

2260 Hayward St.
Ann Arbor, MI 48109
cnris@umich.edu
<https://crockwell.github.io/>
517.282.6402

EDUCATION	<div><div>University of Michigan</div><div>Ann Arbor, MI</div><div>Ph.D. in Computer Science and Engineering</div><div>Sep. 2020 -</div><div>• Advisors: David F. Fouhey, Justin Johnson</div></div> <div><div>Master of Science, Computer Science and Engineering</div><div>Sep. 2018 - May 2020</div><div>• GPA: 4.00/4.00 GRE Quantitative: 170/170</div><div>• Advisors: David F. Fouhey, Jia Deng</div></div> <div><div>Bachelor of Science, Economics, Magna Cum Laude</div><div>Sep. 2011 - May 2015</div><div>Minors in Computer Science and Mathematics</div><div>• GPA: 3.95/4.00</div></div>
INTERESTS	Computer Vision, Machine Learning
PUBLICATIONS	<div><div>PixelSynth: Inventing an Immersive 3D Experience from a Single Image</div><div>Chris Rockwell, David F. Fouhey, and Justin Johnson</div><div>In ICCV, 2021.</div></div> <div><div>Full-Body Awareness from Partial Observations</div><div>Chris Rockwell and David F. Fouhey</div><div>In ECCV, 2020.</div></div>
RESEARCH EXPERIENCE	<div><div>Michigan Vision Lab</div><div>Ann Arbor, MI</div><div>Graduate Research Assistant Advisor: Justin Johnson</div><div>May 2020 - Present</div><div>Novel View Synthesis</div><div>• Fused 3D and autoregressive methods to create an immersive scene from a single image</div><div>• Implemented per-image autoregressive outpainting orderings to hallucinate new content</div><div>• We produce superior image quality and cross-image consistency than all baselines</div></div> <div><div>Fouhey AI Lab</div><div>Ann Arbor, MI</div><div>Graduate Research Assistant Advisor: David F. Fouhey</div><div>May 2019 - Present</div><div>3D Human Pose Estimation</div><div>• Introduced self-training method to substantially improve pose estimation on internet video</div><div>• Annotated four internet video datasets for eval; present out-of-image keypoint evaluation</div><div>• A/B Testing selected ours over baselines 2.4x-8.9x more frequently over four datasets.</div></div> <div><div>Princeton Vision and Learning Lab</div><div>Princeton, NJ</div><div>Graduate Research Assistant Advisor: Jia Deng</div><div>May 2018 - May 2019</div><div>2D Human Pose Estimation</div><div>• Improved <i>Stacked Hourglass</i> score from 90.9% to 91.3% on MPII using better regularization</div><div>• Used bottleneck-to-attention mechanism with reg. to improve 2HG accuracy 0.7%</div><div>• Increased precision of network confidence, explored utilizing for curriculum training</div></div> <div><div>Meta-Learning</div><div>• Brought fine-tune model to within 0.1 <i>avg. rank</i> of meta-learning baseline on <i>Meta-Dataset</i></div></div>

Strategic Reasoning Group*Undergraduate Research Assistant* | Advisor: Michael P. Wellman May 2013 - Jul. 2013

Ann Arbor, MI

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

- Implemented security information processors to help build market microstructure

**HONORS &
AWARDS****University of Michigan**

Ann Arbor, MI

Research Experience for Undergraduates Award

2013

James B. Angell Scholar

2013-2016

William J. Branstrom Freshman Prize

2012

University Honors

2011-2015

Phi Kappa Phi Honors Society

2015

**TEACHING
&
ACTIVITIES**

Reviewer: CVPR (2021), ICCV (2021)

AI4ALL Project Instructor: lead vision project for nine underrepresented high-schoolers

AI4ALL Curriculum Advisory Board Member: contributed to national curriculum

AI4ALL Application Reviewer: rated student applications for AI4ALL acceptance

Technical Mentor: mentored four undergrads with Prof. Fouhey, including one remote in the African Undergraduate Research Adventure (AURA); mentored two BNP interns

Academic Mentor: mentored five undergraduate CSE students; grad orientation panelist

Graduate Student Advisory Committee: represented CSE students to improve experience

Grader: EECS 598 Deep Learning

**SALIENT
COURSES****University of Michigan, MS:**

Ecological Approach to Perception: explored embodied amodal perception of novel objects

Advanced AI: replicated *Image Generation from Scene Graphs*, evaluated using VQAMachine Learning: replicated and improved accuracy of *Stacked Hourglass Networks*Self-Driving Cars: fine-tuned *Squeeze and Excitation ResNet* for road-side classificationAdvanced Data Mining: performed link prediction using *SDNE* on sparse, temporal graphs

Deep Learning for Computer Vision (no class project)

University of Michigan, BS:AI, Linear Algebra, Econometrics, Adv. Calculus, Numerical Methods, Algorithms & DS

**PROFESSIONAL
EXPERIENCE****Citadel LLC**

New York, NY

Trader, Global Fixed Income (Core Team)

Apr. 2017 - Oct. 2017

Assisted Portfolio Manager (PM) and Head of Fund manage risk and generate trade ideas

- Built various screeners and monitors to pitch linear relative value trades in G10 rates
- Led research for and managed regression-based statistical arbitrage trading strategy

Designed and implemented tools to better manage PM and Head of Fund's portfolio

- Constructed custom clustering algorithm to view trades in an elegant manner
- Wrote script using scipy to optimize portfolio Sharpe ratio subject to constraints

BNP Paribas

New York, NY

Interest Rates and FX Structuring Analyst (Intern in summer 2014) Jul. 2015 - Mar. 2017

Priced, modeled and executed exotic and bespoke products

- Created pricing models and back-tested performance of bespoke structures using Python

- Co-managed \$1bn inflation-linked TRS: extended pricing models, priced hedges

Created and analyzed systematic hedging strategies and trade ideas

- Engineered framework to aggregate corporate FX risk and evaluate hedging strategies using multiple factors, used this to help redesign multinational corporation's hedging program