

Ramin Raziperchikolaei

Electrical Engineering and Computer Science
Science and Engineering
University of California Merced
Merced, CA 95344

Email: rraziperchikolaei@ucmerced.edu

Website: <http://graduatestudent.ucmerced.edu/rraziperchikolaei>

RESEARCH INTERESTS

- ◇ Machine Learning, Data Mining, Big Data
- ◇ Continuous/Discrete Optimization
- ◇ Computer Vision, Deep Learning

EDUCATION

- ◇ **2013 - Now:**
Ph.D of Computer Science at University of California Merced, Merced, CA, USA.
GPA: 4/4
Advisor: Prof. Miguel Á. Carreira-Perpiñán
Thesis Proposal: **Learning Binary Hash Function for Fast Information Retrieval.**
- ◇ **2010 - 2012:**
M.Sc of Artificial Intelligence at Sharif University of Technology, Tehran, Iran.
GPA: 4/4
Advisor: Prof. Mansour Jamzad
M.Sc Thesis: **Object Tracking using Online Semi-Supervised Learning.**
- ◇ **2006 - 2010:**
B.Sc of Computer Engineering at Iran University of Science and Technology, Tehran, Iran.
GPA: 3.5/4.
Advisor: Prof. Mohammad Reza Kangavari
B.Sc Thesis: **Qualitative and Quantitative Evaluation of Intelligent Systems**

RESEARCH EXPERIENCE

- ◇ **Aug 2013 to present**
Graduate Research Assistant, University of California Merced, Merced, CA, USA.
Role: developing new techniques to solve machine learning and computer vision problems:
 - Fast retrieval of images from large datasets by learning binary hash functions.
 - Optimization of nested objective functions using the methods of auxiliary coordinates.
 - Learning low dimensional embeddings to visualize datasets with millions of points.
 - Learning circulant support vector machines to solve a set of classification problems.
- ◇ **Aug 2010 to Aug 2013**
Graduate Research Assistant, Sharif University of Technology, Tehran, IRAN.
Role: developing new object tracking and classification methods using machine learning techniques such as clustering, semi-supervised learning, online learning, etc.

PUBLICATIONS

- ◇ **Ramin Raziperchikolaei** and M. Á. Carreira-Perpiñán. Learning circulant support vector machines for fast image search. In *IEEE Int. Conf. Image Processing (ICIP 2017)*, Beijing, China, 2017b
- ◇ **Ramin Raziperchikolaei** and M. Á. Carreira-Perpiñán. Learning supervised binary hashing: Optimization vs diversity. In *IEEE Int. Conf. Image Processing (ICIP 2017)*, Beijing, China, 2017a
- ◇ **Ramin Raziperchikolaei** and M. Á. Carreira-Perpiñán. Learning independent, diverse binary hash functions: Pruning and locality. In *Proc. of the 17th IEEE Int. Conf. Data Mining (ICDM 2016)*, pages 1173–1178, Barcelona, Spain, 2016b
- ◇ **Ramin Raziperchikolaei** and M. Á. Carreira-Perpiñán. Optimizing affinity-based binary hashing using auxiliary coordinates. In *Advances in Neural Information Processing Systems (NIPS)*, pages 640–648, 2016a
- ◇ M. Á. Carreira-Perpiñán and **Ramin Raziperchikolaei**. An ensemble diversity approach to supervised binary hashing. In *Advances in Neural Information Processing Systems (NIPS)*, pages 757–765, 2016

- ◇ M. Á. Carreira-Perpiñán and **Ramin Raziperchikolaei**. Hashing with binary autoencoders. In *Proc. of the 2015 IEEE Computer Society Conf. Computer Vision and Pattern Recognition (CVPR'15)*, pages 557–566, Boston, MA, 2015a
- ◇ **Ramin Raziperchikolaei** and M. Jamzad. Visual tracking using d2-clustering and particle filter. In *Signal Processing and Information Technology, IEEE International Symposium on (ISSPIT 2012)*, pages 230–235, Dec 2012
- ◇ A. Bagheri-Khaligh, **Ramin Raziperchikolaei**, and M. E. Moghaddam. A new method for shot classification in soccer sports video based on svm classifier. In *Image Analysis and Interpretation (SSIAI), 2012 IEEE Southwest Symposium on*, pages 109–112, April 2012

POSTERS AND
EXTENDED
ABSTRACTS

- ◇ **Ramin Raziperchikolaei** and M. Á. Carreira-Perpiñán. Optimizing circulant support vector machines: the exact solution. In *OPT 2017: Optimization for Machine Learning at NIPS*, Long Beach, CA, Dec 2017c
- ◇ M. Á. Carreira-Perpiñán and **Ramin Raziperchikolaei**. Learning supervised binary hashing without binary code optimization. In *Nearest Neighbors for Modern Applications with Massive Data: An Age-old Solution with New Challenges at NIPS*, Long Beach, CA, Dec 2017b
- ◇ M. Á. Carreira-Perpiñán and **Ramin Raziperchikolaei**. Learning supervised binary hashing without binary code optimization. In *Bay Area Machine Learning Symposium (BayLearn 2017)*, Cupertino, CA, Apple, Oct 2017a
- ◇ **Ramin Raziperchikolaei** and M. Á. Carreira-Perpiñán. Optimizing affinity-based binary hashing using auxiliary coordinates. In *Bay Area Machine Learning Symposium (BayLearn 2016)*, LinkedIn Campus, Oct 2016e
- ◇ **Ramin Raziperchikolaei** and M. Á. Carreira-Perpiñán. Optimizing affinity-based binary hashing using auxiliary coordinates. In *Advances in non-convex analysis and optimization at ICML*, New York, NY, June 2016d
- ◇ **Ramin Raziperchikolaei** and M. Á. Carreira-Perpiñán. Hashing with binary autoencoders. In *Optimization Methods for the Next Generation of Machine Learning at ICML*, New York, NY, June 2016c
- ◇ **Ramin Raziperchikolaei** and M. Á. Carreira-Perpiñán. Deep learning with auxiliary coordinates, with an application to fast image search. Invited extended abstract, In *INFORMS 2015 Annual Meeting, session on Distributed and Parallel Optimization*, Nov 2015b
- ◇ **Ramin Raziperchikolaei** and M. Á. Carreira-Perpiñán. Hashing with binary autoencoders. In *INFORMS Workshop on Data Mining and Analytics*, Nov 2015a
- ◇ M. Á. Carreira-Perpiñán and **Ramin Raziperchikolaei**. An ensemble diversity approach to binary hashing. In *Bay Area Machine Learning Symposium (BayLearn 2015)*, Rosewood Sand Hill, CA, Oct 2015b
- ◇ M. Á. Carreira-Perpiñán and **Ramin Raziperchikolaei**. Hashing with binary autoencoders. In *Bay Area Machine Learning Symposium (BayLearn 2014)*, UC Berkeley Art Museum, Oct 2014

SKILLS

- ◇ **Programming Languages:** C/C++, Java, Python.
- ◇ **Frameworks:** Hadoop, MapReduce, MatConvNet, TensorFlow.
- ◇ **Statistical Software :** MATLAB.

TEACHING
ASSISTANT

- Graduate Teaching Assistant at University of California, Merced:**
 - ◇ *Algorithm Design and Analysis*, Spring 2015. Instructor: Prof. Miguel Á. Carreira-Perpiñán
 - ◇ *Algorithm Design and Analysis*, Spring 2014. Instructor: Prof. Miguel Á. Carreira-Perpiñán
 - ◇ *Introduction to Computer Science and Engineering 1*, Fall 2013. Instructor: Chi Yang Leung
- Graduate Teaching Assistant at Sharif University, Tehran, Iran:**
 - ◇ *Image Processing*, Spring 2012. Instructor: Prof. Mansour Jamzad
 - ◇ *Neural Networks and Fuzzy Systems*, Spring 2012. Instructor: Prof. Mehdi Jalili.
 - ◇ *Machine Vision*, Fall 2011. Instructor: Prof. Mansour Jamzad.

TALKS

- ◇ Oct 2017: "Learning Binary Hash Functions: Optimisation- and Ensemble-based Approaches", Electrical Engineering and Computer Science Seminar, UC Merced, CA, USA.
- ◇ Nov 2015: "Learning Binary Hash Functions: An Optimization Approach", Electrical Engineering and Computer Science Seminar, UC Merced, CA, USA.
- ◇ Nov 2015: "Deep learning with auxiliary coordinates, with an application to fast image search", INFORMS Annual Meeting, Philadelphia, PA, USA
- ◇ Nov 2015: "Hashing with binary autoencoders", INFORMS Workshop on Data Mining and Analytics, Philadelphia, PA, USA.
- ◇ Sep 2015: "An Ensemble Diversity Approach to Binary Hashing", Bay Area Machine Learning Symposium, Menlo Park, CA, USA.
- ◇ Oct 2014: "Hashing with binary autoencoders", Bay Area Machine Learning Symposium, UC Berkeley, CA, USA.
- ◇ Sep 2014: "Hashing with binary autoencoders", Electrical Engineering and Computer Science Seminar, UC Merced, CA, USA.
- ◇ Oct 2012: "An overview of the online boosting methods for object tracking" lecture for Machine Vision course, Sharif University, Tehran, Iran

PROFESSIONAL SERVICE Reviewer for the following conferences:

- ◇ Neural Information Processing Systems (NIPS 2016 and 2017)
- ◇ Computer Vision and Pattern Recognition (CVPR 2016 and 2017)
- ◇ European Conference on Computer Vision (ECCV 2016)
- ◇ International Conference on Computer Vision (ICCV 2017).

AWARDS

- ◇ Bobcat fellowship from UC Merced for the summer of 2015, 2016 and 2017.
- ◇ Travel fellowship from UC Merced for the summer of 2015 and 2016.
- ◇ ICML travel award, 2016.
- ◇ Ranked 61 th among more than 4000 Participants in National Entrance Exam of universities for M.Sc. of Artificial Intelligence 2010.

REFERENCES

Available upon request.