Chris Rockwell

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EDUCATION

University of Michigan   Ann Arbor, MI
Ph.D. in Computer Science and Engineering   Sep. 2020 - Aug. 2025 (Expected)
• Advisors: Justin Johnson, David F. Fouhey

Master of Science, Computer Science and Engineering   Sep. 2018 - May 2020
• GPA: 4.00/4.00
• Advisors: David F. Fouhey, Jia Deng

Bachelor of Science, Economics   Sep. 2011 - May 2015
Minors in Computer Science, Mathematics
• GPA: 3.95/4.00

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 Camera Curation – *Dynamic Camera Poses*
• Curate and annotate cameras for 100K dynamic Internet videos from 3.1M 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 EXPERIENCE

TuringSense, INC.   Santa Clara, CA
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