

Zhiding Yu

PERSONAL INFORMATION	Tel: (850) 567-2583 Email: zhidingy@nvidia.com	Office: 2788 San Tomas Expy, Santa Clara, CA 95051 Homepage: https://chrisding.github.io
RESEARCH INTERESTS	Deep representation learning, self/weakly/semi-supervised learning, transfer learning and structured prediction, with applications to vision and robotics problems.	
PROGRAMMING SKILLS	C, C++, Python, Matlab, Caffe, PyTorch, TensorFlow, OpenCV	
WORK EXPERIENCE	NVIDIA Research Senior Research Scientist Research Scientist <ul style="list-style-type: none">Fundamental research in deep learning and general machine learning, with applications to computer vision, robotics, multimedia and healthcareAlgorithm/API/SDK development and code open sourceHigh-impact academic publications and patent filingConsultation and technology transfer to NVIDIA products.	Santa Clara, CA 06/01/20 - Present 01/16/18 - 05/31/20
	Mitsubishi Electric Research Laboratories Research Intern, Computer Vision Group <ul style="list-style-type: none">Intern Project: Deep category-aware semantic edge detectionProposed a deep semantic edge learning framework with SOTA performanceOne paper accepted to CVPR 2017	Cambridge, MA 07/11/16 - 11/18/16
	Microsoft Research Research Intern, Multimedia, Interaction, and Communication Group <ul style="list-style-type: none">Intern Project: Deep CNN based static facial expression recognitionWork integrated to Emotion Recog API under Azure Cognitive Services (Media Coverage)2nd Place at the EmotiW-SFEW Challenge and oral at ACM-ICMI 2015	Redmond, WA 05/25/15 - 08/28/15
	Adobe Research Research Intern, Computer Vision Group <ul style="list-style-type: none">Intern Project: Graph cut pixel selection and voice-based editing for PixelToneDevelopment of iOS App for image editing using Objective-C	San Jose, CA 06/03/13 - 08/30/13
EDUCATION	Carnegie Mellon University (CMU) Ph.D. Electrical & Computer Eng. (Advisor: Vijayakumar Bhagavatula)	Pittsburgh, PA 2012 - 2017
	Hong Kong University of Science & Technology (HKUST) M.Phil. Electronic & Computer Eng. (Advisor: Oscar C. Au)	Hong Kong 2009 - 2012
	South China University of Technology (SCUT) B.Eng. Information Engineering (Talented Student Program)	Guangzhou, China 2005 - 2008
HONORS & AWARDS	<ul style="list-style-type: none">Best Paper Award, BMVC20Outstanding Reviewers, ICCV19Top 200 Reviewers, NeurIPS18Winner, Domain Adaptation Track of WAD Challenges, CVPR18First Runner Up, EmotiW-SFEW Challenge, ACM-ICMI15Best Paper Award, WACV15Best Student Paper Award, ISCSLP14CVPR14 Travel GrantCarnegie Institute of Technology Dean's Tuition Fellowship, CMUHKTIIT Post-Graduate Excellence Scholarship, HKUSTHKTIIT Post-Graduate Excellence Scholarship, HKUSTResearch Postgraduate Studentship, HKUSTNational Silver Prize, China Adolescents Sci & Tech Invention Contest	2020 2019 2018 2018 2015 2015 2014 2014 2012 2012 2010 2009-2012 2004

Preprints & Submissions

1. Haoxuan Wang, Anqi Liu, **Zhiding Yu**, Yisong Yue, Anima Anandkumar, “Distributionally Robust Learning for Unsupervised Domain Adaptation.” *arXiv:2010.05784*.
2. Guilin Liu, Rohan Taori, Ting-Chun Wang, **Zhiding Yu**, Shiqiu Liu, Fitsum A. Reda, Karan Sapra, Andrew Tao, Bryan Catanzaro, “Transposer: Universal Texture Synthesis Using Feature Maps as Transposed Convolution Filter.” *arXiv:2007.07243*.
3. Guilin Liu, Kevin Shih, Ting-Chun Wang, Fitsum A. Reda, Karan Sapra, **Zhiding Yu**, Andrew Tao, Bryan Catanzaro, “Partial Convolution based Padding.” *arXiv:1811.11718*.

Accepted Papers

1. Weili Nie, **Zhiding Yu**, Lei Mao, Ankit B. Patel, Yuke Zhu, Anima Anandkumar, “Bongard-LOGO: A New Benchmark for Human-Level Concept Learning and Reasoning.” *Neural Information Processing Systems (NeurIPS)*, 2020. (**Spotlight**)
2. Yujia Huang, Sihui Dai, James Gornet, **Zhiding Yu**, Tan Nguyen, Doris Y. Tsao, Anima Anandkumar, “Neural Networks with Recurrent Generative Feedback.” *Neural Information Processing Systems (NeurIPS)*, 2020.
3. Xueyan Zou, Fanyi Xiao, **Zhiding Yu**, Yong Jae Lee, “Delving Deeper into Anti-aliasing in ConvNets.” *British Machine Vision (Virtual) Conf. (BMVC)*, 2020. (Oral, **Best Paper Award**)
4. Zhongzheng Ren, **Zhiding Yu**, Xiaodong Yang, Ming-Yu Liu, Alexander G. Schwing, Jan Kautz, “UFO²: A Unified Framework Towards Omni-supervised Object Detection.” *European Conf. on Comp Vision (ECCV)*, 2020.
5. Yang Zou, Xiaodong Yang, **Zhiding Yu**, Vijaya Kumar, Jan Kautz, “Joint Disentangling and Adaptation for Cross-Domain Person Re-Identification.” *European Conf. on Comp Vision (ECCV)*, 2020. (Oral)
6. Wuyang Chen, **Zhiding Yu**, Zhangyang Wang, Animashree Anandkumar, “Automated Synthetic-to-Real Generalization.” *Int. Conf. on Machine Learning (ICML)*, 2020.
7. Beidi Chen, Weiyang Liu, **Zhiding Yu**, Jan Kautz, Anshumali Shrivastava, Animesh Garg, Animashree Anandkumar, “Angular Visual Hardness.” *Int. Conf. on Machine Learning (ICML)*, 2020.
8. Zhongzheng Ren, **Zhiding Yu**, Xiaodong Yang, Ming-Yu Liu, Yong Jae Lee, Alexander G. Schwing, Jan Kautz, “Instance-aware, Context-focused, and Memory-efficient Weakly-Supervised Object Detection.” *IEEE Conf. on Comp Vision and Pattern Recognition (CVPR)*, 2020.
9. Rongmei Lin, Weiyang Liu, Zhen Liu, Chen Feng, **Zhiding Yu**, James M Rehg, Li Xiong, Le Song, “Regularizing Neural Networks via Minimizing Hyperspherical Energy.” *IEEE Conf. on Comp Vision and Pattern Recognition (CVPR)*, 2020.
10. Aysegul Dundar, Ming-Yu Liu, **Zhiding Yu**, Ting-Chun Wang, John Zedlewski, Jan Kautz, “Domain Stylization: A Fast Covariance Matching Framework towards Domain Adaptation.” *IEEE Trans. on Pattern Analysis and Machine Intelligence (T-PAMI)*, 2020.
11. Yingda Xia, Dong Yang, **Zhiding Yu**, Fengze Liu, Jinzheng Cai, Lequan Yu, Zhuotun Zhu, Daguang Xu, Alan Yuille, Holger Roth, “Uncertainty-Aware Multi-View Co-training for Semi-supervised Medical Image Segmentation and Domain Adaptation.” *Medical Image Analysis (MEDIA)*, 2020.
12. Yang Zou*, **Zhiding Yu***, Xiaofeng Liu, B.V.K. Vijaya Kumar, Jinsong Wang, “Confidence Regularized Self-Training.” *International Conf. on Comp Vision (ICCV)*, 2019. (Oral. * indicates equal contribution)
13. Zhedong Zheng, Xiaodong Yang, **Zhiding Yu**, Liang Zheng, Yi Yang, Jan Kautz, “Joint Discriminative and Generative Learning for Person Re-identification.” *IEEE Conf. on Comp Vision and Pattern Recognition (CVPR)*, 2019. (Oral)
14. Weiyang Liu, Rongmei Lin, Zhen Liu, Lixin Liu, **Zhiding Yu**, Bo Dai, Le Song, “Learning towards Minimum Hyperspherical Energy.” *Neural Information Processing Systems (NeurIPS)*, 2018.
15. **Zhiding Yu**, Weiyang Liu, Yang Zou, Chen Feng, Srikumar Ramalingam, B.V.K. Vijaya Kumar, Jan Kautz, “Simultaneous Edge Alignment and Learning.” *European Conf. on Comp Vision (ECCV)*, 2018.

16. Yang Zou*, **Zhiding Yu***, B.V.K. Vijaya Kumar, Jinsong Wang, “Unsupervised Domain Adaptation for Semantic Segmentation via Class-Balanced Self-Training.” *European Conf. on Comp Vision (ECCV)*, 2018. (* indicates equal contribution)
17. Xin Yu, **Zhiding Yu**, Srikumar Ramalingam, “Learning Strict Identity Mappings in Deep Residual Networks.” *IEEE Conf. on Comp Vision and Pattern Recognition (CVPR)*, 2018.
18. Weiyang Liu, Zhen Liu, **Zhiding Yu**, Bo Dai, Rongmei Lin, Yisen Wang, James M. Rehg, Le Song, “Decoupled Networks.” *IEEE Conf. on Comp Vision and Pattern Recognition (CVPR)*, 2018. (Spotlight)
19. Weiyang Liu, Yan-Ming Zhang, Xingguo Li, **Zhiding Yu**, Bo Dai, Tuo Zhao, Le Song, “Deep Hyperspherical Learning.” *Neural Information Processing Systems (NeurIPS)*, 2017.
20. **Zhiding Yu**, Chen Feng, Srikumar Ramalingam, Ming-Yu Liu, “CASENet: Deep Category-Aware Semantic Edge Detection.” *IEEE Conf. on Comp Vision and Pattern Recognition (CVPR)*, 2017.
21. Weiyang Liu, Yandon Wen, **Zhiding Yu**, Ming Li, Bhiksha Raj, Le Song, “SphereFace: Deep Hypersphere Embedding for Face Recognition.” *IEEE Conf. on Comp Vision and Pattern Recognition (CVPR)*, 2017.
22. **Zhiding Yu**, Weiyang Liu, Wenbo Liu, Yingzhen Yang, Ming Li, B.V.K. Vijaya Kumar, “On Order-Constrained Transitive Distance Clustering.” *AAAI Conf. on Artificial Intelligence (AAAI)*, 2016.
23. Weiyang Liu, Yandong Wen, **Zhiding Yu**, Meng Yang, “Large-Margin Softmax Loss for Convolutional Neural Networks.” *Int. Conf. on Machine Learning (ICML)*, 2016. (Oral)
24. **Zhiding Yu**, Cha Zhang, “Image based Static Facial Expression Recognition with Multiple Deep Network Learning.” *ACM Int. Conf. on Multimodal Interaction (ICMI)*, 2015. (Full Paper, Oral)
25. **Zhiding Yu**, Weiyang Liu, Wenbo Liu, Xi Peng, Zhuo Hui, B.V.K. Vijaya Kumar, “Generalized Transitive Distance with Minimum Spanning Random Forest.” *Int. Joint Conf. on Artificial Intelligence (IJCAI)*, 2015. (Long Oral)
26. **Zhiding Yu**, Wende Zhang, B.V.K. Vijaya Kumar, Dan Levi, “Structured Hough Voting for Vision-based Highway Border Detection.” *IEEE Winter Conf. on Applications of Computer Vision (WACV)*, 2015. (Best Paper Award)
27. Wenbo Liu, **Zhiding Yu**, Ming Li, “An Iterative Framework for Unsupervised Learning in The PLDA based Speaker Verification.” *Int. Symposium on Chinese Spoken Language Processing (ISCSLP)*, 2014. (Best Student Paper Award)
28. **Zhiding Yu**, Chunjing Xu et al., “Transitive Distance Clustering with K-Means Duality.” *IEEE Conf. on Comp Vision and Pattern Recognition (CVPR)*, 2014.
29. **Zhiding Yu**, Wende Zhang, B.V.K. Vijaya Kumar, “Robust Rear-View Ground Surface Detection with Hidden State Conditional Random Field and Confidence Propagation.” *IEEE Int. Conf. on Image Processing (ICIP)*, 2014.
30. **Zhiding Yu**, Ang Li, Oscar C. Au, Chunjing Xu, “Bag of Textons for Image Segmentation via Soft Clustering and Convex Shift.” *IEEE Conf. on Comp Vision and Pattern Recognition (CVPR)*, 2012.
31. **Zhiding Yu**, Chunjing Xu, Jianzhuang Liu, Oscar C. Au, Xiaoou Tang, “Automatic Object Segmentation from Large Scale 3D Urban Point Clouds through Manifold Embedded Mode Seeking.” *ACM Multimedia (ACM-MM)*, 2011.
32. **Zhiding Yu**, Oscar C. Au, Ketan Tang, Chunjing Xu, “Nonparametric Density Estimation on A Graph: Learning Framework, Fast Approximation and Application in Image Segmentation.” *IEEE Conf. on Comp Vision and Pattern Recognition (CVPR)*, 2011.

Patents

1. Xiaodong Yang, Zhedong Zheng, **Zhiding Yu**, “Image Identification Using Neural Networks.” *US Patent 2020-0302176*, 2020.
2. Chen Feng, **Zhiding Yu**, Srikumar Ramalingam, “Multi-label Semantic Boundary Detection System.” *US Patent 10,410,353*, 2019.

MENTORED INTERNS	<ul style="list-style-type: none"> • Zhongzheng Ren (PhD University of Illinois Urbana-Champaign) 2019/2018 • Zhedong Zheng (PhD University of Technology Sydney, Co-Mentor) 2018 • Weiyang Liu (PhD Georgia Institute of Technology) 2019 • Rui Huang (Google AI Resident) 2019 • Beidi Chen (PhD Rice University) 2020/2019 • Yang Zou (PhD Carnegie Mellon University, Co-Mentor) 2019 • Rohan Taori (Undergrad UC Berkeley, Co-Mentor) 2019 • Shiyi Lan (PhD University of Maryland) 2020 • Wuyang Chen (PhD University of Texas at Austin) 2020 • Haotao Wang (PhD University of Texas at Austin) 2020 • Grigoris Chrysos (PhD Imperial College London, Co-mentor) 2020 • Yujia Huang (PhD California Institute of Technology) 2020 • Weili Nie (PhD Rice University, Co-mentor) 2020 • Ismail Elezi (Postdoc, Technical University of Munich) 2020 • Dadine Chang (PhD, Carnegie Mellon University) 2020 								
PREVIOUS PROJECTS	<ul style="list-style-type: none"> • Visual scene understanding for autonomous driving (CMU/GM) Sep. 2012 - Dec. 2017 • Deep category-aware semantic edge detection (MERL) Oct. 2016 - Nov. 2016 • Deep CNN based static facial expression recognition (Microsoft) May 2015 - Aug 2015 • Graph cut pixel selection & voice-based editing for PixelTone (Adobe) Jun 2013 - Aug 2013 • Head pose estimation for active driving safety (CMU/GM) Sep 2011 - Mar 2012 • Large scale 3D point cloud object segmentation (SIAT) Jan 2011 - Jul 2011 								
ACADEMIC SERVICES	<ul style="list-style-type: none"> • Conference Reviewer: CVPR21/20/19/18/12, ICCV19, ECCV20/18, NeurIPS20/19/18/17/16, ICML19, ICLR21/20/19, UAI20/19, IJCAI17, AAAI20/16, WACV16/15 • Journal Reviewer: IJCV, T-PAMI, T-IP, T-MM, T-NNLS, T-Cybern, T-CSVT 								
COURSES & TEACHING	<p>Ph.D. Courses Taken:</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">16-720 Computer Vision (A)</td> <td style="width: 50%;">18-794 Pattern Recognition Theory (A)</td> </tr> <tr> <td>18-799 Comp. Sensing & Sparse Opt. (A)</td> <td>16-824 Learning Based Methods in Vision (A)</td> </tr> <tr> <td>10-708 Probabilistic Graphical Models (A)</td> <td>10-701 Machine Learning (A-)</td> </tr> <tr> <td>10-725 Convex Optimization (Audit)</td> <td></td> </tr> </table> <p>Teaching Assistant:</p> <ul style="list-style-type: none"> 11-755/18-797 Machine Learning for Signal Processing (Fall 2015, Bhiksha Raj) 11-755/18-797 Machine Learning for Signal Processing (Fall 2014, Bhiksha Raj) 	16-720 Computer Vision (A)	18-794 Pattern Recognition Theory (A)	18-799 Comp. Sensing & Sparse Opt. (A)	16-824 Learning Based Methods in Vision (A)	10-708 Probabilistic Graphical Models (A)	10-701 Machine Learning (A-)	10-725 Convex Optimization (Audit)	
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