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Chris Rockwell

Education

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

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, Magna Cum Laude — Sep. 2011 - May 2015
Minors in Computer Science and Mathematics
• GPA: 3.95/4.00

Interests

Computer Vision, Machine Learning

Publications

PixelSynth: Inventing an Immersive 3D Experience from a Single Image
Chris Rockwell, David F. Fouhey, and Justin Johnson
In ICCV, 2021.

Full-Body Awareness from Partial Observations
Chris Rockwell and David F. Fouhey
In ECCV, 2020.

Research Experience

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

Novel View Synthesis
• Fused 3D and autoregressive methods to create an immersive scene from a single image
• Implemented per-image autoregressive outpainting orderings to hallucinate new content
• We produce superior image quality and cross-image consistency than all baselines

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

3D Human Pose Estimation
• Introduced self-training method to substantially improve pose estimation on internet video
• Annotated four internet video datasets for eval; present out-of-image keypoint evaluation
• A/B Testing selected ours over baselines 2.4x-8.9x more frequently over four datasets.

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

2D Human Pose Estimation
• Improved *Stacked Hourglass* score from 90.9% to 91.3% on MPII using better regularization
• Used bottleneck-to-attention mechanism with reg. to improve 2HG accuracy 0.7%
• Increased precision of network confidence, explored utilizing for curriculum training

Meta-Learning
• Brought fine-tune 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
• 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 VQA
Machine Learning: replicated and improved accuracy of *Stacked Hourglass Networks*
Self-Driving Cars: fine-tuned *Squeeze and Excitation ResNet* for road-side classification
Advanced 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, Algorthithms & 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