Michael Maire

Assistant Professor, Department of Computer Science, University of Chicago
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EDUCATION

University of California at Berkeley	Computer Science	Ph.D.	2009
California Institute of Technology	Electrical and Computer Engineering	B.S.	2003

APPOINTMENTS

2018 – present	Assistant Professor, Department of Computer Science, University of Chicago, Chicago, IL
2014 – 2018	Research Assistant Professor, Toyota Technological Institute at Chicago, Chicago, IL
2013 – 2014	Senior Postdoctoral Scholar, California Institute of Technology, Pasadena, CA
2009 – 2013	Postdoctoral Scholar, California Institute of Technology, Pasadena, CA
Sep 2009	Postdoctoral Scholar, University of California at Berkeley, Berkeley, CA

PUBLICATIONS

[37] Pedro Savarese, Sunnie S. Y. Kim, Michael Maire, Greg Shakhnarovich, and David McAllester. *Information-Theoretic Segmentation by Inpainting Error Maximization.* Computer Vision and Pattern Recognition (CVPR), 2021.

[36] Pedro Savarese, David McAllester, Sudarshan Babu, and Michael Maire. *Domain-independent Dominance of Adaptive Methods.* Computer Vision and Pattern Recognition (CVPR), 2021.

[35] Xin Yuan, Zhe Lin, Jason Kuen, Jianming Zhang, Yilin Wang, Michael Maire, Ajinkya Kale, and Baldo Faieta. *Multimodal Contrastive Training for Visual Representation Learning.* Computer Vision and Pattern Recognition (CVPR), 2021.

[34] Chengcheng Wan, Shicheng Liu, Henry Hoffmann, Michael Maire, and Shan Lu. *Are Machine Learning Cloud APIs Used Correctly?*, International Conference on Software Engineering (ICSE), 2021.

[33] Xin Yuan, Pedro Savarese, and Michael Maire. *Growing Efficient Deep Networks by Structured Continuous Sparsification.* International Conference on Learning Representations (ICLR), 2021.

[32] Pedro Savarese, Hugo Silva, and Michael Maire. *Winning the Lottery with Continuous Sparsification.* Neural Information Processing Systems (NeurIPS), 2020.

[31] Xiao Zhang and Michael Maire. *Self-Supervised Visual Representation Learning from Hierarchical Grouping.* Neural Information Processing Systems (NeurIPS), 2020.

[30] Tri Huynh, Michael Maire, and Matthew R. Walter. *Multigrid Neural Memory.* International Conference on Machine Learning (ICML), 2020.

[29] Chengcheng Wan, Henry Hoffmann, Shan Lu, and Michael Maire. *Orthogonalized SGD and Nested Architectures for Anytime Neural Networks.* International Conference on Machine Learning (ICML), 2020.

[28] Chengcheng Wan, Muhammad Santriaji, Eri Rogers, Henry Hoffmann, Michael Maire, and Shan Lu. *ALERT: Accurate Anytime Learning for Energy and Timeliness.* USENIX Annual Technical Conference (USENIX ATC), 2020.

[27] Haochen Wang, Ruotian Luo, Michael Maire, and Greg Shakhnarovich. *Pixel Consensus Voting for Panoptic Segmentation.* Computer Vision and Pattern Recognition (CVPR), 2020.

[26] Pedro Savarese and Michael Maire. *Learning Implicitly Recurrent CNNs Through Parameter Sharing.* International Conference on Learning Representations (ICLR), 2019.

[25] Huaizu Jiang, Erik Learned-Miller, Gustav Larsson, Michael Maire, and Greg Shakhnarovich. *Self-Supervised Relative Depth Learning for Urban Scene Understanding.* European Conference on Computer Vision (ECCV), 2018.

[24] Ligeng Zhu, Ruizhi Deng, Michael Maire, Zhiwei Deng, Greg Mori, and Ping Tan. *Sparsely Aggregated Convolutional Networks.* European Conference on Computer Vision (ECCV), 2018.

[23] Mohammadreza Mostajabi, Michael Maire, and Gregory Shakhnarovich. *Regularizing Deep Networks by Modeling and Predicting Label Structure.* Computer Vision and Pattern Recognition (CVPR), 2018.

[22] Gustav Larsson, Michael Maire, and Gregory Shakhnarovich. *Colorization as a Proxy Task for Visual Understanding.* Computer Vision and Pattern Recognition (CVPR), 2017.

[21] Tsung-Wei Ke, Michael Maire, and Stella X. Yu. *Multigrid Neural Architectures.* Computer Vision and Pattern Recognition (CVPR), 2017.

[20] Gustav Larsson, Michael Maire, and Gregory Shakhnarovich. *FractalNet: Ultra-Deep Neural Networks without Residuals.* International Conference on Learning Representations (ICLR), 2017.

[19] Gustav Larsson, Michael Maire, and Gregory Shakhnarovich. *Learning Representations for Automatic Colorization.* European Conference on Computer Vision (ECCV), 2016.

[18] Michael Maire, Takuya Narihira, and Stella X. Yu. *Affinity CNN: Learning Pixel-Centric Pairwise Relations for Figure/Ground Embedding.* Computer Vision and Pattern Recognition (CVPR), 2016.

[17] Takuya Narihira, Michael Maire, and Stella X. Yu. *Direct Intrinsics: Learning Albedo-Shading Decomposition by Convolutional Regression.* International Conference on Computer Vision (ICCV), 2015.

[16] Takuya Narihira, Michael Maire, and Stella X. Yu. *Learning Lightness from Human Judgement on Relative Reflectance.* Computer Vision and Pattern Recognition (CVPR), 2015.

[15] William T. Gibson, Carlos R. Gonzalez, Conchi Fernandez, Lakshminarayanan Ramasamy, Tanya Tabachnik, Rebecca R. Du, Panna D. Felsen, Michael R. Maire, Pietro Perona, and David J. Anderson. *Behavioral Responses to a Repetitive Visual Threat Stimulus Express a Persistent State of Defensive Arousal in Drosophila.* Current Biology, 25(11):1401-1415, 2015.

[14] Michael Maire, Stella X. Yu, and Pietro Perona. *Reconstructive Sparse Code Transfer for Contour Detection and Semantic Labeling.* Asian Conference on Computer Vision (ACCV), 2014.

[13] Tsung-Yi Lin, Michael Maire, Serge Belongie, James Hays, Pietro Perona, Deva Ramanan, Piotr Dollár, and C. Lawrence Zitnick. *Microsoft COCO: Common Objects in Context.* European Conference on Computer Vision (ECCV), 2014.

[12] Michael Maire and Stella X. Yu. *Progressive Multigrid Eigensolvers for Multiscale Spectral Segmentation.* International Conference on Computer Vision (ICCV), 2013.

[11] Michael Maire, Stella X. Yu, and Pietro Perona. *Hierarchical Scene Annotation.* British Machine Vision Conference (BMVC), 2013.

[10] Michael Maire, Stella X. Yu, and Pietro Perona. *Object Detection and Segmentation from Joint Embedding of Parts and Pixels.* International Conference on Computer Vision (ICCV), 2011.

[9] Patrik Sundberg, Thomas Brox, Michael Maire, Pablo Arbeláez, and Jitendra Malik. *Occlusion Boundary Detection and Figure/Ground Assignment from Optical Flow.* IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2011.

[8] Pablo Arbeláez, Michael Maire, Charless Fowlkes, and Jitendra Malik. *Contour Detection and Hierarchical Image Segmentation.* IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2011.

[7] Michael Maire. *Simultaneous Segmentation and Figure/Ground Organization using Angular Embedding.* European Conference on Computer Vision (ECCV), 2010.

[6] Pablo Arbeláez, Michael Maire, Charless Fowlkes, and Jitendra Malik. *From Contours to Regions: An Empirical Evaluation.* IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2009.

[5] Michael Maire, Pablo Arbeláez, Charless Fowlkes, and Jitendra Malik. *Using Contours to Detect and Localize Junctions in Natural Images.* IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2008.

[4] Hao Zhang, Alexander C. Berg, Michael Maire, and Jitendra Malik. *SVM-KNN: Discriminative Nearest Neighbor Classification for Visual Category Recognition.* IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2006.

[3] Jaety Edwards, Yee Whye Teh, David A. Forsyth, Roger Bock, Michael Maire, and Grace Vesom. *Making Latin Manuscripts Searchable using gHMM's.* Neural Information Processing Systems (NeurIPS), 2004.

[2] Tamara L. Berg, Alexander C. Berg, Jaety Edwards, Michael Maire, Ryan White, Yee Whye Teh, Erik Learned-Miller, and David A. Forsyth. *Names and Faces in the News.* IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2004.

[1] Pierre Moreels, Michael Maire, and Pietro Perona. *Recognition by Probabilistic Hypothesis Construction.* European Conference on Computer Vision (ECCV), 2004.

GRADUATE STUDENT MENTORSHIP

Xin Yuan	University of Chicago	Ph.D. Advisor	2020 – present
Xiao Zhang	University of Chicago	Ph.D. Advisor	2019 – present
Sudarshan Babu	TTI-Chicago	Ph.D. Co-Advisor	2019 – present
Pedro Savarese	TTI-Chicago	Ph.D. Co-Advisor	2019 – present
Tri Huynh	University of Chicago	Ph.D. Advisor	2019 – 2021 (graduated, Ph.D.)

TEACHING

University of Chicago

CMSC 35401	Topics in Machine Learning: Meta-learning and Domain Adaptation with Deep Neural Networks	Spring 2021
CMSC 25040	Introduction to Computer Vision	Winter 2020, 2021
CMSC 15200	Introduction to Computer Science II	Spring 2019, 2020
CMSC 35401	Topics in Machine Learning: Deep Learning	Spring 2019, 2020
CMSC 25050	Computer Vision	Autumn 2018

SERVICE

- Meta-Reviewer: AAAI 2018 (senior program committee); CVPR 2016, 2018, 2020, 2021 (area chair); ECCV 2020 (area chair); ICCV 2019 (area chair); ICLR 2019 (area chair)
- Reviewer: ACM SIGGRAPH 2010, 2017; Eurographics 2014; CVPR 2010 – 2015, 2017, 2019; ECCV 2010, 2012, 2014, 2016, 2018; ICCV 2011, 2013, 2015, 2017; ICLR 2017, 2018, 2020; NeurIPS 2015 – 2019; CVIU 2010, 2011; IEEE TIP 2010 – 2015; IEEE TPAMI 2008 – 2019
- Workshops:
  - Joint Workshop of the COCO and Places Challenges at ICCV 2017
    (workshop organizer and member of award committee for COCO challenge)
  - 2nd ImageNet and COCO Visual Recognition Challenge at ECCV 2016 (award committee)
  - Joint ImageNet and COCO Visual Recognition Challenge at ICCV 2015 (award committee)
  - Perceptual Organization in Computer Vision (POCV) at CVPR 2014 (workshop organizer)
- Member of Common Visual Data Foundation (`http://www.cvdfoundation.org/`)
- Member of COCO dataset team (`http://cocodataset.org/`)