

David F. Fouhey

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Current Affiliation

University of California, Berkeley, EECS Department

September 2016 - Present

Postdoctoral Fellow

Mentors: Alexei A. Efros, Jitendra Malik

Education

Carnegie Mellon University, The Robotics Institute, Pittsburgh, PA **September 2011 – August 2016**

Ph.D., Robotics

Advisors: Abhinav Gupta, Martial Hebert

Thesis: Factoring Scenes into 3D Structure and Style

Thesis Committee: Deva Ramanan, William T. Freeman (MIT), Andrew Zisserman (U. Oxford)

GPA: 4.10

Middlebury College, Middlebury, VT

September 2007 - May 2011

A.B., Computer Science, *Summa Cum Laude*

Highest Honors in Computer Science; minor in Mathematics

Thesis: Multi-model Estimation in the Presence of Outliers

GPA: 3.93; Major GPA: 4.0

Other Research Experience

Oxford University

(Host: Andrew Zisserman)

Summer 2015

Microsoft Research

(Supervisor: Larry Zitnick)

Summer 2013

Middlebury College

(Supervisors: Daniel Scharstein, Amy Briggs)

2008-2011

CMU-National Robotics Engineering Center

(Supervisor: Cristian Dima)

Summer 2010, Spring 2011

Selected Awards and Honors

ICCV 2015 Doctoral Consortium, Selected for Travel Grant

NDSEG Fellowship (2013 - 2016)

NSF Graduate Research Fellowship (2011 - 2013)

Elected to Phi Beta Kappa, awarded Phi Beta Kappa Prize at Middlebury College
(awarded to one student per year in a class of ≈ 625)

Timothy Huang Senior Award for Academic Excellence, CS Department, Middlebury College

Barry M. Goldwater Scholar (2010 - 2011)

Talks

Predicting Voxel-based Reconstructions of Objects

3rd International Workshop on Recovering 6D Object Pose at ICCV 2017, October 2017

Adventures in 3D and Functional Understanding

UC Berkeley, September 2016

3D Shape Attributes

CVPR, June 2016 [Watch here](#)

Towards a Physical and Human-Centric Understanding of Images

MIT CSAIL, June 2016

UCLA, May 2016

USC CS Colloquium, March 2016

UT Austin UTCS Colloquium, March 2016

CMU VASC Seminar, March 2016

UC Berkeley, February 2016

Google, ML Seminar, February 2016

Intel Visual Computing Lab, February 2016

Revisiting Qualitative Shape via 3D Shape Attributes

Object Understanding for Interaction Workshop at ICCV 2015, December 2015

Cues and Constraints for 3D Scene Interpretation

University College London, July 2015

University of Edinburgh, IPAB Seminar, July 2015

University of Oxford, Robotics Seminar, July 2015

University of Surrey, CVSSP Seminar, June 2015

Unfolding an Indoor Origami World

ECCV, September 2014 [Watch here](#)

CMU VASC Seminar, September 2014

Data-Driven 3D

Tutorial on 3D Scene Understanding, ECCV 2014

Mid-level Likelihoods and Constraints for 3D Scene Interpretation

Robert Bosch Research and Technology Center, June 2014;

Microsoft Research Cambridge, May 2014

University of Oxford, Robotics Seminar, May 2014

Data-Driven 3D Primitives for Single Image Understanding.
CMU VASC Seminar, November 2013

People Watching: Human Actions as a Cue for Single View Geometry.
ECCV, October 2012. [Watch here](#)
CMU VASC Seminar, September 2012

Service

Workshops and Tutorials:

Organizer, [Bridges to 3D Workshop](#), CVPR 2017

Organizer, [Tutorial on 3D Scene Understanding](#), ECCV 2014

Program Committee:

Workshop on Affordances in Vision for Cognitive Robotics, RSS 2014

Workshop on Visual Perception of Object and Scene Affordances, ECCV 2014

Reviewer (Selected):

ECCV 2014–, CVPR 2015–, ICCV 2015–, IJCV, TPAMI, CVIU, TIP.

Departmental Service:

UC Ph.D. Berkeley Admissions Committee 2017

CMU Ph.D. Admissions Committee 2014, 2015

CMU Master's Thesis Committee Member: Maheen Rashid, Zhizhong Li, Meng Song, Aaron Walsman, Rohit Girdhar, Mengtian Li, Lerrel Pinto.

CMU Ph.D. Research Qualifier Committee Member: Jacob Walker, Allison Del Giorno.

Teaching Experience

Co-Instructor: Visual Object and Activity Recognition, UC Berkeley, CS 294-43, Fall 2017

Co-Instructor: Visual Object and Activity Recognition, UC Berkeley, CS 294-43, Spring 2017

Co-Instructor: Visual Learning and Recognition, Carnegie Mellon University 16-824, Spring 2016

Guest Lecturer: Image Manipulation & Computational Photography, UC Berkeley CS194-26, Fall 2016; Visual Learning and Recognition CMU 16-824, Spring 2015; Visual Recognition, U. Pittsburgh 3710, Spring 2015; Computational Photography, CMU 15-463, Fall 2014.

TA: Computer Vision, Carnegie Mellon University 16-720, Fall 2012.

Publications

D.F. Fouhey, A. Gupta, A. Zisserman.

From Images to 3D Shape Attributes.

To appear in Transactions on Pattern Analysis and Machine Intelligence.

R. Girdhar, **D.F. Fouhey**, M. Rodriguez, A. Gupta.

Learning a Predictable and Generative Vector Representation for Objects.

At the 14th European Conference on Computer Vision (ECCV 2016).

(**Spotlight: 2.9% Acceptance Rate**)

D.F. Fouhey, A. Gupta, A. Zisserman.

3D Shape Attributes.

At the *29th Conference on Computer Vision and Pattern Recognition (CVPR 2016)*.

(Oral: 3.9% acceptance rate)

R. Girdhar, **D.F. Fouhey**, A. Gupta, K. Kitani, A. Gupta, M. Hebert.

Cutting through the Clutter: Task-Relevant Features for Image Matching.

At the *Winter Conference on Applications of Computer Vision (WACV) 2016*

D.F. Fouhey, W. Hussain, A. Gupta, M. Hebert.

Single Image 3D Without a Single 3D Image.

At the *15th International Conference on Computer Vision (ICCV 2015)*.

X. Wang, **D.F. Fouhey**, A. Gupta.

Designing Deep Networks for Surface Normal Estimation.

At the *28th Conference on Computer Vision and Pattern Recognition (CVPR 2015)*.

D.F. Fouhey, A. Gupta, M. Hebert.

Unfolding an Indoor Origami World.

At the *13th European Conference on Computer Vision (ECCV 2014)*.

(Oral: 2.6% acceptance rate)

D.F. Fouhey, C. L. Zitnick.

Predicting Object Dynamics in Scenes.

At the *27th Conference on Computer Vision and Pattern Recognition (CVPR 2014)*.

D.F. Fouhey, V. Delaitre, A. Gupta, A. Efros, I. Laptev, and J. Sivic.

People Watching: Human Actions as a Cue for Single View Geometry.

In *International Journal of Computer Vision (IJCV)*, Volume 110, Issue 3, pp 259-274, December 2014.

D.F. Fouhey, A. Gupta, M. Hebert.

Data-Driven 3D Primitives for Single-View Scene Understanding.

At *14th International Conference on Computer Vision (ICCV 2013)*.

D.F. Fouhey, V. Delaitre, A. Gupta, A. Efros, I. Laptev, and J. Sivic.

People Watching: Human Actions as a Cue for Single View Geometry.

At the *12th European Conference on Computer Vision (ECCV 2012)*.

(Oral: 2.8% acceptance rate – Invited to IJCV special issue on ECCV 2012)

V. Delaitre, **D.F. Fouhey**, I. Laptev, J. Sivic, A. Gupta, and A.A. Efros.

Scene semantics from long-term observation of people.

At the *12th European Conference on Computer Vision (ECCV 2012)*.

D.F. Fouhey, A. Collet, M. Hebert, and S. Srinivasa.

Object Recognition Robust to Imperfect Depth Data.

At the *2nd Workshop on Consumer Depth Cameras for Computer Vision* in conjunction with ECCV 2012.

M. Costanza-Robinson, B. Estabrook, and **D.F. Fouhey**.

Representative elementary volume estimation for porosity, moisture saturation, and air-water interfacial areas in unsaturated porous media: Data quality implications.

In *Water Resources Research* 2011, 47, W07513, doi:10.1029/2010WR009655.

D.F. Fouhey, D. Scharstein, and A. Briggs.

Multiple Plane Detection in Image Pairs Using J-linkage.

At the *20th International Conference on Pattern Recognition (ICPR 2010)*.