Curriculum Vitae

Shuai Zhang
Senior Machine Learning Engineer
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Education

- **University of California, Irvine** Irvine, CA
  Department of Mathematics, Ph.D. in Mathematics *2012–2017*
  Department of Mathematics, M.S. in Mathematics *2012–2014*
  - Advisor: Prof. Jack Xin
  - Research areas: Compressed Sensing; Image Processing and Machine Learning
- **Shandong University** Jinan, China
  Department of Mathematics, M.S. in Computational Mathematics (GPA: 3.7 / 4.0) *2009–2012*
  Department of Mathematics, B.S. in Applied Mathematics (GPA: 3.83 / 4.0) *2005–2009*

Research:

Numerical Optimization, Machine Learning, Computer Vision.

Experience

- **Senior Machine Learning Engineer at Qualcomm (QCOM)** *July, 2017 - Now*
  Research on Computer vision and edge computing.
  3D face authentication systems in Android devices (including face detection, anti-spoofing, eye attention detection and user adaptation.
  Submitted several Patents.
- **Data Scientist Intern at Zillow Group, Inc. (Z)** *June - Sept, 2016*
  Recommendation System and House Price Estimate Modelling (Zestimate)
- **Data Scientist Intern at Black Knight Financial Services, Inc. (BKFS)** *June - Dec, 2015*
  Machine Learning and Big data analysis on Spark Cluster.

List of Articles:

11 publications with 93 google citations; 3 pending patents from Qualcomm

1. Y. Xu, Y. Li, S. Zhang, W. Wen, B. Wang, Y. Qi, Y. Chen, W. Lin, H. Xiong. Trained Rank Pruning for Efficient Deep Neural Networks. *submitted to the Conference on Computer Vision and Pattern Recognition (CVPR), 2019*
2. Y. Xu, S. Zhang, X. Zhang, Y. Qi, J. Guo, W. Lin, H. Xiong. Dynamic Network Quantization. *IEEE Data Compression Conference (DCC), 2019*.
3. P. Yin, J. Lyu, S. Zhang, S. Osher, Y-Y. Qi, J. Xin. Understanding Straight-through Estimator in Training Activation Quantized Neural Nets. *Seventh International Conference on Learning Representations (ICLR), 2019*
4. X. Li, S. Zhang (co-first author), B. Jiang, Y. Qi, M. Chuah, N. Bi. DAC: Data-free Automatic Acceleration of Convolutional Networks. *IEEE Winter Conference on Applications of Computer Vision (WACV), 2019*
5. P. Yin, S. Zhang (co-first author), J. Lyu, S. Osher, Y-Y. Qi, J. Xin. Blended Coarse Gradient Descent for Full Quantization of Deep Neural Networks. *Research in the Mathematical Sciences*.
6. P. Yin, S. Zhang (co-first author), J. Lyu, S. Osher, Y. Qi, J. Xin. BinaryRelax: A Relaxation Approach For Training Deep Neural Networks With Quantized Weights. *SIAM Journal on Imaging Sciences*.
7. P. Yin, S. Zhang (co-first author), J. Xin, Y. Qi. Quantization and Training of Low Bit-Width Convolutional Neural Networks for Object Detection. *Journal of Computational Mathematics, 37(3), 2019, pp. 1-12. Online August 16, 2018: doi:10.4208/jcm.1803-m2017-0301*.

8. S. Zhang, P. Yin, J. Xin. Transformed Schatten-1 Iterative Thresholding Algorithms for Low Rank Matrix Completion. *Communications in Mathematical Sciences*.
9. S. Zhang, J. Xin. Minimization of Transformed L_1 Penalty: Closed Form Representation and Iterative Thresholding Algorithms. *Communications in Mathematical Sciences*.
10. S. Zhang, J. Xin. Minimization of Transformed L_1 Penalty: Theory, Difference of Convex Function Algorithm, and Robust Application in Compressed Sensing. *Mathematical Programming, Series B*.
11. H. Wang, H. Rui, S. Zhang. An Optimal-order Error Estimate for the Mass-conservative Characteristic Finite Element Scheme. *Applied Mathematics and Computation* 218(20):10271–10278, 2012.

Invited Talks in Conferences

1. Southern California Applied Mathematics Symposium, Claremont Colleges, CA, Jun 4, 2016
2. SIAM Conference on Imaging Science, Albuquerque, NM, May 23 - 26, 2016
3. Qualcomm Machine Learning summit, San Diego, CA, Oct 9 - 10, 2018

Awards

Second Awards in Both Low Latency Image Classsification and Detection IEEE Low Power Image Recognition Challenge II (LPIRC-II), 2018
Kovalevsky Outstanding Ph.D. Thesis Award University of California, Irvine 2017
SIAM Student Travel Award Society for Industrial and Applied Mathematics (SIAM) 2016
Von Neumann Outstanding Research Award University of California, Irvine 2014-2015
National Scholarship for Outstanding Undergraduate Ministry of Education, P.R.China 2007

Conference Technical Committee

ACM Multimedia Systems Conference (MMsys) 2019
IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2019

Paper Reviews

Reviewed 20+ papers for conferences and journals, including:

IEEE Transactions on Information Forensics and Security
IEEE Transactions on Image Processing
IEEE International Conference on Image Processing
IEEE Winter Conference on Applications of Computer Vision
IEEE Transactions on Vehicular Technology
Neural Processing Letters, Springer
Neural Networks, Elsevier
International Journal of Image and Graphics
Communications in Mathematical Sciences