

Gao Huang

CONTACT INFORMATION	617 Center Main Building, Tsinghua University Beijing 100084, China	<i>Email:</i> gaohuang@tsinghua.edu.cn <i>Web:</i> www.gaohuang.net
RESEARCH INTERESTS	My research focuses on machine learning and computer vision, in particular deep learning, resource-efficient learning, weakly-supervised/unsupervised learning and reinforcement learning.	
CURRENT APPOINTMENT	Assistant Professor, Tsinghua University Department of Automation	2018 - Present
EDUCATION	PhD, Tsinghua University <i>Advisors:</i> Cheng Wu and Shiji Song	2009 - 2015
	B.S., Beihang University GPA Rank: 1/200+	2005 - 2009
RESEARCH EXPERIENCE	Postdoctoral Fellow, Cornell University <i>Advisor:</i> Kilian Q. Weinberger	10/2015 - 08/2018
	Intern, Microsoft Research Asia <i>Advisor:</i> Jianwen Zhang	04/2014 - 10/2014
	Visiting Scholar, Nanyang Technological University <i>Advisor:</i> Guangbing Huang	02/2014 - 03/2014
	Visiting Scholar, Washington University in St. Louis <i>Advisor:</i> Kilian Q. Weinberger	01/2013 - 07/2013
AWARDS & HONORS	<ul style="list-style-type: none">- Wu Wenjun AI Science & Technology Award - Nature Science Award (First Prize), 2018- Super AI Leader - Pioneer Award, World AI Conference (WAIC), 2018- CVPR Best Paper Award, 2017- Doctoral Dissertation Award, Chinese Association of Automation, 2015- First Prize of Doctoral Dissertation Award, Tsinghua University, 2015- Outstanding Graduate, Tsinghua University, 2015- Top 100 Most Influential Scientific Papers by Chinese Authors, Ministry of Science and Technology of China, 2015- Stars of Tomorrow Internship Program, Microsoft Research, 2014- National Scholarship for PhD Students, Ministry of Education of China, 2012- First Prize Scholarship for Postgraduate, Tsinghua University, 2012, 2013, 2014- Outstanding Graduate of Beijing, 2009- National Scholarship, Ministry of Education of China, 2008- First Prize Scholarship, Beihang University, 2006, 2007, 2008	
INVITED TALKS & PRESENTATIONS	<ul style="list-style-type: none">- University of British Columbia, Vancouver, Canada, 05/2018- Microsoft Research, Seattle, USA, 04/2018- Washington University in St. Louis, USA, 04/2018- University of Chicago, Chicago, USA, 03/2018- Temple University, Philadelphia, USA, 02/2018- Megvii Technology Limited, Beijing, China, 12/2017- Shanghai Jiao Tong University, Shanghai, China, 12/2017- AI Seminar, Cornell University, Ithaca, USA, 09/2017- CVPR, Honolulu, USA, 07/2017- Apple Research, Seattle, USA, 07/2017- Microsoft Research Asia, Beijing, China, 12/2016- Tsinghua University, Beijing, China, 12/2016	

- AAAI Conference on Artificial Intelligence, Austin, USA, 01/2015
- European Conference on Machine Learning, Nancy, France, 09/2014
- Nanyang Technological University, Singapore, 02/2014

PUBLICATIONS **Conference Publications**

1. Yan Wang, Zihang Lai, Gao Huang, Brian Wang, Laurens van der Maaten, Mark Campbell, Kilian Q. Weinberger. Anytime Stereo Image Depth Estimation on Mobile Devices, *International Conference on Robotics and Automation (ICRA)*, 2019, Montreal, Canada.
2. Zhuang Liu*, Mingjie Sun*, and Tinghui, Zhou, Gao Huang, Trevor Darrell. Rethinking the value of network pruning, *International Conference on Learning Representations (ICLR)*, 2019, New Orleans, USA.
3. Yang Fu, Yunchao Wei, Yuqian Zhou, Honghui Shi, Gao Huang, Xinchao Wang, Zhiqiang Yao, Thomas Huang, Horizontal Pyramid Matching for Person Re-identification, *AAAI Conference on Artificial Intelligence (AAAI)*, 2019, Hawaii USA.
4. Gao Huang*, Shichen Liu*, Laurens van der Maaten and Kilian Weinberger. CondenseNet: An Efficient DenseNet using Learned Group Convolutions. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018, Salt Lake City, USA.
5. Yan Wang*, Lequn Wang*, Yurong You*, Xu Zou, Vincent Chen, Serena Li, Gao Huang, Bharath Hariharan, Kilian Weinberger. Resource Aware Person Re-identification across Multiple Resolutions. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018, Salt Lake City, USA.
6. Gao Huang, Danlu Chen, Tianhong Li, Felix Wu, Laurens van der Maaten and Kilian Weinberger. Multi-Scale Dense Convolutional Networks for Resource Efficient Image Classification. *International Conference on Learning Representations (ICLR)*, 2018, Vancouver, Canada. **Oral presentation.**
7. Zhuang Liu, Jianguo Li, Zhiqiang Shen, Gao Huang, Shoumeng Yan and Changshui Zhang. Learning Efficient ConvNets through Network Slimming. *International Conference on Computer Vision (ICCV)*, 2017, Venice, Italy.
8. Gao Huang*, Zhuang Liu*, Laurens van de Maaten and Kilian Weinberger. Densely Connected Convolutional Networks. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017, Hawaii, USA. **Oral presentation. (Best Paper Award)**
9. Gao Huang*, Yixuan Li*, Geoff Pleiss, Zhuang Liu, John E. Hopcroft and Kilian Weinberger. Snapshot Ensembles: Train 1, Get M for Free. *International Conference on Learning Representations (ICLR)*, 2017, Toulon, France.
10. Gao Huang*, Chuan Guo*, Matt Kusner, Yu Sun, Fei Sha and Kilian Weinberger. Supervised Word Mover’s Distance. *Neural Information Processing Systems (NIPS)*, 2016, Barcelona, Spain. **Oral presentation.**
11. Gao Huang*, Yu Sun*, Zhuang Liu, Daniel Sedra and Kilian Weinberger. Deep networks with stochastic depth. *European Conference on Computer Vision (ECCV)*, 2016, Amsterdam, Netherlands. **Spotlight.** (This paper was recommended as an **Oral Presentation** at NIPS 2016 Deep Learning Symposium.)
12. Gao Huang, Jianwen Zhang, Shiji Song and Zheng Chen. Maximin separation probability clustering. The *AAAI Conference on Artificial Intelligence (AAAI)*, 2015, Austin, USA.
13. Yihe Wan, Shiji Song and Gao Huang. Incremental Extreme Learning Machine Based on Cascade Neural Networks. *IEEE International Conference on Systems, Man and Cybernetics (IEEE SMC)*, 2015, Hong Kong.

14. Yanshang Gong, Shiji Song and Gao Huang. Dimension Reduction by Maximizing Pairwise Discriminations. *IEEE International Conference on Systems, Man and Cybernetics* (IEEE SMC). 2015, Hong Kong.
15. Chen Qin, Shiji Song and Gao Huang. Non-linear neighborhood component analysis based on constructive neural networks. *IEEE International Conference on Systems, Man and Cybernetics* (IEEE SMC), 2014, San Diego, CA, USA.
16. Gao Huang, Shiji Song, Zhixiang Xu, Kilian Weinberger and Cheng Wu. Transductive minimax probability machine. *European Conference on Machine Learning* (ECML), 2014, Nancy, France. **Oral presentation.**
17. Zhixiang Xu, Gao Huang, Kilian Weinberger, Alice Zheng. Gradient Boosted Feature Selection. *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining* (KDD), 2014, New York, NY, USA.
18. Zhixiang Xu, Matt Kusner, Gao Huang and Kilian Weinberger. Anytime representation learning. *International Conference on Machine Learning* (ICML), 2013, Atlanta GA, USA.

Journal Publications

19. Shiji Song, Yanshang Gong, Yuli Zhang, Gao Huang and Guangbin Huang. Dimension Reduction by Minimum Error Minimax Probability Machine. *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, 47(1), pp. 58-69, 2016.
20. Shuang Li, Shiji Song and Gao Huang. Prediction reweighting for domain adaptation. *IEEE Transactions on Neural Networks and Learning Systems*, 2016.
21. Quan Zhou, Shiji Song, Gao Huang and Cheng Wu. Efficient lasso training from a geometrical perspective. *Neurocomputing* 168 (11), pp. 234-239, 2015.
22. Chen Qin, Shiji Song and Gao Huang and Lei Zhu. Unsupervised neighborhood component analysis for clustering. *Neurocomputing*, 168(11), pp. 609-617, 2015.
23. Gao Huang, Tianchi Liu, Yan Yang, Zhiping Lin, Shiji Song and Cheng Wu. Discriminative clustering via extreme learning machine, *Neural Networks*, 70(10), pp. 1-8, 2015.
24. Gao Huang, Guang-Bin Huang, Shiji Song and Keyou You. Trends in extreme learning machine: a review, *Neural Networks*, 61(2), pp. 32-48, 2015.
25. Gao Huang, Shiji Song, Jatinder Gupta and Cheng Wu. Semi-supervised and unsupervised extreme learning machines. *IEEE Transactions on Cybernetics*, 44 (12), pp. 2405-2417, 2014.
26. Gao Huang, Shiji Song, Jatinder Gupta and Cheng Wu. A second order cone programming approach for semi-supervised learning. *Pattern Recognition*, 46(12), pp. 3548-3558, 2013.
27. Gao Huang, Shiji Song, Cheng Wu and Keyou You. Robust support vector regression for uncertain input and output data, *IEEE Transactions on Neural Networks and Learning System*, 23 (11), pp. 1690-1700, 2012.
28. Gao Huang, Shiji Song and Cheng Wu. Orthogonal least squares algorithm for training cascade neural networks. *IEEE Transactions on Circuits and Systems I: Regular Papers*, 59 (11), pp. 2629-2637, 2012.
29. Quan Zhou, Shiji Song, Cheng Wu and Gao Huang. Kernelized LARS-LASSO for constructing radial basis function neural networks. *Neural Computing and Applications*, 23(7-8), pp. 1969-1976, 2013.

Technical Reports and Preprints

30. Geoff Pleiss*, Danlu Chen*, Gao Huang, Tongcheng Li, Laurens van der Maaten and Kilian Q. Weinberger. Memory-Efficient Implementation of DenseNets. *Technical Report*, 2017.

*** Equal contribution**

TEACHING EXPERIENCE	Guest Lecturer for <i>Advanced Machine Learning</i> Instructor: Professor Kilian Weinberger Department of Computer Science, Cornell University Teaching Assistant for <i>Applied Stochastic Process</i> Instructor: Professor Shiji Song Department of Automation, Tsinghua University	Fall 2017 Fall 2010, 2011, 2012
REVIEWING & SERVICE	Senior Program Committee (SPC) member for AAAI 2018 Reviewer for <ul style="list-style-type: none">- Journal of Machine Learning Research (JMLR)- Machine Learning (ML)- IEEE Transactions on Pattern Recognition and Machine Intelligence (TPAMI)- IEEE Transactions on Image Processing (TIP)- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)- IEEE Transactions on Cybernetics- Pattern Recognition (PR)- International Conference on Machine Learning (ICML)- Neural Information Processing Systems (NIPS)- International Conference on Artificial Intelligence and Statistics (AISTATS)- International Conference on Learning Representations (ICLR)- IEEE Conference on Computer Vision and Pattern Recognition (CVPR)- European Conference on Computer Vision (ECCV)- International Conference on Computer Vision (ICCV)- AAAI Conference on Artificial Intelligence (AAAI)	