Workshop on Topic Models*, 2013, (arXiv:1310.7994 [cs.LG]).
4. W. Ding*, **M. H. Rohban***, P. Ishwar, V. Saligrama, "Topic Discovery through Data Dependent and Random Projections," *International Conference on Machine Learning (ICML)*, 2013, (arXiv:1303.3664 [stat.ML]), (* equal contribution).
5. **M. H. Rohban**, P. Ishwar, B. Orten, W. C. Karl, V. Saligrama, "An Impossibility Result for High Dimensional Supervised Learning," *IEEE Information Theory Workshop (ITW)* 2013, (arXiv:1301.6915 [stat.ML]).
6. W. Ding, **M. H. Rohban**, P. Ishwar, V. Saligrama, "A New Geometric Approach to Latent Topic Modeling and Discovery," *International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2013 (arXiv:1301.0858 [stat.ML]).
7. D. Motamedvaziri*, **M. H. Rohban***, V. Saligrama, "Sparse Recovery under Poisson Statistics," 51^{st} *Allerton Conference on Communications, Control, and Computing*, 2013, (arXiv:1307.4666 [math.ST]), (* equal contribution).
8. H. S. Ayatollahi Tabatabaii, H. R. Rabiee, **M. H. Rohban**, M. Salehi, "Incorporating Betweenness Centrality in Compressive Sensing for Congestion Detection," *International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2013, (arXiv:1301.5399 [cs.NI]).
9. H. Asheri, H. R. Rabiee, **M. H. Rohban**, "Signal Extrapolation for Image and Video Error Concealment Using Gaussian Processes With Adaptive Nonstationary Kernels," *IEEE Signal Processing Letters*, 19(10): 700-703, 2012.
10. A. Ghasemi, H. R. Rabiee, M. T. Manzuri, **M. H. Rohban**, "A Bayesian Approach to the Data Description Problem," 26^{th} *conference on Artificial Intelligence (AAAI)*, 2012.
11. M. Mahdieh, M. Ghazvininejad, H. R. Rabiee, **M. H. Rohban**, "Geodesic Distance For Graph Construction in Semi-Supervised Learning," *submitted to Machine Learning (Springer)*, 2012.
12. N. Pourdamghani, H. R. Rabiee, F. Faghri, **M. H. Rohban**, "Graph Based Semi-Supervised Human Pose Estimation : When The Output Space Comes to Help," *Pattern Recognition Letters (accepted for publication)*, 2012.

13. **M. H. Rohban**, H. R. Rabiee, "Supervised Neighborhood Graph Construction for Semi-Supervised Learning," *Pattern Recognition*, DOI : doi:10.1016/j.patcog.2011.09.001, 2011.
14. A. Ghasemi, H. R. Rabiee, M. Fadaee, M. T. Manzuri, **M. H. Rohban**, "Active Learning from Positive and Unlabeled Data," *ICDM Workshop on Optimization Based Methods for Emerging Data Mining Problems (OEDM)*, 2011.
15. A. Ghasemi, M. T. Manzuri, H. R. Rabiee, **M. H. Rohban**, S. Haghiri, "Active One-Class Learning by Kernel Density Estimation," *IEEE International Workshop on Machine Learning for Signal Processing (MLSP)*, 2011.
16. M. Farajtabar, A. Shaban, H. R. Rabiee, **M. H. Rohban**, "Manifold Coarse Graining for Online Semi-Supervised Learning," *The European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML PKDD)*, 2011.
17. M. Ghazvininejad, M. Mahdieh, H. R. Rabiee, P. K. Roshan, **M. H. Rohban**, "Isograph : Neighborhood Graph Construction Based On Geodesic Distance for Semi-Supervised Learning," *IEEE International Conference on Data Mining (ICDM)*, 2011.
18. S. Khaleghian, H. R. Rabiee, and **M. H. Rohban**, "Face Recognition across Large Pose Variations Via Boosted Tied Factor Analysis," *IEEE Workshop on Applications of Computer Vision (WACV)*, 2011.
19. H. Asheri, A. Bayati, H. R. Rabiee, and **M. H. Rohban**, "Motion Vector Recovery With Gaussian Process Regression," *International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2011.
20. H. Asheri, H. R. Rabiee, N. Pourdamghani, and **M. H. Rohban**, "A Gaussian Process Regression Framework for Spatial Error Concealment with Adaptive Kernels," *International Conference on Pattern Recognition (ICPR)*, 2010.
21. M. Khansari, H. R. Rabiee, **M. H. Rohban**, and M. Ghanbari, "On The Search Window Updating for Occlusion Handling in Object Tracking Applications," *International Workshop on Computer Vision and Its Application to Image Media Processing*, Tokyo, 2009.
22. **M. H. Rohban**, H. R. Rabiee, and A. Vahdat, "Face Virtual Pose Generation using Aligned Locally Linear Regression for Face Recognition," *IEEE International Conference on Image Processing (ICIP)*, Egypt, 2009.
23. **M. H. Rohban**, H. R. Rabiee, and M. Khansari, "Face Virtual Pose Generation using Multi Resolution Subspaces," *International Symposium on Telecommunication (IST)*, Iran, 2008.

Services

- ◇ Reviewer of *IEEE Transactions on Information Theory*
- ◇ Reviewer of *IEEE Journal of Selected Topics in Signal Processing*
- ◇ Reviewer of *Elsevier Journal of Applied Soft Computing*
- ◇ Co-Supervising Ph.D. Students in ECE Dept. Boston University (thesis Committee member) and M.Sc. students Comp. Eng. Dept. in Sharif University. The students I have co-supervised were:
  - · *Weicong Ding* (Ph.D student at Electrical and Computer Engineering Department, Boston University).
  - · *Delaram Motamedvaziri* (Ph.D student at Electrical and Computer Engineering Department, Boston University).
  - · *Marjan Ghazvininejad* (M.Sc. at Sharif University of Technology) - Now Ph.D. student at Computer Science Department, University of Southern California
  - · *Nima Pourdamghani* (M.Sc. at Sharif University of Technology) - Now Ph.D. student at Brain and Creativity Institute, University of Southern California

- *Mehrdad Farajtabar* (M.Sc. at Sharif University of Technology) - Now Ph.D. student at Computer Science Department, Georgia Institute of Technology
- *Amirreza Shaban* (M.Sc. at Sharif University of Technology) - Now Ph.D. student at Computer Science and Engineering Department, Ohio State University
- *Alireza Ghasemi* (M.Sc. at Sharif University of Technology) - Now Ph.D. student at School of Computer and Communication Sciences, Ecole Polytechnique Federale de Lausanne (EPFL)
- *Zohre Baharvand Irannia* (M.Sc. at Sharif University of Technology) - Now Ph.D. student at Computational Biology and Bioinformatics, University of Southern California
- *Mohsen Hajiloo* (M.Sc. at Sharif University of Technology) - Now Postdoctoral Associate at Peter Gilgan Centre for Research and Learning, University of Toronto
- *Hadi Asheri* (M.Sc. at Sharif University of Technology)
- *Poorya Mianjy* (M.Sc. at Sharif University of Technology)
- *Mostafa Mahdieh* (M.Sc. at Sharif University of Technology)
- *Ehsaneddin Asgari* (B.Sc. at Sharif University of Technology) - Now Graduate Research Assistant in the CSAIL at Massachusetts Institute of Technology
- *Arash Vahdat* (B.Sc. at Sharif University of Technology) - Now Ph.D. student at Computer Science Department, Simon Fraser University.
- *Parnian Alimi* (B.Sc. at Sharif University of Technology) - Now Security Software Developer at Black Berry.
- *Navid Zolghadr* (B.Sc. at Sharif University of Technology) - Now Security Software Developer at Black Berry.
- *M. Esmaeel Mousa Pasandi* (B.Sc. at Sharif University of Technology) - Now Ph.D. student at VIVA lab, University of Ottawa

Work experience

◇ **Teaching Assistant**, Sharif Univ. of Tech., Comp. Eng. Dept.
Courses:

- Signals and Systems (Fall 2007)
- Stochastic Processes (Fall 2008, Spring and Fall 2009, Fall 2010, Fall 2011)
- Statistical Pattern Recognition (Spring 2009, 2010, 2011)

◇ **Machine Learning Engineer**, 2007-2008 : *Basir Pardazesh Co.*, Involved in "Automatic Vehicle Speed Detection using Computer Vision Approaches" and "Stereo Vision Vehicle Speed Detection" projects. Please check `http://basirtech.com` for more information about the company products. My main responsibility was to design efficient real time license plate tracking (in online video), and camera calibration.

◇ **Machine Learning Engineer**, 2004-2005 : *Sepanta Robotic Research Foundation*, Involved in "Forecasting of Financial Time-series using Machine Learning methods" project.

Skills

◇ Programming Languages : C, C++, Unix Shell Programming, OpenCV, Java, PHP, MySQL, MATLAB, R.

◇ OS : Linux, Windows, Mac OS

Reference

◇ Prof. Ernest Fokoue, Rochester Institute of Technology, Center for Quality and Applied Statistics, email : `epfeqa@rit.edu`

◇ Prof. Venkatesh Saligrama, Boston University, ECE Departement, email : `srv@bu.edu`

◇ Prof. Hamid R. Rabiee, Sharif University of Technology, CE Department, email: `rabiee@sharif.edu`

◇ Prof. Mohammad Khansari, University of Tehran, email : `m.khansari@ut.ac.ir`