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Chris Rockwell

Education

University of Michigan — Ann Arbor, MI
Ph.D. in Computer Science and Engineering — Sep. 2020 - Present
- 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 and Mathematics
- GPA: 3.95/4.00

Interests

Computer Vision, Machine Learning

Publications

FAR: Flexible, Accurate and Robust 6DoF Relative Camera Pose Estimation
Chris Rockwell, Nilesh Kulkarni, Linyi Jin, JJ Park, Justin Johnson and David F. Fouhey
In Submission, 2023

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

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

3D-Text Modeling
- *Scalable 3D Captioning*: Automatically collect large-scale, high-quality 3D-text data

Novel View Synthesis
- *FWD*: Engineer real-time, high-quality novel view synthesis from sparse views
- *PixelSynth*: Create an immersive experience from a single image

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

Relative Camera Pose Estimation
- *8-Point ViT*: Modify ViT block to improve relative pose estimation
- *FAR*: Improve pose using hybrid correspondence-and-learning-based approach

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 — Seattle, WA
Research Scientist Intern | Team Manager: Johannes Kopf — May 2022 - Dec 2022

Novel View Synthesis
- Produce lightweight radiance field conditioned upon a single image

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

Teaching & Activities

Reviewer: CVPR (2023 Outstanding Reviewer), NeurIPS (2023 Top Reviewer), ICCV, ECCV, 3DV, TPAMI, ICLR
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

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 (Core Team) 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 (Intern in summer 2014) Jul. 2015 - Mar. 2017

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