Nicholas Kashani Motlagh

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LinkedIn: linkedin.com/in/nicholas-kashani-motlagh — *Website:* nmotlagh.github.io — **US Citizen**

Education

Ohio State University Columbus, OH
Ph.D. in Computer Science and Engineering (AI Major) Aug 2021 - May 2026 (Expected)
Advisor: Prof. Jim Davis; Minors: Mathematics and High-Performance Computing GPA: 3.65

Ohio State University Columbus, OH
B.S. in Computer Science and Engineering with Honors Aug 2017 - May 2021
Minor: Mathematics; Scholarships: Maximus, Ten-Hai Lai, Ansel, Name and Seal. GPA: 3.86

Experience

Ohio State University (sponsored by Air Force Research Laboratory) Columbus, OH
Graduate Research Associate, Computer Vision Lab August 2021 - Present
Assessing the Role of Imagery in Multimodal Machine Translation (WMT 2024)

- Developed contrastive metrics that evaluate visual comprehension in multimodal machine translation models
- Demonstrated that models scored favorably, challenging the existing belief that imagery acts as a mere regularizer

Naturally Constrained Reject Option Classification (MVA 2024)

- Invited to submit an extension of our award-winning reject option work
- Analyzed our reject option approach on remote sensing and long-tailed datasets, demonstrating its generalizability

Learning to Say "I Don't Know" (ISVC 2022, **Best Paper Award**)

- Innovated a novel constrained optimization approach with per-class softmax thresholding
- Enhanced select accuracy by +0.4% with +1.3% coverage over naïve thresholding on the ImageNet dataset

Graduate Teaching Associate, Machine Learning August 2023 - May 2024

- Conducted office hours and graded 80+ students in a theoretical machine learning course (CSE 5523)

Air Force Research Laboratory Dayton, OH
Graduate Research Intern (Mentors: Dr. Matthew Scherreik and Dr. Tim Anderson) Summer 2022/23/24

- Summer 24: Enhanced JEPA and MAE frameworks for multimodal EO/SAR representation learning, achieving superior performance in low-data settings compared to traditional supervised methods (U.S. CUI)
- Summer 23: Developed 'Reject Option Beam Search' to improve translation quality at large beam widths (U.S. CUI)
- Summer 22: Pioneered end-to-end training for Naturally Constrained Reject Option Classification (U.S. CUI)

Undergraduate Research Intern (Mentor: Dr. Roman Ilin) Summer 2020/21

- Summer 21: Devised an ensemble distillation method to enhance model performance on ambiguous examples (U.S. CUI)
- Summer 20: Constructed a semi-automated system for temporal satellite imagery collection (ICCVW 2021)

Concordia University (sponsored by SII Canada) Montreal, Canada
Undergraduate Research Intern (Mentor: Dr. Khashayar Khorasani) Summer 2019

- Created a UAV obstacle avoidance pipeline encompassing data collection, model training, and deployment (NDA)

Publications

N. Kashani Motlagh, J. Davis, T. Anderson, J. Gwinnup, G. Erdmann
"Assessing the Role of Imagery in Multimodal Machine Translation"
Conference on Machine Translation, November 2024

N. Kashani Motlagh, J. Davis, T. Anderson, J. Gwinnup
"Learning When to Say 'I Don't Know'"
International Symposium on Visual Computing, October 2022 - ***Springer Best Paper Award***

N. Kashani Motlagh, A. Radhakrishnan, J. Davis, R. Ilin
"A Framework for Semi-automatic Collection of Temporal Satellite Imagery for Analysis of Dynamic Regions"
IEEE/CVF International Conference on Computer Vision Workshop, October 2021

Journals

N. Kashani Motlagh, J. Davis, T. Anderson, J. Gwinnup
"Naturally Constrained Reject Option Classification"
Machine Vision and Applications Journal, Special Issue on Advances in Visual Computing (to appear)

Technical Skills

Languages & Tools: Python, PyTorch, HuggingFace, Git, Slurm, Singularity, LaTeX

Professional Service

Reviewer: ICCV '23, CVPR '23, ECCV '22, CVPR '22; **Volunteer**: HackOHI/O '23