

# Chris Rockwell

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

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| PUBLICATIONS | Scalable 3D Captioning with Pretrained Models<br>Tiangue Luo*, <b>Chris Rockwell</b> *, Honglak Lee <sup>†</sup> and Justin Johnson <sup>†</sup><br>arXiv 2023.<br><br>The 8-Point Algorithm as an Inductive Bias for Relative Pose Prediction by ViTs<br><b>Chris Rockwell</b> , Justin Johnson and David F. Fouhey<br>3DV 2022.<br><br>PlaneFormers: From Sparse View Planes to 3D Reconstruction<br>Samir Agarwala, Linyi Jin, <b>Chris Rockwell</b> and David F. Fouhey<br>ECCV 2022.<br><br>FWD: Real-time Novel View Synthesis with Forward Warping and Depth<br>Ang Cao, <b>Chris Rockwell</b> and Justin Johnson<br>CVPR 2022.<br><br>Understanding 3D Object Articulation in Internet Videos<br>Shengyi Qian, Linyi Jin, <b>Chris Rockwell</b> , Siyi Chen and David F. Fouhey<br>CVPR 2022.<br><br>PixelSynth: Generating a 3D-Consistent Experience from a Single Image<br><b>Chris Rockwell</b> , David F. Fouhey and Justin Johnson<br>ICCV 2021.<br><br>Full-Body Awareness from Partial Observations<br><b>Chris Rockwell</b> and David F. Fouhey<br>ECCV 2020. |
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| RESEARCH<br>EXPERIENCE | <b>Michigan Vision Lab</b><br><i>Graduate Research Assistant</i>   Advisor: Justin Johnson<br><br>3D-Text Modeling<br>• <i>Scalable 3D Captioning</i> : Automatically collect large-scale, high-quality 3D-text data<br><br>Novel View Synthesis<br>• <i>FWD</i> : Engineer real-time, high-quality novel view synthesis from sparse views<br>• <i>PixelSynth</i> : Create an immersive experience from a single image | Ann Arbor, MI<br>May 2020 - Present |
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Relative Pose Estimation – *Relative Pose Prediction by ViTs*

- Propose modification to ViT block to improve relative pose estimation

**Fouhey AI Lab**

*Graduate Research Assistant* | Advisor: David F. Fouhey

Ann Arbor, MI

May 2019 - Present

3D Reconstruction – *PlaneFormers*

- Use transformer 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*

- Introduce self-training method to substantially improve pose estimation on internet video

**Meta Reality Labs, Computational Photography Research**

*Research Scientist Intern* | Team Manager: Johannes Kopf

Seattle, WA

May 2022 - Dec 2022

Novel View Synthesis

- Produce lightweight radiance field conditioned upon a single image

**Princeton Vision and Learning Lab**

*Graduate Research Assistant* | Advisor: Jia Deng

Princeton, NJ

May 2018 - May 2019

2D Human Pose Estimation

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

Meta-Learning

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

**Strategic Reasoning Group**

*Undergraduate Research Assistant* | Advisor: Michael P. Wellman

Ann Arbor, MI

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

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TEACHING  
&  
ACTIVITIES

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

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PROFESSIONAL  
EXPERIENCE

**TuringSense, INC.**

*Technical Consultant (Computer Vision)*

Santa Clara, CA

Feb. 2021 - Apr. 2021

- Suggested and implemented improvements to TuringSense home yoga product

**Citadel, LLC.**

*Trader, Global Fixed Income (Core Team)*

New York, NY

Apr. 2017 - Oct. 2017

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

**BNP Paribas**

*Interest Rates and FX Structuring Analyst (Intern in summer 2014)*

New York, NY

Jul. 2015 - Mar. 2017

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