

Carl Vondrick

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Research Interests

Computer Vision, Machine Learning

Education

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| Massachusetts Institute of Technology
Ph.D., Computer Science
– Thesis: Predictive Vision
– Minor: Cognitive Science
– Advisor: Antonio Torralba | Cambridge, MA | Sept 2013 – June 2017 |
| Massachusetts Institute of Technology
M.S., Computer Science
– Thesis: Visualizing Object Detection Features
– Advisor: Antonio Torralba | Cambridge, MA | Sept 2011 – June 2013 |
| University of California, Irvine
B.S., Computer Science
– Summa Cum Laude (top of class)
– Thesis: Efficiently Scaling Up Crowdsourced Video Annotation
– Advisor: Deva Ramanan | Irvine, CA | Sept 2008 – June 2011 |

Journal Publications

1. Carl Vondrick, Aditya Khosla, Hamed Pirsiavash, Tomasz Malisiewicz, Antonio Torralba. “Visualizing Object Detection Features” *International Journal of Computer Vision (IJCV)*. 2016.
2. Xiangxin Zhu, Carl Vondrick, Charless Fowlkes, Deva Ramanan. “Do we need more training data?” *International Journal of Computer Vision (IJCV)*. 2015.
3. Carl Vondrick, Donald Patterson, Deva Ramanan. “Efficiently Scaling Up Crowdsourced Video Annotation” *International Journal of Computer Vision (IJCV)*. 2012.

Conference Publications

4. Carl Vondrick, Antonio Torralba. “Generating the Future with Adversarial Transformers” *Computer Vision and Pattern Recognition (CVPR)*. 2017.
5. Carl Vondrick, Hamed Pirsiavash, Antonio Torralba. “Generating Videos with Scene Dynamics” *Neural Information Processing Systems (NIPS)*. 2016.
6. Carl Vondrick, Yusuf Aytar, Antonio Torralba. “SoundNet: Learning Sound Representations from Unlabeled Video” *Neural Information Processing Systems (NIPS)*. 2016.
7. Carl Vondrick, Hamed Pirsiavash, Antonio Torralba. “Anticipating Visual Representations with Unlabeled Video” *Computer Vision and Pattern Recognition (CVPR)*. 2016. **Spotlight presentation.**
8. Carl Vondrick, Deniz Oktay, Hamed Pirsiavash, Antonio Torralba. “Predicting Motivations Behind Actions by Leveraging Text” *Computer Vision and Pattern Recognition (CVPR)*. 2016.
9. Lluís Castrejon, Yusuf Aytar, Carl Vondrick, Hamed Pirsiavash, Antonio Torralba. “Learning Aligned Cross-Modal Representations from Weakly Aligned Data” *Computer Vision and Pattern Recognition (CVPR)*. 2016.

10. Carl Vondrick, Hamed Pirsiavash, Aude Oliva, Antonio Torralba. “Learning Visual Biases from Human Imagination” *Neural Information Processing Systems (NIPS)*. 2015.
11. Adria Recasens, Aditya Khosla, Carl Vondrick, Antonio Torralba. “Where are they looking?” *Neural Information Processing Systems (NIPS)*. 2015. **Spotlight presentation.**
12. Hamed Pirsiavash, Carl Vondrick, Antonio Torralba. “Assessing the Quality of Actions” *European Conference on Computer Vision (ECCV)*. 2014.
13. Carl Vondrick, Aditya Khosla, Tomasz Malisiewicz, Antonio Torralba. “HOGgles: Visualizing Object Detection Features” *International Conference on Computer Vision (ICCV)*. 2013. **Oral presentation.**
14. Xiangxin Zhu, Carl Vondrick, Deva Ramanan, Charless Fowlkes. “Do We Need More Training Data or Better Models for Object Detection?” *British Machine Vision Conference (BMVC)*. 2012.
15. Carl Vondrick and Deva Ramanan. “Video Annotation and Tracking with Active Learning” *Neural Information Processing Systems (NIPS)*. 2011.
16. Sangmin Oh, et al. “A Large-scale Benchmark Dataset for Event Recognition in Surveillance Video” *Computer Vision and Pattern Recognition (CVPR)*. 2011.
17. Carl Vondrick, Deva Ramanan, Donald Patterson. “Efficiently Scaling Up Video Annotation with Crowdsourced Marketplaces” *European Conference on Computer Vision (ECCV)*. 2010.

Work Experience

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|---|-------------------|------------------------|
| Massachusetts Institute of Technology
Graduate Research Assistant | Cambridge, MA | Sept 2011 – June 2017 |
| <ul style="list-style-type: none"> – Developed new computer vision and machine learning methods, with focus on future anticipation, cross-modal perception, human activity understanding, feature visualization and failure diagnosis – Advisor: Antonio Torralba | | |
| Smartvid.io
Consultant | Cambridge, MA | March 2016 – Sept 2016 |
| <ul style="list-style-type: none"> – Provided computer vision expertise enabling platform for object recognition in video | | |
| Google X Lab
Software Engineer Intern | Mountain View, CA | May 2013 – Sept 2013 |
| <ul style="list-style-type: none"> – Undisclosed project | | |
| Google
Software Engineer Intern | Seattle, WA | May 2012 – Aug 2012 |
| <ul style="list-style-type: none"> – Developed large-scale object recognition system for visual search and retrieval | | |
| University of California, Irvine
Undergraduate Research Assistant | Irvine, CA | Jan 2009 – Sept 2011 |
| <ul style="list-style-type: none"> – Developed efficient algorithms for video tracking and annotation with active learning – Advisor: Deva Ramanan | | |
| Sendmail, Inc
Software Engineer Intern | Emeryville, CA | June 2007 – Jan 2008 |
| <ul style="list-style-type: none"> – Developed several web-applications for email server platform | | |

Awards and Honors

Google Ph.D. Fellowship in Machine Perception	2015 – 2017
National Science Foundation Graduate Fellowship	2011 – 2014
Facebook Ph.D. Fellowship Finalist	2015
Outstanding Reviewer Award for ECCV, CVPR	2015 – 2016
UCI Chancellor’s Award for Undergraduate Research (one yearly in computer science)	2011
National Science Foundation’s Research Experience for Undergraduates Award	2009 – 2011

Press Coverage

NPR	Computer Binge-Watched TV And Learned To Predict What Happens	2016
NPR Marketplace	Algorithms Identify Audio through Video Footage	2016
CNN	New AI Can Predict When Two People Will Kiss	2016
Associated Press	How Do You Teach Human Interaction to a Robot? Lots of TV	2016
NBC	Deep Learning: Teaching Computers to Predict the Future	2016
Newsweek	Artificial Intelligence Algorithms Predicts the Future	2016
Forbes	MIT Computers Binge-Watch To Learn About Hugs	2016
CBC Radio	Teaching Software to Predict Handshakes, Hugs, and Kisses	2016
Wired	This AI learned to predict the future by watching loads of TV	2016
Wired	An MIT Algorithm Predicts the Future by Watching TV	2016
Wired	From Just Sound, SoundNet Understands What Happens (Italian)	2016
Popular Science	Algorithm Binge Watches TV to Predict Human Behavior	2016
Scientific American	Artificial Intelligence Can Predict How Scenes Will Play Out	2016
New Scientist	Binge-watching videos teaches computers to recognise sounds	2016
New Scientist	AI learns to predict the future by watching 2 million videos	2016
Vice Magazine	This Algorithm Taught Itself to Animate a Still Photo	2016
The Verge	Machine Learning’s Next Trick is Generating Videos from Photos	2016
Technology Review	Image Experiment Reveals The Building Blocks of Imagination	2014
The Week Junior	A machine that learns by listening (children’s magazine)	2016
Stephen Colbert	Television clip on human action prediction	2016

Invited Talks

Predictive Vision

– Frontiers of Video Technology	July 2017
– RE·WORK Deep Learning	May 2017
– Cornell University	April 2017
– University of California, San Diego	April 2017
– University of Texas, Austin	March 2017
– Columbia University	March 2017
– Facebook AI Research	March 2017
– Google Research	March 2017
– Adobe Research	March 2017
– Uber AI	March 2017
– OpenAI	March 2017
– Brown University	Feb 2017
– University of California, Los Angeles	Feb 2017
– NVidia Research	Feb 2017
– RE·WORK Machine Intelligence	Nov 2016
– Twitter	Oct 2016
– TTI Chicago	Sept 2016
– Massachusetts Institute of Technology	Sept 2016
– Apple Computer	Aug 2016
– University of California, Berkeley	Aug 2016
– Stanford University	Aug 2016

Visual Anticipation with Unlabeled Video

- Google April 2016
- Boston University March 2016
- Machine Learning Meetup Oct 2015
- University of Massachusetts, Boston March 2016

Visualizing Object Detection Features

- University of Massachusetts, Boston March 2016
- Massachusetts Institute of Technology Sept 2015
- Brown University Nov 2013

Efficient Video Annotation

- CVPR Workshop June 2013
- CVPR Workshop June 2011

Computer Skills

Python, C, C++, Matlab, Lua, JavaScript, Java, SQL, PHP
Torch, TensorFlow, Caffe, HTML, CSS, L^AT_EX, Linux, Mac

Professional Service

- Area Chair for CVPR 2018
- Program Committee, Action and Anticipation Workshop 2016
- Program Committee, Workshop on Human Computation for Image and Video Analysis 2016
- Reviewer for CVPR, ICCV, ECCV, NIPS, ICML, IJCV 2011 – 2017