

# Deepak Pathak

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CONTACT INFORMATION	Room 307, Cory Hall University of California, Berkeley	e-mail: pathak@berkeley.edu webpage: <a href="https://people.eecs.berkeley.edu/~pathak/">https://people.eecs.berkeley.edu/~pathak/</a>
RESEARCH INTERESTS	Computer Vision, Deep Learning, Robotics and Reinforcement Learning.	
EDUCATION	<b>University of California, Berkeley</b> <i>PhD in Computer Science</i> Advised by Prof. Trevor Darrell and Prof. Alexei A. Efros CGPA : 4.0/4.0	Fall 2014 – present
	<b>Indian Institute of Technology, Kanpur</b> <i>BTech. in Computer Science and Engineering</i> Class Rank 1, CGPA : 9.9/10	Fall 2010 – Spring 2014
RESEARCH EXPERIENCE	<b>University of California, Berkeley</b> With Prof. Trevor Darrell and Prof. Alexei A. Efros	Fall 2014 – present
	<ul style="list-style-type: none"><li>• My goal is to build intelligent systems that can learn with minimal human supervision by bootstrapping their own experience. This involves learning general (deep) visual representations of the environment using self-supervision and leveraging them to develop self-sustaining agents that could learn to act via their interactions with the real world.</li></ul>	
	<b>Undergraduate Thesis, IIT Kanpur</b> With Prof. Amitabha Mukerjee	Fall 2013 – Spring 2014
	<ul style="list-style-type: none"><li>• Unsupervised spatial and temporal localization of anomalous events in surveillance videos without requiring any human supervision. Awarded with the best thesis, the best software and the best industrially applicable project honors in the graduating year.</li></ul>	
INDUSTRY EXPERIENCE	<b>Founder: VisageMap Inc.</b> Later acquired by FaceFirst Inc., Los Angeles, CA.	2014
	<ul style="list-style-type: none"><li>• VisageMap (now, FaceFirst) offers person identification solution that outperform alternative identification methods, including fingerprints, iris scans, and other biometric recognition systems.</li></ul>	
	<b>Facebook AI Research, Seattle</b> Research internship with Ross Girshick, Bharath Hariharan and Piotr Dollár	Summer 2016
	<ul style="list-style-type: none"><li>• Unsupervised visual representation learning using unlabeled web videos from Flickr or Youtube.</li></ul>	
	<b>Microsoft Research, New York City</b> Research internship with Miroslav Dudík and David Rothschild	Summer 2013
	<ul style="list-style-type: none"><li>• Develop and compare statistical forecasting techniques for Economic Events using Prediction Markets. Covered widely in international electronic media.</li></ul>	
CONFERENCE PUBLICATIONS	<ol style="list-style-type: none"><li>[1] Large-Scale Study of Curiosity-Driven Learning Yuri Burda*, Harri Edwards*, <b>Deepak Pathak*</b>, Amos Storkey, Trevor Darrell, Alexei A. Efros (* equal contribution, alphabetical order) <i>eprint arXiv:1808.04355</i> and ICML Workshop, 2018 (Spotlight)</li><li>[2] Learning Instance Segmentation by Interaction <b>Deepak Pathak*</b>, Yide Shentu*, Dian Chen*, Pulkit Agrawal*, Trevor Darrell, Sergey Levine, Jitendra Malik <i>eprint arXiv:1806.08354</i> and CVPR Workshop, 2018 (Oral)</li><li>[3] Zero-Shot Visual Imitation <b>Deepak Pathak*</b>, Parsa Mahmoudieh*, Guanghao Luo*, Pulkit Agrawal*, Dian Chen, Fred Shentu, Evan Shelhamer, Jitendra Malik, Alexei A. Efros, Trevor Darrell <i>International Conference on Representation Learning (ICLR)</i>, 2018 (Oral)</li></ol>	

- [4] Investigating Human Priors for Playing Video Games  
Rachit Dubey, Pulkit Agarwal, **Deepak Pathak**, Thomas L. Griffiths, Alexei A. Efros  
*International Conference on Machine Learning (ICML)*, 2018 (Long talk)
- [5] Compositional GAN: Learning Conditional Image Composition  
Samaneh Azadi, **Deepak Pathak**, Sayna Ebrahimi, Trevor Darrell  
*eprint arXiv:1807.07560*, 2018
- [6] Curiosity-driven Exploration using Self-Supervised Prediction  
**Deepak Pathak**, Pulkit Agrawal, Alexei A. Efros, Trevor Darrell  
*International Conference on Machine Learning (ICML)*, 2017
- [7] Learning Features by Watching Objects Move  
**Deepak Pathak**, Ross Girshick, Piotr Dollár, Trevor Darrell, Bharath Hariharan  
*Computer Vision and Pattern Recognition (CVPR)*, 2017
- [8] Toward Multimodal Image-to-Image Translation  
Jun-Yan Zhu, Richard Zhang, **Deepak Pathak**, T. Darrell, A. A. Efros, O. Wang, Eli Shechtman  
*Neural Information Processing Systems (NIPS)*, 2017
- [9] Context Encoders: Feature Learning by Inpainting  
**Deepak Pathak**, Philipp Krähenbühl, Jeff Donahue, Trevor Darrell, Alexei A. Efros  
*Computer Vision and Pattern Recognition (CVPR)*, 2016
- [10] Constrained Convolutional Neural Networks for Weakly Supervised Segmentation  
**Deepak Pathak**, Philipp Krähenbühl, Trevor Darrell  
*International Conference on Computer Vision (ICCV)*, 2015
- [11] Detector Discovery in the Wild: Joint Multiple Instance and Representation Learning  
Judy Hoffman, **Deepak Pathak**, Trevor Darrell, Kate Saenko  
*Computer Vision and Pattern Recognition (CVPR)*, 2015
- [12] Anomaly Localization in Topic-based Analysis of Surveillance Videos  
**Deepak Pathak**, Abhijit Sharang, Amitabha Mukerjee  
*Winter Conference on Applications of Computer Vision (WACV)*, 2015
- [13] Where is my Friend? - Person identification in Social Networks  
**Deepak Pathak**, Sai Nitish Satyavolu, Vinay P. Nambodiri  
*Automatic Face and Gesture Recognition (FG)*, 2015

WORKSHOP  
PUBLICATIONS

- [14] Fully Convolutional Multi-Class Multiple Instance Learning  
**Deepak Pathak**, Evan Shelhamer, Jonathon Long, Trevor Darrell  
*International Conference on Representation Learning (ICLR) Workshop*, 2015

JOURNAL  
PUBLICATIONS

- [15] A Comparison of Forecasting Methods  
**Deepak Pathak**, David Rothschild, Miro Dudík  
*Journal of Prediction Markets (JPM)*, 2015
- [16] Large Scale Visual Recognition through Adaptation using Joint Representation and Multiple Instance Learning  
Judy Hoffman, **Deepak Pathak**, Eric Tzeng, J. Long, S. Guadarrama, T. Darrell, Kate Saenko  
*Journal of Machine Learning Research (JMLR)*, 2016

TECHNICAL  
REPORTS

- [17] Constrained Structured Regression with Convolutional Neural Networks  
**Deepak Pathak**, Philipp Krähenbühl, Stella X. Yu, Trevor Darrell  
*arXiv:1511.07497*, 2015

SELECTED  
HONORS

Facebook Graduate Fellowship.	2018-20
NVIDIA Graduate Fellowship.	2017-18
Snapchat Inc. Graduate Fellowship.	2017
Outstanding Reviewer Award at ICCV.	2017
Gold Medal for the highest academic performance (Rank-1) in the department.	2014
Best Undergraduate Thesis Award at IIT Kanpur.	2014
TCS Software Award for best software developed in thesis in the graduating year.	2014
Binay Kumar Sinha Award for best industrially applicable thesis in the graduating year.	2014

	Academic Excellence Award, IIT Kanpur.	2011-14
	CBSE Merit Scholarship under AIEEE for undergraduate studies.	2010-14
INVITED TALKS	[1] VASC Seminar, Robotics Institute, CMU “Building Generalizable Agents via Curiosity and Self-supervision”	May 2018
	[2] Vision Seminar, CSAIL, MIT “Lifelong Learning via Curiosity and Self-supervision”	Mar 2018
	[3] Weekly Research Meeting, Google Brain “Lifelong Learning via Curiosity and Self-supervision”	Mar 2018
	[4] Invited talk at Redwood Center for Theoretical Neuroscience, Berkeley “Curiosity-driven Exploration by Self-supervised Prediction”	Sept 2017
	[5] Invited talk at Uber AI Labs “Life-long Learning via Self-supervised Curiosity”	Sept 2017
	[6] Frontiers of Video Technology Workshop held at Adobe San Jose “Learning to perceive and act via Self-supervision”	July 2017
	[7] Invited talk at OpenAI, San Francisco “Learning visuo-motor skills via Self-supervision”	June 2017
	[8] Talk at BAIR seminar “Exploring Four Axes of Self-Supervision”	Apr 2017
PROFESSIONAL SERVICE	<b>ECCV Workshop Organizer</b> “11th POCV Workshop: Action, Perception and Organization”	Sept 2018
	<b>Reviewer:</b> NIPS, ICLR, CVPR, ECCV, ICCV, AAAI, IJCV, PAMI, JMLR	
TEACHING EXPERIENCE	<b>CS 280: Computer Vision</b> University of California Berkeley Graduate Student Instructor with Prof. Trevor Darrell and Prof. Alexei A. Efros	Spring 2016
	<b>CS 189/289: Introduction to Machine Learning</b> University of California, Berkeley Graduate Student Instructor with Prof. Alexei A. Efros and Dr. Isabelle Guyon	Fall 2015