

Ali Mousavi

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RESEARCH INTERESTS

Statistical Machine Learning, Deep Learning, Sensor Data Science, Computational Sensing

EDUCATION

Rice University

Ph.D. in Electrical and Computer Engineering
Advisor: Richard G. Baraniuk
Thesis: Data-Driven Computational Sensing

Houston, TX
July. 2014–May 2018

Rice University

M.Sc. in Electrical and Computer Engineering
Advisor: Richard G. Baraniuk
Thesis: Topics on LASSO and Approximate Message Passing

Houston, TX
Aug. 2011–May 2014

Sharif University of Technology

B.Sc. in Electrical Engineering

Tehran, Iran
Sept. 2007–June 2011

PROFESSIONAL EXPERIENCE

AI Resident, Google

Artificial Intelligence (AI) and Applications

New York, NY
July 2018–Current

Temporary Research Assistant, Rice DSP Group

Machine Learning and Statistical Signal Processing

Houston, TX
May. 2018–July 2018

Graduate Research Assistant, Rice DSP Group

Machine Learning and Statistical Signal Processing

Houston, TX
Aug. 2011–May 2018

Data Science Intern, NativeX LLC

Focusing on Big Data related problems in mobile advertisement platform

San Francisco, CA
May 2014–July 2014

Research Intern, École Polytechnique Fédérale de Lausanne (EPFL)

Approximation for a Problem in Multi-User Information Theory

Lausanne, Switzerland
May 2010–Sept. 2010

Undergraduate Researcher, Advanced Communications Research Institute

Overloaded CDMA Systems

Tehran, Iran
Aug. 2009–Aug. 2011

Teacher/Teaching Assistant

Statistics and electrical engineering courses

Rice Univ. & Sharif Univ.
2007–2016

- Interactive R for Applied Statistics
- Probability and Statistics
- Linear Regression Applications
- Signals and Systems
- Communications Systems
- Principles of Electrical Engineering
- Principles of Logic Circuits and Digital System

AWARDS and HONORS

Schlumberger Graduate Fellowship	2016
Society of Iranian-American Women for Education (SIAWE) Fellowship	2013, 2014
Travel Grant, Matheon Conference on Compressed Sensing and its Applications, Berlin, Germany	2013
George R. Brown School of Engineering Fellowship, Rice University	2011
Iran's National Elites Foundation Fellowship	2007–2011
President's Honorary Rank Award, Sharif University of Technology	2008
Ranked 12th in the Centralized University Entrance Exam among 300,000 students (Iran)	2007
Member of the National Organization for Development of Exceptional Talents (Iran)	2000–2007

PUBLICATIONS ([Google Scholar](#))

Journal Publications

1. Ali Mousavi, Arian Maleki, Richard G. Baraniuk, “Consistent Parameter Estimation for LASSO and Approximate Message Passing”, *The Annals of Statistics*, 2018, Vol. 46, No. 1, 119148
2. Pedram Pad, Ali Mousavi, Ali Goli, Farokh Marvasti, “Simplified MAP-MUD for Active User CDMA”, *IEEE Communications Letters*, Vol. 15, No. 6, June 2011
3. Debarshi Sen, Amirali Aghazadeh, Ali Mousavi, Satish Nagarajaiah, Richard G. Baraniuk, “Sparsity-based Data-driven Approaches for Damage Detection in Plates”, *Elsevier Mechanical Systems and Signal Processing*, Volume 117, 15 February 2019, Pages 333-346
4. Ali Mousavi, Richard G. Baraniuk, “Where the Sieve Sifts: Detecting Associations Among Variables in Large Datasets”, *Submitted to IEEE Transactions on Signal Processing*, 2018
5. Debarshi Sen, Amirali Aghazadeh, Ali Mousavi, Satish Nagarajaiah, Richard G. Baraniuk, Ananad Dabak, “Data-driven Semi-supervised and Supervised Learning Algorithms for Structural Health Monitoring and Damage Detection of Pipes”, *Submitted to Elsevier Mechanical Systems and Signal Processing*, 2018

Conference Publications

1. Ali Mousavi, Gautam Dasarathy, Richard G. Baraniuk, “DeepCodec: A Data-Driven and Distributed Framework for Compressive Sensing”, *Submitted to the Thirty-second Conference on Neural Information Processing Systems (NIPS)*, May 2018.
2. Chris Metzler, Ali Mousavi, Reinhard Heckel, Richard G. Baraniuk, “Unsupervised Learning with Stein's Unbiased Risk Estimator”, *Submitted to the Thirty-second Conference on Neural Information Processing Systems (NIPS)*, May 2018.
3. Chris Metzler, Ali Mousavi, Richard G. Baraniuk, “Learned D-AMP: A Principled CNN-based Compressive Image Recovery Algorithm”, *Neural Information Processing Systems—NIPS*, Long Beach, CA, December 2017
4. Ali Mousavi, Gautam Dasarathy, Richard G. Baraniuk, “Deepcodec: Adaptive Sensing and Recovery via Deep Convolutional Neural Networks”, *Allerton Conference on Communication, Control, and Computing*, Monticello, IL, October 2017 (invited paper).
5. Ali Mousavi, Richard G. Baraniuk, “Beyond l1: Data Driven Sparse Signal Recovery using DeepInverse”, *Signal Processing with Adaptive Sparse Structured Representations—SPARS*, Lisbon, Portugal, June 2017.
6. Ali Mousavi, Richard G. Baraniuk, “Learning to Invert: Signal Recovery via Deep Convolutional Networks”, *IEEE International Conference on Acoustics, Speech and Signal Processing—ICASSP*, New Orleans, March 2017

7. Ali Mousavi, Ankit Patel, Richard G. Baraniuk, “A Deep Learning Approach to Structured Signal Recovery”, *Allerton Conference on Communication, Control, and Computing*, Monticello, IL, October 2015.
8. Ali Mousavi, Richard G. Baraniuk, “An Information-Theoretic Measure of Dependency among Variables in Large Datasets”, *Allerton Conference on Communication, Control, and Computing*, Monticello, IL, October 2015.
9. Ali Mousavi, Arian Maleki, Richard G. Baraniuk, “Optimal Tuning of Approximate Message Passing”, *Allerton Conference on Communication, Control, and Computing*, Monticello, IL, October 2014.
10. Ali Mousavi, Arian Maleki, Richard G. Baraniuk, “Asymptotic Analysis of LASSOs Solution Path”, *IEEE International Symposium on Information Theory—ISIT*, Honolulu, HI, June 2014
11. Ali Mousavi, Pedram Pad, Payam Delgosha, Farokh Marvasti, “A New Decoding Scheme for Errorless Codes for Overloaded CDMA with Active User Detection”, *International Conference on Telecommunications—ICT*, Ayia Napa, Cyprus, May 2011

PATENTS

Ali Mousavi, Richard G. Baraniuk, *Signal Recovery Via Deep Convolutional Networks*, U.S. Provisional Patent Application No. 62/432230, filed Dec 2016

INVITED TALKS

University of Colorado Boulder, Department of Computer Science, Boulder, CO, USA	2018
University of Utah, Department of Electrical Engineering, Salt Lake City, UT, USA	2018
Texas A&M University, Department of Computer Science, College Station, TX, USA	2018
Allerton Conference on Communication, Control, and Computing, Monticello, IL, USA	2017
Tehran University, Department of Electrical and Computer Engineering, Tehran, Iran	2017
Structural Health Monitoring Group, Rice University Dept. of Civil Engineering, Houston, TX, USA	2017
Geo-Mathematical Imaging Group, Rice University CAAM Department, Houston, TX, USA	2017
Sharif University of Technology, Winter Seminar Series, Tehran, Iran	2016
Sharif University of Technology, Department of Electrical Engineering, Tehran, Iran	2016
UCSD Workshop on Information Theory and its Applications (ITA), San Diego, CA, USA	2014
Texas Instruments Leadership University Seminar, Houston, TX, USA	2013

ACADEMIC SERVICE

Session Chair

Machine Learning Session at the 53rd Annual Allerton Conference

Journal/Conference Reviewer

- NIPS, Neural Information Processing Systems
- AISTATS, International Conference on Artificial Intelligence and Statistics
- ECCV, European Conference on Computer Vision
- IEEE Transactions on Signal Processing
- IEEE Transactions on Image Processing
- IEEE Signal Processing Letters
- IEEE International Symposium on Information Theory
- IEEE Global Communications Conference
- Elsevier Signal Processing

COMPUTER SKILLS

Python, TensorFlow, Keras, Theano, JAVA, C, SQL, MATLAB, R, Apache Hadoop