David F. Fouhey

Email: david.fouhey@nyu.edu
Homepage: Here
Google scholar: Here

Affiliations

Assistant Professor of CS & EE, New York University **September 2023 –**

Computer Science, Courant Institute of Mathematical Sciences
Electrical & Computer Engineering, Tandon School of Engineering

Education

University of California, Berkeley, EECS, Berkeley, CA **September 2016 – August 2018**

Postdoctoral Fellowship
Advisors: Alexei A. Efros, Jitendra Malik

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

Ph.D., Robotics
Advisors: Abhinav Gupta, Martial Hebert

Middlebury College, Middlebury, VT **September 2007 – May 2011**

A.B., Computer Science
Summa Cum Laude; Highest Honors in Computer Science; minor in Mathematics

Academic Positions & Employment

University of Michigan **January 2019 – August 2023**
Assistant Professor, EECS (Computer Science & Engineering Division)

INRIA Paris, Willow Laboratory **September 2018 – November 2018**
Visiting Professor (Hosts: Josef Sivic, Ivan Laptev)

Oxford University **Summer 2015**
Visitor (Host: Andrew Zisserman)

Microsoft Research **Summer 2013**
Intern (Supervisor: Larry Zitnick)

CMU-National Robotics Engineering Center **Summer 2010, Spring 2011**
Intern (Supervisor: Cristian Dima)

Middlebury College **2008–2011**
Research Assistant (Supervisors: Daniel Scharstein, Amy Briggs)

Selected Awards and Honors

NASA Robert H. Goddard Award for scientific excellence (to the *Solar Dynamics Observatory* team)

University of Michigan EECS Outstanding Achievement Award
(Awarded to ≈ two faculty a year in CSE). Awarded "for contributions to computer vision research and education, and support of the CSE graduate student community"

NSF CAREER, 2022

Outstanding Reviewer Award: CVPR 2018, NeurIPS 2019, ICCV 2019, ECCV 2020

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)

Students / Mentorship

Postdoctoral Fellows:

Dr. Jacob Berv, *Co-Supervised with Brian Weeks* (Aug 2023 –)
Schmidt AI in Science Postdoctoral Fellow

Graduated PhD Students:

Richard Higgins, UM CSE PhD (May 2019 – Jan 2025)
Defended; wrapping up projects as research associate

Shengyi Qian, UM CSE PhD (Sep 2019 – July 2024)
Next Role: Research Scientist, Meta

Nilesh Kulkarni, UM CSE PhD, *Co-supervised with Justin Johnson* (Sep 2019 – Aug 2024)
Next Role: Research Scientist, Netflix

PhD Students:

Dandan Shan, UM CSE PhD (May 2020 –)
Rackham International Student Fellowship

Chris Rockwell, UM CSE PhD, *Co-supervised with Justin Johnson* (May 2020 –)

Sarah Jabbour, UM CSE PhD, *Co-supervised with Jenna Wiens* (May 2020 –)

Linyi Jin, UM CSE PhD (May 2021 –)

Ruoyu Wang, NYU CS PhD (September 2023 –)

Denis Akola, NYU ECE PhD (July 2024 –)

Yidan Gao, NYU CS PhD *Co-supervised with Daniele Panozzo* (September 2024 –)

Joseph Tung, NYU CS PhD (September 2024 –)

(Victor) Samuel Pérez Díaz, NYU CS PhD (January 2025 –)

Visiting PhD Students:

Ahmad Darkhalil, Visitor from University of Bristol, March – April 2025
Advised by Dima Damen

Francesco Pio Ramunno, Visitor from University of Geneva, March 2025 –
via Polymathic Collaboration

Note: Before my group had senior PhD students, I supervised most MS/UG students directly myself, often with a PhD student serving as a mentor. As my group grew more senior, some PhD students started directly supervising MS/UG students. I have given credit to my PhD students for MS/UG students where the primary driving force behind the project and primary supervisor was the student.

MS Students:

Varun Deliwala, NYU MS (March 2024 –)
Primary PhD Supervisor: Richard Higgins

Sidhartha Reddy Potu, NYU MS (Jan 2024 –)
Primary PhD Supervisor: Richard Higgins

Chase Huang, NYU CSE MS (Jan 2024 –)
Primary PhD Supervisors: Chris Rockwell, Shengyi Qian

Past MS Students:

Rohit Banerjee, UM MS (June 2023 –)
Primary PhD Supervisors: Nilesh Kulkarni, Linyi Jin
Next Position: ML Engineer, CriticalRiver

Vineet Parikh, Cornell MS (Jan 2024 – May 2024)
Primary PhD Supervisors: Richard Higgins, Dandan Shan

Xiang "Amy" Wang, NYU MS (Nov 2023 – April 2024)
Primary PhD Supervisor: Nilesh Kulkarni

Yinwei Dai, UM CSE MS (May 2020 – Dec 2021)
Next Position: PhD Student, Princeton CS

Linyi Jin, UM Robotics MS (May 2019 – May 2021)
Next Position: PhD Student, UM CSE with me

Dandan Shan, UM ECE MS (Jan 2019 – May 2020)
Next Position: PhD Student, UM CSE with me

Christopher Rockwell, UM CSE MS (May 2019 – May 2020)
Next Position: PhD student, UM CSE with me, Justin Johnson

Michelle Shu, Visitor from JHU post-BS, pre-MS (May 2019 – Aug 2019)
Next Position: PhD student, Cornell CS

Zhaoheng Zheng, UM ECE MS (Jan 2019 – May 2019)
Next Position: PhD Student, USC CS

Vihang Agarwal, UM ECE MS, Independent Study (Jan 2019 – Dec 2019)
Next Position: Research Assistant, UM Medicine

Chockalingam Ravi Sundaram, UM ECE MS, Independent Study (Jan 2019 – May 2019)
Next Position: R&D Research Engineer, PlayStation

Undergraduate Students:

Jinhong Xia, NYU BS (May 2023 –)
Primary PhD Supervisor: Dandan Shan

Gregory Kondas, UM CS BS (May 2023 –)
Primary PhD Supervisor: Sarah Jabbour

Past Undergraduate Students:

Kaytlyn Daffern ASU BS (Sep 2023 – Dec 2023)
Primary PhD Supervisor: Richard Higgins

Matthew Sticha, UM CS BS (May 2022 – Sep 2023)
Next Position: MA Student, University of Chicago

Ruoyu Wang, UM CS Physics BS (May 2022 – present)
Next Position: PhD Student, NYU CS

Tianyi Cheng, UM CS BS (May 2022 – June 2023)
Next Position: MS Student, CMU

Ayda Sultan, Addis Ababa Institute of Technology (May 2022 – June 2023)

Simon Rusekeza, University of Rwanda (May 2022 – Aug 2022)

Dichang Zhang, UM Data Science BSE (Jan 2020 – May 2022)
Next Position: PhD Student, Stonybrook University CS

Siyi Chen, UM CSE BSE (May 2021 – May 2022)
Next Position: PhD Student, UM ECE

Samir Agarwala, UM CSE BSE (May 2021 – May 2022)
Next Position: MS Student, Stanford CS

Ruiyu Li, UM CSE BSE (May 2021 – Dec 2021)
Next Position: MS Student, CMU

Mahlet Haile, Addis Ababa University Software Eng. BS (May 2021 – Sep 2021)

Tibebu Wassie, Addis Ababa University Software Eng. BS (May 2021 – Sep 2021)

Zhizhuo Zhou, UM CSE BSE (May 2020 – Aug 2021)
NSF Graduate Fellowship Winner
Next Position: MS Student, CMU Robotics → PhD Student, Stanford CS

Gemmechu Mohammed, Addis Ababa University, BS (May 2020 – Aug 2021)
Next Position: PhD Student, Cornell University

Alexander Raistrick, UM CSE BSE (May 2020 – May 2021)
Next Position: PhD Student, Princeton CS

Xiao Song, UM CSE BSE (May 2020 – Aug 2020)

Justin Bi, UM CSE BSE (May 2020 – July 2020)

Yige Kristina Liu, UM CSE BSE (Sep 2019 – May 2020)
Primary PhD Supervisor: Richard Higgins
Next Position: MS Student, Stanford CS

Sarah Jabbour, UM CSE BSE (June 2019 – May 2020)
Next Position: PhD Student, UM CSE with me, Jenna Wiens

Jiaqi Geng, UM CSE BSE / SURE Program (Feb 2019 – Aug 2020)
Next Position: MS Student, CMU Robotics

Max Hamilton, UM CSE BSE / SURE Program (May 2019 – May 2021)
Next Position: MS Student, UM CSE → PhD Student, UMass Amherst

Zhengyuan Dong, UM CSE BSE (May 2019 – May 2020)

Qichen Fu, UM CSE BSE (May 2019 – June 2020)
Next Position: MS Student, CMU Robotics

Yue Wu, UM CSE BSE (May 2019 – Dec 2019)

High School Students:

Adam Sun, Detroit Country Day School (June 2020 – Aug 2020)
Next Position: Undergrad at Stanford University

PhD Thesis committee member and defense date:

Jianing "Jed" Yang, UM CSE *Advisor: Joyce Chai* TBD

Govind Mittal, NYU CSE *Advisors: Chinmay Hegde, Nasir Menon* TBD

Kelly Marshall, NYU CSE *Advisor: Chinmay Hegde* March 2025

Yiming Li, NYU ME *Advisor: Chen Feng* October 2024

Jana Pavlasek, UM Robotics *Advisor: Odest Chadwicke Jenkins* April 2024

Wenjia He, UM CSE *Advisor: Mike Cafarella* January 2024

Mohamed El Banani *Advisor: Justin Johnson* January 2024

Fahad Kamran, UM CSE *Advisor: Jenna Weins* November 2023

Minghan Zhu, UM ME *Advisor: Maani Ghaffari* August 2023

Won Park, UM CSE, *Advisor: Z. Morley Mao* March 2023

Madan Ravi Ganesh, UM ECE, *Advisor: Jason Corso, Salimeh Yasaei Sekh* July 2022

Oana Ignat, UM CSE, *Advisor: Rada Mihalcea* July 2022

Cameron Blocker, UM ECE, *Advisor: Jeff Fessler* July 2022

Megan Shearer, UM CSE, *Advisor: Michael Wellman* July 2022

Manikandasriram S.R., UM Robotics, *Advisor: Matthew Johnson-Roberson* June 2022

Shouchang Guo, UM ECE, *Advisor: Jeff Fessler* April 2022

Jiaxuan Wang, UM CSE, *Advisor: Jenna Wiens* Feb 2022

Brad Saund, UM Robotics, *Advisor: Dmitry Berenson* July 2021

Zheming Zhou, UM Robotics, *Advisor: Odest Chadwicke Jenkins* April 2021

Amy Nesky, UM CSE, *Advisor: Quentin Stout* August 2020

Dawei Yang, UM CSE, *Advisor: Jia Deng* June 2020
Note: I was the advisor of record for administrative reasons, but my actual role was a committee member

Kibok Lee, UM CSE, *Advisor: Honglak Lee* June 2020

Weifeng Chen, UM CSE, *Advisor: Jia Deng* June 2020
Note: I was the advisor of record for administrative reasons, but my actual role was a committee member

Chaowei Xiao, UM CSE, *Advisor: Mingyan Liu* June 2020

Luowei Zhou, UM Robotics, *Advisor: Jason Corso* March 2020
Dejiao Zhang, UM ECE, *Advisor: Laura Balzano* May 2019

Past mentorship (student co-authors or equivalent effort):

Olivia Wiles, University of Oxford Jan 2019 – May2019
Dimitri Zhukov, INRIA Sep 2018 – Nov 2018
Ashish Kumar, UC Berkeley Nov 2017 – May 2018
Weicheng Kuo, UC Berkeley Jan 2017 – Nov 2017
Xiaolong Wang, CMU Sep 2014 – May 2015
Rohit Girdhar, CMU Sep 2014 – May 2016
Adrien Matricon, Visitor to CMU before joining ENSTA PhD May 2014 – Nov 2014

Funding

Personal share of external sponsored research funding: $4,507,696
Personal share of external sponsored research funding at NYU (Sep 2023 –): $971,800

Externally Sponsored Research Funding (**NYU**):

NASA (Direct: NorthWest Research Associates)
Title: Full-Circle Science: Enabling Large-Sample Physics Investigations with SDO/AIA data
My Role: co-I; PI: KD Leka, NWRA
My Portion Requested: $64,273; Total Requested: ≈$196,272

NASA (Direct: Bay Area Environmental Research Institute) April 2025 – March 2028
Understanding solar wind formation and source region localization using interpretable deep learning My Role:
Co-I; PI: Vishal Upendran, BAERI
My Portion Awarded: $67,548; Total Awarded: $525,004

NASA (Direct: Lockheed Martin) December 2024 – July 2027
Phases C-D of the Multi-Slit Solar Explorer (MUSE) Project
(PI: Fouhey) My/Total awarded: $90,000

NASA (Direct: New Jersey Institute of Technology) October 2024 – Sep 2029
Title: AI Powered Solar Eruption Center (SEC) of Excellence in Research and Education
My Role: Co-I; PI: Haimin Wang, NJIT
My Portion Awarded: $749,979; Total Awarded: $4,999,648

Externally Sponsored Research Funding (pre-NYU):

NASA (Direct NorthWest Research Associates) March 2022 – August 2023 (NCE'd to 2024)
Title: Faster, Better, Deeper: Utilizing Deep Learning to Produce Enhanced Near Real Time Inversions from HMI Data for Space-Weather Modeling
My Role: Co-I; PI: Graham Barnes
My portion awarded: $91,564; Total awarded: $189,915

National Science Foundation January 2022 – December 2026
Title: CAREER: Learning to Perceive the Interactive 3D World from an Image
My Role: PI (sole)
My/Total Awarded: $584,449

NIH National Heart, Lung and Blood Institute September 2021 - August 2025
Title: Human-AI Collaborations to Improve Accuracy and Mitigate Bias in Acute Dyspnea Diagnosis
My Role: Co-I
My portion awarded: $563,255; Total Awarded: $3,768,329

National Science Foundation October 2020 - October 2023 (NCE'd to 2025)
Title: RI: Small: Understanding Hand Interaction In The Jumble of Internet Videos
My Role: PI (sole)
My/Total Awarded: $436,971

Toyota Research Institute April 2021 - March 2024
Title: Low-Cost 3D Perception for Mobile Manipulation in Unstructured Human Environments
My Role: Co-PI
My portion budgeted: $422,891. Total budgeted: $1,851,143.

National Aeronautics and Space Administration (NASA) January 2020 - December 2021
Solar Storms and Terrestrial Impacts Center (SOLSTICE)
My Role: Co-I
My portion awarded: $61,374. Total budgeted: $1,302,162.

NASA (Direct: Lockheed Martin) September 2019 – 2021
Implementation of Phase E for the Atmospheric Imaging Assembly (AIA) Investigation on the SDO Mission
My Role: PI (sole)
Total awarded: $24,906.

Defence Advanced Research Projects Agency (DARPA) MCS Program July 2019 – July 2022
MESS: Model-Building, Exploratory, Social System
My Role: co-PI
My portion awarded: $760,000; Total awarded: $9,477,951.

Procter & Gamble Company Jan 2019 – Dec 2020
Analyzing the Relation between Product Features and Consumer Preferences
My Role: co-PI
My portion awarded: $137,206; Total awarded: $569,957.

Toyota Research Institute Jan 2019 – Dec 2020
Building and Reasoning about Fully 3D Representations
My Role: PI (sole)
Total awarded: $453,280.

Internally Sponsored (but Competitively Selected) Research Funding:

Michigan Institute for Data Science: Propelling Original Data Science January 2020 - December 2020
Title: Fusing Physics and Deep Learning for Solar Dynamics Forecasting
My Role: PI
My portion awarded: $81,177; Total awarded: $90,000

Michigan Precision Health Investigators Awards January 2020 - December 2021
Title: Precision diagnosis in patients with acute dyspnea by linking imaging and clinical data
My Role: Co-PI
Other Collaborators: Michael Sjoding, University of Michigan (co-PI).

Gift Funding:

Adobe Inc 2021, 2022
Unrestricted Donation
Total: $28,000 (in three donations)

Procter & Gamble Company 2021
EPIC-Kitchens-100 Segmentation Project
(Donation to U. Bristol for UM, U. Bristol, U.Toronto Partnership) Total: $50,000

Nokia Networks Oy 2019
(Fine-Grained Human Hands In Contact)
Total: $38,273.

Community Service

Conference Organizing Participation:

Lead Organizer, NYC Computer Vision Day 2025: 318 person/20 university/75+ lab all day event
Lead Organizer, NYC Computer Vision Day 2024: 259 person/18 university/60+ lab all-day event
DEI Chair, ECCV 2024
Reviewer for ICCV 2021 Workshops

Editing

Action Editor TMLR, March 2022 –

Conference Area Chair/Senior Program Committee:

(2025) CVPR (Lead)
(2024) CVPR, ECCV, NeurIPS
(2023) CVPR, ICCV, WACV, NeurIPS
(2022) CVPR, ECCV, NeurIPS
(2021) ICLR, CVPR, NeurIPS, BMVC
(2020) CVPR, NeurIPS
(2019) CVPR

Workshops and Tutorials:

Lead Organizer, CV4Science Workshop, CVPR 2025
Organizer, 3D-LLM/VLA: Bridging Language, Vision and Action in 3D Environments, CVPR 2025
Organizer, Wild3D: 3D Modeling, Reconstruction, and Generation in the Wild, ECCV 2024
Lead Organizer, CV4Science Workshop, CVPR 2024
Organizer, Joint International 3rd Ego4D and 11th EPIC Workshop, CVPR 2023
Organizer, 4D Hand Object Interaction Workshop, CVPR 2023
Organizer, Bridges to 3D Workshop, CVPR 2018
Organizer, Bridges to 3D Workshop, CVPR 2017
Organizer, Tutorial on 3D Scene Understanding, ECCV 2014

Program Committee:

Workshop on 3D Reconstruction in the Wild, ECCV 2018
Workshop on Anticipating Human Behavior, ECCV 2018
Workshop on Affordances in Vision for Cognitive Robotics, RSS 2014
Workshop on Visual Perception of Object and Scene Affordances, ECCV 2014

Reviewer (Selected):

Reviewed Foundations of Computer Vision and was thanked in acknowledgments for feedback.

ECCV 2014–, CVPR 2015–, ICCV 2015–, NeurIPS 2018–, IJCV, TPAMI, The Astrophysical Journal, BMVC 2017–2018, 3DV 2017, CVIU, TIP.

Panels:

Presented on Machine Learning and Validation at National Academies of Sciences, Engineering, and Medicine for the *Space Weather Operations and Research Infrastructure Workshop, Phase II*

NSF: 1 in 2024; 1 in 2023; 1 in 2022, plus 1 ad-hoc; 1 in 2021, plus 1 ad-hoc; 3 in 2020.

Department & University Service

New York University

TT Faculty Search AY2024-2025
Graduate Admissions
NYU AD CS TT Faculty Search

TT Faculty Search AY2023-2024
Graduate Admissions

University of Michigan

Instructor, Intro to Grad Research AY2022–2023
Faculty Advisor, Computer Science & Engineering Graduate Students
AI in Science Postdoctoral Fellowship Program, Curriculum Committee

Instructor, Intro to Grad Studies AY2021–2022
CSE NSF Fellowship Coach
Faculty Advisor, Computer Science & Engineering Graduate Students

CSE Diversity Committee AY2020–2021
CSE NSF Fellowship Coach
Organized purchase of 160 GPU cluster worth $∼800K by 8 UM Faculty + University

CSE Hosting Committee AY2019–2020
CSE NSF Fellowship Coach (Annual CSE NSFGRF win rate increased 2.67 $\rightarrow$ 7)

CSE Graduate Admissions Committee AY2018–2019

Past Service: *(UC Berkeley)* Ph.D. Admissions Committee, 2017 *(CMU)* Ph.D. Admissions Committee 2014, 2015; Master's Thesis Committee Member: Maheen Rashid, Zhizhong Li, Meng Song, Aaron Walsman, Rohit Girdhar, Mengtian Li, Lerrel Pinto; Ph.D. Research Qualifier Committee Member: Jacob Walker, Allison Del Giorno.

Miscellaneous Activities

Consultant, Nokia Bell Labs, Sunnyvale Summer 2018 – May 2020
Consultant, Computer Vision and Machine Learning

AI Mentor, NASA Frontier Development Lab May 2018 – January 2019
Mentored researchers with a background in physics on deep learning for solar weather analysis. Resulted in 2 journal papers lead by mentees.

Outreach and Public Interest Activities

Pro-bono Photogrammetric Analysis Fall 2019 – ongoing (intermittent)

Summer 2024: Examined footage to assess feasibility of photogrammetric analysis.

Fall 2023 – Winter 2024: Measured heights of people in a video for the Michigan Innocence Clinic. This entailed approximately a week's worth of work leading to 17 page writeup.

Fall 2023: Did preliminary assessment of a case for someone working with the Wayne County Conviction Integrity Unit to help them asesss feasibility for photogrammetric analysis.

Fall 2019: Did pro-bono measurement of a person in a video for the Michigan Innocence Clinic. The clinic took on the person's case. My evidence was cited as critical to the exoneration of a man wrongfully convicted of first degree murder, who was serving a life sentence without the possibility of parole. Coverage 1 Coverage 2 Coverage 3

Director, AI4ALL UMich July 2019 – 2022
Two week residential summer program to give an entry point to artificial intelligence, computer science and engineering to ≈25 high schoolers per year, with a particular focus on encouraging participation from groups that have been underrepresented historically in computer science. This program ran annually in Summers 2019, 2020, 2021, and 2022 and reached 100 students.

University of Michigan Departmental DEI Work:

Instructor of Record for Intro to CSE Graduate Studies Fall 2020, 2021, 2022

Faculty Coordinator for Lab Culture Committee May – Sep 2020

Miscellaneous Outreach:

Doctoral Consortium mentor: ICCV 2023

Mentor session ("tips for a successful PhD", etc.): CVPR 2021, CVPR 2022, ECCV 2024

AI4All Curriculum Advisory Board, 2021

Panelist for webinar on AI for high schoolers via AI4All (December 2019, June 2020)

Participant, NextProf Pathfinder Workshop networking session (September 2019)

Teaching Experience

New York University

CSCI 3033: Computer Vision for Science & Engineering Spring 2025
16 students

ECE GY 9193: Selected Topics in Signal Processing Fall 2024
52 Students

CSCI 3033: Computer Vision for Science & Engineering Spring 2024
15 students

University of Michigan
I have included end-of-term evaluation scores for: Q1: Overall, this was an excellent course; Q2: Overall, the instructor was an excellent teacher.

EECS 442: Computer Vision Winter 2023
262 students; Q1: 4.8; Q2: 4.8 (66 responses)

EECS 442: Computer Vision — Winter 2022
300 students; Q1: 4.7; Q2: 4.8 (207 responses)

EECS 542: Advanced Topics in Computer Vision — Fall 2021
53 students; Q1: 4.9, Q2: 4.9 (11 responses)

EECS 442: Computer Vision *co-taught with Justin Johnson* — Winter 2021
329 students; Q1: 4.8, Q2: 4.8 (93 responses in my section of 160)

EECS 542: Advanced Topics in Computer Vision — Fall 2020
50 students; Q1: 4.9, Q2: 5.0 (15 responses)

EECS 598-007: The Ecological Approach to Visual Perception — Winter 2020
31 students; Q1: 4.9, Q2: 5.0 (16 responses)

EECS 442: Computer Vision — Fall 2019
155 students; Q1: 4.8, Q2: 4.8 (63 responses)

EECS 442: Computer Vision — Winter 2019
152 students; Q1: 4.6, Q2: 4.7 (48 responses)

Past teaching

Co-Instructor: Visual Object and Activity Recognition, UC Berkeley, CS 294-43, Spring 2017, Fall 2017, Spring 2018. 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

Context for Journals vs Conferences: Conferences are the primary venue for the publication of scholarly work in computer vision and so I have placed them first. Computer vision-specific journals now typically largely publish extended versions of conference publications. The extended versions are not seen as more prestigious or a necessary step of publishing an idea. Core computer vision work in non-computer-vision venues (e.g., Nature, Science) is not seen as prestigious and venues such as Nature Machine Intelligence have been boycotted by community members as a dangerous step back from community control of science and publishing.

Computer vision and machine learning conferences are double blind peer reviewed and typically have an acceptance rate of $\sim 20-30\%$. Oral/spotlight presentations typically have low-single digit acceptance rates (e.g., $3-4\%$).

Key: * indicates equal contributions; *Magenta and italics* indicate a graduate student of mine; Orange and underline indicates an undergraduate (not yet matriculated to a graduate program) student of mine.

Refereed Papers

NYU:

Brian C. Weeks, Christina Harvey, Joseph Tobias, Catherine Sheard, Zhizhuo Zhou, **David Fouhey**
Longer wing bones in warmer climates suggest a role of thermoregulation in bird wing evolution
Global Ecology and Biogeography, 2025.

Linyi Jin, Richard Tucker, Zhengqi Li, **David Fouhey**, Noah Snavely, Aleksander Holynski
Stereo4D: Learning How Things Move in 3D from Internet Stereo Videos
At 38th Conference on Computer Vision and Pattern Recognition, CVPR 2025

Chris Rockwell, *Joseph Tung*, Tsung-Yi Lin, Ming-Yu Liu, **David Fouhey**, Chen-Hsuan Lin
Dynamic Camera Poses and Where to Find Them
At 38th Conference on Computer Vision and Pattern Recognition, CVPR 2025

Jianing Yang, Xuweiyi Chen, Nikhil Madaan, Madhavan Iyengar, *Shengyi Qian*, **David Fouhey**, Joyce Chai
3D-GRAND: A Million-Scale Dataset for 3D-LLMs with Better Grounding and Less Hallucination
At 38th Conference on Computer Vision and Pattern Recognition, CVPR 2025

Shengyi Qian, Kaichun Mo, Valts Blukis, **David Fouhey**, Dieter Fox, Ankit Goyal
3D-MVP: 3D Multiview Pretraining for Robotic Manipulation
At 38th Conference on Computer Vision and Pattern Recognition, CVPR 2025

Xuweiyi Chen*, Ziqiao Ma*, Xuejun Zhang*, Sihan Xu, *Shengyi Qian*, Jianing (Jed) Yang, **David Fouhey**, Joyce Y. Chai
Multi-Object Hallucination in Vision-Language Models
NeurIPS 2024

Ruoyu Wang, **David F. Fouhey**, *Richard E.L. Higgins*, Spiro Antiochos, Graham Barnes, J. Todd Hoeksema, K.D. Leka, Yang Liu, Peter W. Schuck, Tamas I. Gombosi
SuperSynthIA: Physics-Ready Full-Disk Vector Magnetograms from HMI, Hinode, and Machine Learning
ApJ **970**:168, 2024

Sarah Jabbour, Gregory Kondas, Ella Kazerooni, Michael Sjoding, **David Fouhey**, Jenna Wiens
DEPICT: Diffusion-Enabled Permutation Importance for Image Classification Tasks
At 18th European Conference on Computer Vision, ECCV 2024

Chris Rockwell, *Nilesh Kulkarni*, *Linyi Jin*, Jeong Joon Park, Justin Johnson, **David Fouhey**
FAR: Flexible, Accurate and Robust 6DoF Relative Camera Pose Estimation
At 37th Conference on Computer Vision and Pattern Recognition, CVPR 2024
(Highlight 2.8% acceptance rate)

Linyi Jin, *Nilesh Kulkarni*, **David Fouhey**
3DFIRES: Few Image 3D REconstruction for Scenes with Hidden Surfaces
At 37th Conference on Computer Vision and Pattern Recognition, CVPR 2024

Georgios Pavlakos, *Dandan Shan*, Ilija Radosavovic, Angjoo Kanazawa, **David Fouhey**, Jitendra Malik
Reconstructing Hands in 3D with Transformers
At 37th Conference on Computer Vision and Pattern Recognition, CVPR 2024

Nilesh Kulkarni, Davis Rempe, Kyle Genova, Abhijit Kundu, Justin Johnson, **David Fouhey**, Leonidas Guibas
NIFTY: Neural Object Interaction Fields for Guided Human Motion Synthesis
At 37th Conference on Computer Vision and Pattern Recognition, CVPR 2024

Sarah Jabbour, **David Fouhey**, Stephanie Shepard, Thomas S. Valley, Ella A. Kazerooni, Nikola Banovic, Jenna Wiens, Michael W. Sjoding
Measuring the Impact of AI in the Diagnosis of Hospitalized Patients: A Randomized Clinical Vignette Survey Study
Journal of the American Medical Association, Volume 330, Issue 23, December 2023

Jianing Yang, Xuweiyi Chen, *Shengyi Qian*, Nikhil Madaan, Madhavan Iyengar, **David F. Fouhey**, Joyce Chai
LLM-Grounder: Open-Vocabulary 3D Visual Grounding with Large Language Model as an Agent
At International Conference on Robotics and Automation, ICRA 2024

Pre-NYU (defined by paper submission date):

Tianyi Cheng*, *Dandan Shan**, Ayda Sultan Hassen, *Richard Higgins*, **David F. Fouhey**
Towards A Richer 2D Understanding of Hands at Scale
NeurIPS 2023

Vadim Tschernezki*, Ahmad Darkhalil*, Zhifan Zhu*, **David Fouhey**, Iro Laina, Diane Larlus, Dima Damen, Andrea Vedaldi
EPIC Fields: Marrying 3D Geometry and Video Understanding
NeurIPS Datasets and Benchmarks 2023

Shengyi Qian, **David F. Fouhey**
Understanding 3D Object Interaction from a Single Image
At 18th International Conference on Computer Vision (ICCV 2023)

Linyi Jin, Matthew Sticha, Jianming Zhang, Yannick Hold-Geoffroy, Oliver Wang, Kevin Matzen, **David F. Fouhey**
Perspective Fields for Single Image View Calibration
At 36th Conference on Computer Vision and Pattern Recognition (CVPR 2023)

Richard E.L. Higgins, **David F. Fouhey**.
MOVES: Manipulated Objects in Video Enable Segmentation
At 36th Conference on Computer Vision and Pattern Recognition (CVPR 2023)

Nilesh Kulkarni, *Linyi Jin*, Justin Johnson, **David F. Fouhey**.
Learning to Predict Scene-Level Implicit 3D from Posed RGBD Data.
At 36th Conference on Computer Vision and Pattern Recognition (CVPR 2023)

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Samir Agarwala, *Linyi Jin*, *Chris Rockwell*, **David F. Fouhey**.
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Sound Localization with Self-Supervised Time-Delay Estimation.
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*Dandan Shan**, *Richard E.L. Higgins**, **David F. Fouhey.**
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Alexander Raistrick, *Nilesh Kulkarni*, **David F. Fouhey**.
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Pre-Professor:

A. Szenicer*, **D.F. Fouhey***, A. Muñoz-Jaramillo, P. Wright, R. Thomas, R. Galvez, M. Jin, M.C.M. Cheung.
A Deep Learning Virtual Instrument for Monitoring Extreme UV Solar Spectral Irradiance.
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D.F. Fouhey, A. Gupta, A. Zisserman.
Understanding Higher Order Shape via 3D Shape Attributes.
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R. Girdhar, **D.F. Fouhey**, M. Rodriguez, A. Gupta.
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At the *14th European Conference on Computer Vision (ECCV 2016)*.

D.F. Fouhey, A. Gupta, A. Zisserman.
3D Shape Attributes.
At the *29th Conference on Computer Vision and Pattern Recognition (CVPR 2016)*.

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, 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.
Unfolding an Indoor Origami World.
At the *13th European Conference on Computer Vision (ECCV 2014)*.

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, 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)*.

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* Volume 47, Issue 7, July 2011.

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)*.

Lightly Refereed Papers (e.g., Workshop Papers)

Zhizhuo Zhou, Gemmechu Hassena, Brian C. Weeks, **David F. Fouhey.**
Quantifying Bird Skeletons
CV4 Animals Workshop at *CVPR 2021*

M. Lescroart, **D.F. Fouhey**, J. Malik
Convolutional neural networks represent shape dimensions – but not as accurately as humans
Abstract at VSS 2018

D.F. Fouhey, A. Collet, M. Hebert, and S. Srinivasa.
Object Recognition Robust to Imperfect Depth Data.
2nd Workshop on Consumer Depth Cameras for Computer Vision at *ECCV 2012*.

Talks

Keynotes

From the Sun to Birds: Using Computer Vision to Measure The Universe
UIUC Coordinated Science Lab Student Conference, February 2024

From Hands In Action to Possibilities of Interaction
Keynote, Hands@ICCV 2023 Workshop, October 2023

From Hands In Action to Possibilities of Interaction
Keynote, CVPR Ego4D-EPIC Workshop, June 2023
Keynote, CVPR Workshop on Pretraining for Robotic Learning, June 2023

Talks

SuperSynthIA: Magnetograms from HMI, Hinode, and Machine Learning
Solar Dynamics Observatory Meeting, February 2025

From the Sun to Birds: Using Computer Vision to Measure The Universe
NYU CILVR Seminar, February 2024
Caltech, October 2023

Adventures in Using Computer Vision for Solar Physics and Space Weather
Harvard-Smithsonian Center for Astrophysics, November 2024
Flatiron Institute Machine Learning Series, March 2024
Institute for Space Weather Sciences, NJIT, November 2023

SuperSynthIA: Bringing Hinode/SOT-SP Vector Magnetograms to the Full Disk at High Cadence
Hinode-16/IRIS-13 Meeting, October 2023

Understanding the Physical World From Images
New York University, March 2023
Carnegie Mellon University, RI Seminar, February 2023
University of Pennsylvania, GRASP Seminar, December 2022

Teaching Transformers to Do The 8 Point Algorithm and Other Adventures in 3D
CMU, Guest Lecture for 16822: Geometric Methods in Computer Vision

Teaching Deep Networks to Do the 8-Point Algorithm and to Understand Hands In Action
Cornell Tech, October 2022

Synthesizing Magnetograms of the Sun's Photosphere with Deep Learning
ML4PSP Seminar Series, June 2022 Watch here

Understanding 3D Scenes and Interacting Hands
Princeton PIXL Seminar, October 2022
Czech Technical University, Prague, September 2022
Google CCI Seminar, July 2022
UC Berkeley, June 2022
Columbia University, May 2022
NYU, May 2022
Cornell Tech, May 2022
CMU VASC Seminar, April 2022

Looking at a Few Images of Rooms and Many Interacting Hands
MIT Vision and Graphics Seminar, November 2021
UIUC Vision Seminar, November 2021
MIT Computational Sensorimotor Learning Seminar, August 2021
Princeton ImageX Seminar, April 2021

Building 3D Representations of Scenes from One Or Two Ordinary Images
Google Research, December 2020
Seminar on 3D Geometry and Vision, November 2020 Watch here

Fusing Computer Vision And Space Weather Modeling [or slight variants of this title]
Michigan Institute for Data Science Symposium, November 2020
Space Weather Modeling Framework Users Meeting, November 2020
Stereo & SDO PI Meeting, August 2020

Looking at Hundreds of Millions of Hands in Interaction and Only a Few Images of Rooms
UC Berkeley, January 2020

Building Fully 3D Representations
Stanford/Toyota Research Workshop, January 2020

Boring Interactions and Exciting Sculptures
UC Berkeley, June 2019

Understanding How To Go Places and Do Things
GRASP Lab, University of Pennsylvania, March 2019
Michigan State University, March 2019

AIA/HMI ML Data Set and AIA to EVE by Deep Learning
Solar Dynamics Observatory Meeting: SDO in the Age of Deep Learning Mini-Workshop Session, November 2018

Understanding How to Go Places and Do Things
Oxford University, November 2018
Czech Technical University in Prague, October 2018

Recovering a Functional and Three Dimensional Understanding of Images
Ecole des Ponts ParisTech, IMAGINE, October 2018
INRIA Rhône-Alpes, September 2018
INRIA Paris, September 2018
University of Michigan, April 2018
University of North Carolina, March 2018
CMU, March 2018
UC Irvine, February 2018
Simon Fraser University, February 2018
UC Berkeley BAIR Seminar, January 2018 Watch here

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