Matthew Beveridge

Department of Computer Science
Columbia University

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Education

Columbia University
PhD in Computer Science; Advised by Shree Nayar	Incoming Fall 2023

Massachusetts Institute of Technology
MEng in Electrical Engineering and Computer Science; Advised by Daniela Rus	2020 - 2021
BS in Electrical Engineering and Computer Science	2016 - 2020
BS in Mathematics; Minor in Theater Arts	2016 - 2020

Academic Positions

Columbia University
Graduate Researcher; Advised by Shree Nayar	Incoming Fall 2023
LEAP Momentum Fellow; Co-advised by Carl Vondrick and Kara Lamb	Jun - Aug 2023

University of Colorado Boulder
Visiting Researcher; Advised by Morteza Karimzadeh	May - Sep 2023

Massachusetts Institute of Technology
Graduate Researcher; Advised by Daniela Rus	Sep 2020 - Jun 2021
Undergraduate Researcher; Advised by John Guttag	Sep 2019 - May 2020
Undergraduate Researcher; Advised by Ramesh Raskar	Sep 2018 - Feb 2019
Undergraduate Researcher; Advised by Julie Shah	Feb 2017 - May 2017

Industry Experience

Computer Vision Engineer, **Nodar Inc.**	Jul 2021 - Aug 2023
Machine Learning Researcher (Internship), **Draper Labs**; Advised by Rebecca Russell	Jun 2020 - Aug 2020
Research Engineer (Internship), **NASA Johnson Space Center**	Jun 2019 - Aug 2019
Computer Vision Researcher (Internship), **General Atomics ASI**	Jun 2018 - Aug 2018
Data Scientist (Internship), **nference Inc.**	Feb 2018 - Jun 2018
Software Engineer (Internship), **Mosaic Power**	Jun 2017 - Aug 2017

Teaching and Mentorship

Teaching Assistant
Columbia University CS4731: Computer Vision I – First Principles	Fall 2023
MIT 6.862: Applied Machine Learning	Fall 2020, Spring 2021
MIT 6.036: Introduction to Machine Learning	Fall 2020

Mentorship
Megan Ngo, MIT MechE. Research intern at Nodar Inc. (jointly w/ D. Jivani).	Jan - Feb 2022

Honors and Awards

Greenwoods Fellowship, Columbia University	2023
Momentum Fellowship, Learning the Earth with AI and Physics (NSF STC at Columbia University)	2023
Top 100 in Physics (ranked #37), Scientific Reports	2022
Best Paper: Pathway to Impact, NeurIPS (CCAI Workshop)	2021
MIT Sandbox Seed Funding Grant	2021
NEWMAC Academic All-Conference	2017
Northrop Grumman Engineering Scholar	2016
Society of American Military Engineers Scholar	2016, 2017
USL Academic All-American	2016
National Football Foundation Scholar Athlete	2016

Professional Activity

Reviewing

IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)	2022, 2023
IEEE/CVF International Conference on Computer Vision (ICCV)	2023
IEEE Winter Conference on Applications of Computer Vision (WACV)	2023, 2024
European Conference on Computer Vision (ECCV)	2022
International Conference on 3D Vision (3DV)	2022

Program Participant

Climate Change AI Summer School (Virtual)	2023
NeurIPS Climate Change AI Mentorship Program	2022

Service

Massachusetts Institute of Technology

MIT Driverless, Team Lead	Aug 2020 - Jul 2021
MIT EnergyHack, Director of Corporate Relations	Jun 2019 - May 2020

Selected Publications

Journal Publications

2. Woonghee Han, Randall Pietersen, Rafael Villamor-Lora, Matthew Beveridge, Nicola Offeddu, Theodore Golfinopoulos, Christian Theiler, James L. Terry, Earl S. Marmar, Iddo Drori. Tracking Blobs in the Turbulent Edge Plasma of a Tokamak Fusion Device. **Scientific Reports**, 2022. *Top 100 in Physics (ranked #37) for 2022.*

1. Alexander E. Siemenn, Evyatar Shaulsky, Matthew Beveridge, Tonio Buonassisi, Sara Hashmi, Iddo Drori. A Machine Learning and Computer Vision Approach to Rapidly Optimize Multiscale Droplet Generation. **ACS Applied Materials & Interfaces**, 2022.

Conference Publications

3. Sarah Mokhtar, Matthew Beveridge, Melody Cao, Iddo Drori. Pedestrian Wind Factor Estimation in Complex Urban Environments. Asian Conference on Machine Learning (**ACML**), 2021. *Oral spotlight.*

2. Nikhil Singh, Jeff Mentch, Jerry Ng, Matthew Beveridge, Iddo Drori. Image2Reverb: Cross-Modal Reverb Impulse Response Synthesis. IEEE/CVF International Conference on Computer Vision (**ICCV**), 2021.

1. Woonghee Han, Nicola Offeddu, Theodore Golfinopoulos, Christian Theiler, Cedric Tsui, Jose Boedo, Jim Terry, Earl Marmar, Randall Pietersen, Rafael Villamor Lora, Matthew Beveridge, Iddo Drori. Exploring the Edge/SOL Fluctuations in Negative Triangularity Plasmas on TCV. Annual Meeting of the **American Physical Society Division of Plasma Physics**, 2021.

Workshop and Symposium Publications

5. Matthew Beveridge, Lucas Pereira. Interpretable Spatiotemporal Forecasting of Arctic Sea Ice Concentration at Seasonal Lead Times. Neural Information Processing Systems (**NeurIPS**) Workshop on Tackling Climate Change with Machine Learning (Proposals Track), 2022.

4. Jared M. Cochrane, Matthew Beveridge, Iddo Drori. Generalizing Imaging Through Scattering Media With Uncertainty Estimates. IEEE Winter Conference on Applications of Computer Vision (**WACV)** Workshop on Applications of Computational Imaging, 2022.

3. Glenn Liu, Peidong Wang, Matthew Beveridge, Young-Oh Kwon, Iddo Drori. Predicting Atlantic Multidecadal Variability. Neural Information Processing Systems (**NeurIPS**) Workshop on Tackling Climate Change with Machine Learning, 2021. *Best paper; oral spotlight.*

2. Ellen Park, Jae Deok Kim, Nadege Aoki, Melody Cao, Yamin Arefeen, Matthew Beveridge, Roo Nicholson, Iddo Drori. Predicting Critical Biogeochemistry of the Southern Ocean. Neural Information Processing Systems (**NeurIPS**) Workshop on Tackling Climate Change with Machine Learning, 2021.

1. Evyatar Shaulsky, Alexander Siemenn, Matthew Beveridge, Tonio Buonassisi, Iddo Drori, Sara Hashmi. Artificial Intelligence Enhances Control Parameter Space Investigation in Flow-Focusing Droplet Generation. 95th **ACS Colloid and Surface Science** Symposium, 2021.

Patents

1. Piotr Swierczynski, Leaf Jiang, Matthew Beveridge. 3D Vision System with Automatically Calibrated Stereo Vision Sensors and Lidar Sensor. **US Patent Pending**, 2023.

Theses

1. Matthew Beveridge. Consistent Depth Estimation in Data-Driven Simulation for Autonomous Driving. Master's Thesis, **Massachusetts Institute of Technology**, 2021.

Preprints and Papers Under Review

3. Alexander E. Siemenn, Matthew Beveridge, Tonio Buonassisi, Iddo Drori. Online Preconditioning of Experimental Inkjet Hardware by Bayesian Optimization in Loop.

2. Kyle Lennon, Katharina Fransen, Alexander O'Brien, Yumeng Cao, Matthew Beveridge, Yamin Arefeen, Nikhil Singh, Iddo Drori. Image2Lego: Customized LEGO® Set Generation from Images.

1. Samuel Humphries, Madeleine Jansson, Young Ryu, Matthew Beveridge, Melody Cao, Iddo Drori. Predicting Wildfire Growth.

Selected Press Coverage

"AI to Be Used to Develop Nuclear Fusion Energy," by Ed Browne. Newsweek. November 2, 2022.

"Machine learning facilitates turbulence tracking in fusion reactors," by Adam Zewe. MIT News. November 1, 2022.

"Hacking into a sustainable energy future," by Taylor Tracy. MIT News. December 11, 2019.