

Chris Rockwell

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EDUCATION	University of Michigan <i>Ph.D. in Computer Science and Engineering</i> • Advisors: Justin Johnson, David F. Fouhey	Ann Arbor, MI Sep. 2020 - Aug. 2025 (Expected)
	<i>Master of Science, Computer Science and Engineering</i> • GPA: 4.00/4.00 • Advisors: David F. Fouhey, Jia Deng	Sep. 2018 - May 2020
	<i>Bachelor of Science, Economics</i> <i>Minors in Computer Science, Mathematics</i> • GPA: 3.95/4.00	Sep. 2011 - May 2015
INTERESTS	Computer Vision, Machine Learning	

PUBLICATIONS	Dynamic Camera Poses and Where to Find Them Chris Rockwell , Joseph Tung, Tsung-Yi Lin, Ming-Yu Liu, David F. Fouhey and Chen-Hsuan Lin CVPR, 2025 Project Page	
	FAR: Flexible, Accurate and Robust 6DoF Relative Camera Pose Estimation Chris Rockwell , Nilesh Kulkarni, Linyi Jin, JJ Park, Justin Johnson and David F. Fouhey CVPR, 2024 (Highlight) Project Page	
	Scalable 3D Captioning with Pretrained Models Tiange Luo*, Chris Rockwell *, Honglak Lee [†] and Justin Johnson [†] NeurIPS (Datasets and Benchmarks Track) 2023 Project Page	
	The 8-Point Algorithm as an Inductive Bias for Relative Pose Prediction by ViTs Chris Rockwell , Justin Johnson and David F. Fouhey 3DV 2022 Project Page	
	PlaneFormers: From Sparse View Planes to 3D Reconstruction Samir Agarwala, Linyi Jin, Chris Rockwell and David F. Fouhey ECCV 2022 Project Page	
	FWD: Real-time Novel View Synthesis with Forward Warping and Depth Ang Cao, Chris Rockwell and Justin Johnson CVPR 2022 Project Page	
	Understanding 3D Object Articulation in Internet Videos Shengyi Qian, Linyi Jin, Chris Rockwell , Siyi Chen and David F. Fouhey CVPR 2022 Project Page	
	PixelSynth: Generating a 3D-Consistent Experience from a Single Image Chris Rockwell , David F. Fouhey and Justin Johnson ICCV 2021 Project Page	

Full-Body Awareness from Partial Observations
Chris Rockwell and David F. Fouhey
ECCV 2020
[Project Page](#)

RESEARCH
EXPERIENCE

NVIDIA, Deep Imagination Research Group Santa Clara, CA
Research Intern | Hosts: Chen-Hsuan Lin, Tsung-Yi Lin Mar. 2024 - Oct. 2024

Internet Scale 3D Curation – *Dynamic Camera Poses*

- Curate and annotate cameras for 100K dynamic Internet videos from 3.2M diverse videos

Meta Reality Labs, Computational Photography Research Seattle, WA
Research Scientist Intern | Hosts: Hung-Yu Tseng, Jia-Bin Huang May 2022 - Dec. 2022

Novel View Synthesis

- Produce lightweight radiance field conditioned upon a single image

Michigan Vision Lab Ann Arbor, MI
Graduate Research Assistant | Advisor: Justin Johnson May 2020 - Present

Internet Scale 3D-Text Modeling – *Scalable 3D Captioning*

- Apply powerful VLM pipeline to caption 660K 3D assets, finetune text-to-3D models

Novel View Synthesis

- *PixelSynth*: Introduce powerful generative model, enabling 3D-consistent extrapolation
- *FWD*: Real-time NVS using pointcloud and transformer; predecessor to 3DGS

Fouhey AI Lab Ann Arbor, MI
Graduate Research Assistant | Advisor: David F. Fouhey May 2019 - Present

Relative Camera Pose Estimation

- *8-Point ViT*: Include 8-Point machinery in ViT block to improve relative pose estimation
- *FAR*: Fuse correspondence and learning-based pipeline, yielding best-of-both estimates

3D Reconstruction – *PlaneFormers*

- Introduce transformer to learn to refine planar reconstruction

3D Object Articulation – *Understanding 3D Object Articulation*

- Collect rich dataset of people articulating objects and learn axes of object articulation

3D Human Pose Estimation – *Full-Body Awareness*

- Propose self-training method to substantially improve human pose on internet video

Princeton Vision and Learning Lab Princeton, NJ
Graduate Research Assistant | Advisor: Jia Deng May 2018 - May 2019

2D Human Pose Estimation

- Add bottleneck-to-attention module to improve *Stacked Hourglass* accuracy 0.7%

Meta-Learning

- Improve finetune model to within 0.1 *avg. rank* of meta-learning baseline on *Meta-Dataset*

Strategic Reasoning Group Ann Arbor, MI
Undergraduate Research Assistant | Advisor: Michael P. Wellman May 2013 - Jul. 2013

Agent-based simulation of High-Frequency Trading and Latency Arbitrage

- Model trading agents with varying speeds to measure effects of latency arbitrage

SERVICE Reviewer: CVPR (2023 Outstanding Reviewer), NeurIPS (2023 Top Reviewer), ICCV, ECCV, 3DV, ICLR, ICML, TPAMI
AI4ALL Project Instructor: lead vision project for nine underrepresented high-schoolers
AI4ALL Curriculum Advisory Board Member: contributed to national curriculum
Technical Mentor: mentored five students with David F. Fouhey, including one in African Undergraduate Research Adventure (AURA); mentored two BNP interns
Graduate Student Advisory Committee: represented CSE students to improve experience

PROFESSIONAL **TuringSense, INC.** Santa Clara, CA
EXPERIENCE *Technical Consultant, Computer Vision* Feb. 2021 - Apr. 2021

- Suggested and implemented improvements to TuringSense home yoga product

Citadel, LLC. New York, NY
Trader, Global Fixed Income Apr. 2017 - Oct. 2017

- Designed, implemented and executed trading strategies to enhance team's portfolio

BNP Paribas New York, NY
Interest Rates and FX Structuring Analyst Jul. 2015 - Mar. 2017

- Created systematic hedging strategies and priced bespoke options for institutional clients