

Judy Hoffman

CONTACT INFORMATION

Assistant Professor
College of Computing
Georgia Institute of Technology

E-mail: judy@gatech.edu
Website: <https://www.cc.gatech.edu/~judy/>

RESEARCH INTERESTS

My research lies at the intersection of computer vision and machine learning. I develop learning algorithms which facilitate the transfer of information through unsupervised and semi-supervised model adaptation and generalization. My work reuses and shares information across visual environments and tasks, enabling learning systems to tackle real-world variation and scale while minimizing human supervision.

EDUCATION

University of California, Berkeley, August 2010 - August 2016
PhD, Electrical Engineering and Computer Science
Advised by Trevor Darrell

University of California, Berkeley August 2006 - May 2010
Bachelor of Science, Electrical Engineering and Computer Science Honors Program
Graduated with Department Honors
Advised by Ken Goldberg

APPOINTMENTS

Georgia Tech Atlanta, GA Since August 2019
Assistant Professor, College of Computing

Facebook AI Research Menlo Park, CA September 2018 - July 2019
Visiting Research Scientist

University of California, Berkeley Berkeley, CA June 2017 - August 2018
Postdoctoral Researcher with Trevor Darrell and Alyosha Efros

Stanford University Palo Alto, CA August 2016 - June 2017
Postdoctoral Researcher with Fei-Fei Li

Google Inc. Mountain View, CA
Software Engineering Intern, PhD May 15, 2012 - August 10, 2012
Working with the Machine Perception team at Google Research, Mountain View.

BOOK CHAPTERS

[1] **Judy Hoffman**, Eric Tzeng, Trevor Darrell, Kate Saenko. “Simultaneous Transfer Across Domains and Tasks” In *Domain Adaptation in Computer Vision Applications*, Springer, 173-187, 2017.

JOURNAL PUBLICATIONS

[2] **Judy Hoffman**, Deepak Pathak, Eric Tzeng, Jonathan Long, Sergio Guadarrama, Trevor Darrell, and Kate Saenko. “Large Scale Visual Recognition through Adaptation using Joint Representation and Multiple Instance Learning”, *Journal of Machine Learning Research (JMLR), Special Issue on Multi Task Learning*, 2016.

- [3] **Judy Hoffman**, Erik Rodner, Jeff Donahue, Brian Kulis, and Kate Saenko. “Asymmetric and Category Invariant Feature Transformations for Domain Adaptation”, *International Journal of Computer Vision (IJCV) Special Issue on Domain Adaptation*, 2014.
- [4] Daniel Gordon, Abhishek Kadian, Devi Parikh, **Judy Hoffman**, Dhruv Batra. “SplitNet: Sim2Sim and Task2Task Transfer for Embodied Visual Navigation”, *International Conference in Computer Vision (ICCV)*, 2019.
- [5] **Judy Hoffman**, Mehryar Mohri, Ningshan Zhang. “Algorithms and Theory for Multiple-Source Adaptation”, *Neural Information Processing Symposium (NeurIPS)*, 2018.
- [6] **Judy Hoffman**, Eric Tzeng, Taesung Park, Jun-Yan Zhu, Phillip Isola, Kate Saenko, Alyosha Efros, Trevor Darrell. “CyCADA: Cycle Consistent Adversarial Domain Adpatation”, *International Conference in Machine Learning (ICML)*, 2018.
- [7] Liyue Shen, Serena Yeung, **Judy Hoffman**, Greg Mori, Li Fei-Fei. “Scaling Human-Object Interaction Recognition through Zero-Shot Learning”, *Winter Conference on Applications in Computer Vision (WACV)*, 2018.
- [8] Zelun Luo, Yuliang Zou, **Judy Hoffman**, Li Fei-Fei. “Label Efficient Learning of Transferable Representations across Domains and Tasks”, *Neural Information Processing Systems (NIPS)*, 2017.
- [9] Timnit Gebru, **Judy Hoffman**, Li Fei-Fei, “Fine-grained Recognition in the Wild: A Multi-Task Domain Adaptation Approach ”, *International Conference in Computer Vision (ICCV)*, 2017.
- [10] Justin Johnson, Bharath Hariharan, Laurens van der Maaten, **Judy Hoffman**, Li Fei-Fei, C. Lawrence Zitnick, Ross Girshick. “Inferring and Executing Programs for Visual Reasoning”, *International Conference in Computer Vision (ICCV)*, 2017. (Oral Presentation)
- [11] Eric Tzeng, **Judy Hoffman**, Kate Saenko, Trevor Darrell. “Adversarial Discriminative Domain Adaptation”, *In Proc. Computer Vision and Pattern Recognition (CVPR), Hawaii, USA, 2017*.
- [12] **Judy Hoffman**, Saurabh Gupta, Trevor Darrell. “Learning with Side Information through Modality Hallucination”, *In Proc. Computer Vision and Pattern Recognition (CVPR)*, Las Vegas, USA, 2016. (**Spotlight Presentation**)
- [13] Saurabh Gupta, **Judy Hoffman**, Jitendra Malik. “Cross Modal Distillation for Supervision Transfer”, *In Proc. Computer Vision and Pattern Recognition (CVPR)*, Las Vegas, USA, 2016.
- [14] Xingchao Peng, **Judy Hoffman**, Stella Yu, Kate Saenko. “Fine-to-coarse Knowledge Transfer For Low-Res Image Classification”. *International Conference on Image Processing*, 2016.
- [15] **Judy Hoffman**, Saurabh Gupta, Jian Leong, Sergio Guadarrama, Trevor Darrell. “Cross-Modal Adaptation for RGB-D Detection”, *IEEE International Conference on Robotics and Automation (ICRA)*, Stockholm, Sweden, 2016.
- [16] Eric Tzeng*, **Judy Hoffman***, Trevor Darrell, Kate Saenko. “Simultaneous Deep Transfer Across Domains and Tasks”, *In Proc. International Conference on Computer Vision (ICCV)*, Santiago, Chile, 2015. **Equal Contribution*
- [17] Damian Mowroca, Marcus Rohrbach, **Judy Hoffman**, Ronghang Hu, Kate Saenko, Trevor Darrell. “Spatial Semantic Regularisation for Large Scale Object Detection”, *In Proc. International Conference on Computer Vision (ICCV)*, Santiago, Chile, 2015.
- [18] **Judy Hoffman**, Deepak Pathak, Trevor Darrell, Kate Saenko. “Detector Discovery in the Wild: Joint Multiple Instance and Representation Learning,” *In Proc. Computer Vision and Pattern Recognition (CVPR)*, Boston, USA, 2015.
- [19] **Judy Hoffman**, Sergio Guadarrama, Eric Tzeng, Ronghang Hu, Jeff Donahue, Ross Girshick, Trevor Darrell, and Kate Saenko. “LSDA: Large Scale Detection through Adaptation,” *In Proc. Neural Information Processing (NIPS)*, Montreal, Canada, 2014.

- [20] **Judy Hoffman**, Trevor Darrell, and Kate Saenko. “Continuous Manifold Based Adaptation for Evolving Visual Domains”, *In Proc. Computer Vision and Pattern Recognition (CVPR)*, Ohio, USA, 2014.
- [21] Daniel Goehring, **Judy Hoffman**, Erik Rodner, Kate Saenko and Trevor Darrell. “Interactive Adaptation of Real-Time Object Detectors”, *In Proc. International Conference on Robotics and Automation (ICRA)*, Hong Kong, China, 2014.
- [22] Jeff Donahue, Yangqing Jia, Oriol Vinyals, **Judy Hoffman**, Ning Zhang, Eric Tzeng, Trevor Darrell. “DeCAF: A Deep Activation Feature for Generic Visual Recognition”, *In Proc. International Conference in Machine Learning (ICML)*, Beijing, China, 2014.
- [23] **Judy Hoffman**, Erik Rodner, Jeff Donahue, Kate Saenko, Trevor Darrell. “Efficient Learning of Domain-invariant Image Representations”, *In Proc. International Conference on Representation Learning (ICLR)*, Scottsdale, Arizona, 2013. **(Oral Presentation)**
- [24] Jeff Donahue, **Judy Hoffman**, Erik Rodner, Kate Saenko, Trevor Darrell. “Semi-Supervised Domain Adaptation with Instance Constraints”, *In Proc. Computer Vision and Pattern Recognition (CVPR)*, Portland, Oregon, 2013.
- [25] **Judy Hoffman**, Brian Kulis, Trevor Darrell, Kate Saenko. “Discovering Latent Domains for Multisource Domain Adaptation”, *In Proc. European Conference in Computer Vision (ECCV)*, Florence, Italy, 2012.
- [26] Leonard Jaillet, **Judy Hoffman**, Jur van den Berg, Pieter Abbeel, Josep M. Porta, Ken Goldberg. “EG-RRT: Environment-Guided Random Trees for Kinodynamic Motion Planning with Uncertainty and Obstacles.” *In Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, San Francisco, CA, 2011.
- [27] Benjamin Wilson, **Judy Hoffman**, Jamie Morgenstern. “Predictive Inequity in Object Detection”, *Workshop on Fairness Accountability Transparency and Ethics at CVPR*, 2019.
- [28] Andreea Bobu, Eric Tzeng, **Judy Hoffman**, Trevor Darrell. “Adapting to Continuously Shifting Domains”, *International Conference on Learning Representations (ICLR) Workshop Track*, 2018.
- [29] Evan Shelhamer*, Kate Rakelly*, **Judy Hoffman***, Trevor Darrell. “Clockwork Convnets for Video Semantic Segmentation.” *Workshop on Video Segmentation hosted at ECCV*, 2016.
- [30] Brian Chu, Vashisht Madhavan, Oscar Beijbom, **Judy Hoffman**, Trevor Darrell. “Best Practices for Fine-tuning Visual Classifiers to New Domains.” *TASK-CV Workshop hosted at ECCV*, 2016.
- [31] Oscar Beijbom, **Judy Hoffman**, Evan Yao, Trevor Darrell, Alberto Rodriguez - Ramirez, Manuel Gonzalez - Rivero, Ove Hoegh - Guldborg. “Quantification in-the-wild: data-sets and baselines.” *NIPS Workshop Transfer and Multi-task Learning: Trends and New Perspectives*, 2015.
- [32] **Judy Hoffman**, Eric Tzeng, Jeff Donahue, Yanqing Jia, Kate Saenko, and Trevor Darrell. “One-Shot Adaptation of Supervised Deep Convolutional Models”, *Presented at International Conference in Learning and Representation (ICLR)*, Banff, Canada, 2014.
- [33] Erik Rodner, **Judy Hoffman**, Jeff Donahue, Trevor Darrell, Kate Saenko. “Scalable Transform-based Domain ADaptation”. *VisDA: International Workshop on Visual Domain Adaptation and Dataset Bias (hosted at ICCV)*, Sydney, Australia, 2013.
- [34] Glen Hartmann, Matthias Grundmann, **Judy Hoffman**, David Tsai, Vivek Kwatra, Omid Madani, Sudheendra Vijayanarasimhan, Irfan Essa, James Rehg, Rahul Sukthankar. “Weakly Supervised Learning of Object Segmentations from Web-Scale Video.” *In Proc. European Conference in Computer Vision (ECCV) Workshop on Web-scale Vision and Social Media*, Florence, Italy, 2012. **(Best Paper Award)**

WORKSHOP
PUBLICATIONS

- [35] **Judy Hoffman**, Kate Saenko, Brian Kulis, Trevor Darrell. “Domain Adaptation with Multiple Latent Domains.” *Neural Information Processing Symposium (NIPS) Domain Adaptation Workshop Talk*, Granada Spain, 2011. (**Best Student Paper Award**)

PRE-PRINTS

- [36] **Judy Hoffman**, Dequan Wang, Fisher Yu, Trevor Darrell. “FCNs in the Wild: Pixel-level Adversarial and Constraint-based Adaptation.” <http://arxiv.org/abs/1612.02649>, 2017.

HONORS AND AWARDS

NeurIPS Top 30% Reviewers	2018
Rising Stars in EECS	Fall 2015
National Science Foundation Graduate Research Fellowship	2012-2015
Rosetta Stone Ltd Grace Hopper Scholarship	August 2012
Rosalie M. Stern Fellowship	August 2010 - May 2011
Arthur M. Hopkin Award	May 2010
SRC Undergraduate Research Scholarship	August 2009 - May 2010
Intel Undergraduate Research Scholarship	March 2008 - August 2009
Eta Kappa Nu, Member and Officer	December 2007 - Spring 2010
Rose Hills Engineering Scholarship	August 2007 - May 2008
Edward Frank Kraft Award	January 2007

ACADEMIC TALKS

How Dataset Bias Leads to Learned Model Failures	
Invited Talk: Inagural Speaker of Frederica Darema Lecture Series at Illinois Institute of Technology	
Dec 2019	
Analyzing Fairness in Computer Vision Systems	
Invited Talk: ML@GT Seminar	Nov 2019
Domain Adaptation Tutorial	
Invited Talk: ICCV Tutorial on Learning with Limited Labels	Oct 2019
Adversarial Domain Adaptation and Robustness to Adversaries	
Invited Talk: CVPR Workshop: Women in Computer Vision	June 2019
Generalizing Models to a Diverse World	
Invited Talk: CVPR Workshop: Vision for All Seasons	June 2019
Adversarial Domain Adaptation	
Invited Talk: MIT Workshop: GANocracy: Workshop on Theory, Practice and Artistry of Deep Generative Modeling	May 2019
Adapting and Generalizing Across Domains	
Invited Talk: CVPR Area Chairs Meeting	Feb 2019
Domain Adaptation	
Invited Talk: National Academy of Science Workshop: Robust Machine Learning Algorithms and Systems: Detection & Mitigation of Adversarial Attacks and Anomalies	Dec 2018
Domain Adaptation and Multisource Generalization	
Invited Talk: NeurIPS Workshop: Integration of Deep Learning Theories	Dec 2018
Cycle Consistent Adversarial Domain Adaptation	
Invited Talk: ICML Conference Presentation	July 2018
Adaptive Adversarial Learning for a Diverse Visual World	
Invited Talk: Facebook AI Research	June 2018
Making our Models Robust to Changing Visual Environments	
Invited Talk: CVPR Workshop on Robust Vision	June 2018

Adversarial Domain Adaptation	
Invited Talk: CVPR Tutorial on GANs	June 2018
Making your data count: sharing information across domains and tasks	
Invited Talk: CVPR Workshop on Vision with Biased or Scarce Data	June 2018
Adaptive Adversarial Learning for a Diverse Visual World	
Invited Talk: University of Maryland, College Park	Apr 2018
Invited Talk: University of Virginia	Apr 2018
Invited Talk: Georgia Institute of Technology	Mar 2018
Invited Talk: Massachusetts Institute of Technology	Mar 2018
Invited Talk: University of Wisconsin, Madison	Mar 2018
Invited Talk: University of North Carolina, Chapel Hill	Mar 2018
Invited Talk: Carnegie Melon University	Mar 2018
Invited Talk: University of Chicago	Feb 2018
Invited Talk: University of Massachusetts Amherst	Feb 2018
Invited Talk: UC Santa Barbara	Feb 2018
Invited Talk: New York University	Feb 2018
Domain adaptation: From simulation data to real world training data	
Invited Talk: Berkeley Deep Drive Symposium	Oct 2017
A General Framework for Domain Adversarial Learning	
Invited Talk: Qualcomm Research	July 2017
Invited Talk: OpenAI	June 2017
Invited Talk: Berkeley Artificial Intelligence Research (BAIR) Seminar	Apr 2017
Invited Talk: WeWork Deep Learning Summit SF	Jan 2017
Deep Domain Adaptation	
Invited Talk: Yahoo Japan	Mar 2016
Invited Talk: Sony Japan	Mar 2016
Adaptive Deep Learning	
Invited Talk: Berkeley Artificial Intelligence (BAIR) Retreat	Mar 2016
Adapting Deep Networks Across Domains, Modalities, and Tasks	
Invited Talk: Stanford Vision Seminar	Jan 2016
Invited Talk: ICCV TASK-CV Workshop	Dec 2015
Adapting Deep Models for Visual Recognition in the Wild	
Invited Talk: MIT Rising Stars in EECS Workshop	Nov 2015
Adapting Deep Networks to Real World Problems	
Invited Talk: Amazon Computer Vision PhD Symposium	Oct 2015
Simultaneous Transfer Across Domains and Tasks	
Invited Talk: Bay Area Robotics Symposium	Oct 2015
Large scale recognition through adaptation	
Invited Talk: Berkeley-Stanford Vision Learning Meeting	Sep 2015
Category Invariant Cross Modality Transfer	
Invited Talk: Dagstuhl seminar on ML with Non-identically Distributed Data	Apr 2015
Continuous Adaptation with Limited Target Labeled Data	
Invited Talk: IST Austria Symposium on Computer Vision and Machine Learning	Jan 2015
Transfer of Deep Vision (and Language) models for “TOT”	
Invited Talk: DARPA Meeting	Nov 2014

LSDA: Large Scale Detection through Adaptation
Invited Talk: Baylearn Oct 2014

Efficient Learning of Domain Invariant Image Representations
Invited Talk: International Conference on Learning Representation (ICLR) May 2013

Discovering Latent Domains for Multisource Domain Adaptation
Invited Talk: Women in Machine Learning co-located at NIPS Dec 2012

SERVICE &
LEADERSHIP

ICCV Workshop and Challenge Organizer 2017-2019
TASK-CV Workshop and Domain Adaptation Challenge

NIPS Workshop Organizer: Transfer and Multi-task Learning 2015

Co-founder Women in Computer Vision Workshop 2015
Organized the first research-based mentoring workshop at CVPR

Graduate Admissions: UC Berkeley 2014-2015
Reviewed applications for AI research area

Outreach and Diversity Officer CS Graduate Student Association 2013-2014
Student leader in CSGSA at UC Berkeley.

Co-President Women in computer science and engineering UC Berkeley 2012-2013
Led outreach, mentoring, and current student support efforts.

Workshop Organizer at Grace Hopper Conference for Women in Computing Fall 2012
Organized workshop – “What I wish I knew when applying to graduate school”

EECS Peers Mentor , UC Berkeley Fall 2013 - Fall 2016
Available as a drop-in mentor for graduate students in electrical engineering and computer science.

Undergraduate Mentor Personal mentor for 2-4 undergrad/grad women per year Fall 2010 - 2016

Area Chair: CVPR (2019,2020), ICLR (2019, 2020), ICCV (2019), ICML (2020)

Reviewer: ECCV, CVPR, ICCV, NIPS, ICRA, ICML, ICLR, IROS, PAMI, JMLR, PAA

TEACHING
EXPERIENCE

Georgia Institute of Technology Atlanta, GA
Instructor January 2020 - April 2020
CS 4476/6476 Introduction to Computer Vision

Georgia Institute of Technology Atlanta, GA
Instructor August 2019 - December 2019
CS 8803-LS: Machine Learning with Limited Supervision

University of California Berkeley Berkeley, CA
Teaching Assistant January 2013 - May 2013
CS 188: Introduction to Artificial Intelligence.

University of California Berkeley Berkeley, CA
Teaching Assistant August 2009 - December 2009
EE 20N: Introduction to Signals and Systems.