AMIL DRAVID

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https://scholar.google.com/citations?user=YZ8Y-sUAAAAJ&hl=en

OVERVIEW

I am a Northwestern computer science and statistics student with broad interests in artificial intelligence and computer vision. My research is at the intersection of representation learning and computer vision, spanning generative modeling, explainability/interpretability, domain adaptation, adversarial robustness, and reliable autonomous systems. I am also keen to explore how these concepts impact society in complex issues, such as in healthcare and quality of life. I aim to pursue an academic career in research and teaching at the university level. I am also open to collaboration with industry.

EDUCATION

Northwestern University: BS in Computer Science, Minor in Statistics Expected June 2023
GPA: 4.00

Selected Coursework: Machine Learning; Deep Learning Foundations; Computer Vision; Statistical Pattern Recognition; Computational Photography; Computer Graphics; Deep Generative Models; Discrete Math; Data Structures and Algorithms; Design and Analysis of Algorithms; Statistical Theory; Signals and Systems; Applied Linear Algebra

Activities: IEEE Student Branch President and Project Manager, Society of Asian Scientists and Engineers Internal Affairs Chair, Computer Science Buddy/Mentor, High School Engineering Outreach, International Taekwondo Competitor

PUBLICATIONS *(CITATIONS: 91, H-INDEX: 2)*

medXGAN: Visual Explanations for Medical Classifiers through a Generative Latent Space
Dravid A., Schiffers F., Gong B., Katsaggelos AK. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Trusted Computer Vision Workshop (long paper)*, 2022.

Investigating the Potential Of Auxiliary-Classifier GANs for Image Classification in Low Data Regimes
Dravid A., Schiffers F., Wu Y., Cossairt O., Katsaggelos AK.
IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2022.

Visual Explanations for Convolutional Neural Networks via Latent Traversal of Generative Adversarial Networks (Student Abstract)
Dravid A., Katsaggelos AK.
AAAI Conference on Artificial Intelligence, 2022.

Early upper aerodigestive tract cancer detection using electron microscopy to reveal chromatin packing alterations in buccal mucosa cells
Bugter, O & Li, Y., Wolters, A., Agrawal V., **Dravid A.** et al
Microscopy and Microanalysis, 2021.

DeepCOVID-XR: An Artificial Intelligence Algorithm to Detect COVID-19 on Chest Radiographs Trained and Tested on a Large US Clinical Dataset
Wehbe, R., Sheng, J., Dutta, S., Chai, S., **Dravid, A.** et al
Radiology, 2021.

Interpretation of Brain Morphology in Association to Alzheimer's Disease Dementia Classification Using Graph Convolutional Networks on Triangulated Meshes
Azcona, EA., Besson, P., Wu, Y., Punjabi, A., Martersteck, A., **Dravid, A.** et al
International Workshop on Shape in Medical Imaging at MICCAI 2020

Employing deep networks for image processing on small research datasets
Dravid, A.
Microscopy Today, 2019.

EXPERIENCE

Undergraduate Researcher in the Image and Video Processing Lab (IVPL) Oct. 2019-Present
Main Advisor: Prof. Aggelos Katsaggelos
Under the mentorship of Prof. Aggelos Katsaggelos at the Northwestern IVPL, I investigate the intersection of computer vision and representation learning as well as medical imaging. I also collaborate with Prof. Oliver Cossairt in the Computational Photography Lab.

Caltech Summer Undergraduate Research Fellow July 2022-Sept.
Mentors: Prof. Pietro Perona, Jennifer Sun
3D structure discovery for animal behavior analysis.

Research Intern at Microsoft Research, Computer Vision Group April 2022-June
Mentor: Vibhav Vineet
Tackling distributional robustness by interfacing SIFT-inspired differentiable modules with CNNs and ViTs.

Google Research Mentorship Program (CSRMP) Mentee Jan. 2021-July
Mentor: Boqing Gong
Employing GANs for explaining medical classifiers.

High School Research, Northwestern University Dec. 2017-Jan. 2019
Mentors: Karl Hujsak, Yue Li
Using limited data for training biomedical segmentation models.

HONORS AND AWARDS

The Barry Goldwater Scholarship 2021
Awarded $15,000 scholarship over junior and senior year for excellence in natural science, mathematics, or engineering research.

CRA Outstanding Undergraduate Researcher Honorable Mention 2021
One of the ∼100 undergraduate students nationally recognized as making significant contributions and displaying potential in computing research.

Summer Undergraduate Research Grant 2020
Awarded a $3500 grant by the Northwestern Office of Undergraduate Research to conduct an independent summer research project based on my proposal.

National Merit Scholarship 2019
Awarded $10,000 scholarship over four years of college for excellence in high school.

TEACHING EXPERIENCE

Teaching Assistant (Computer Science Dept., Northwestern)
COMP SCI 349: Machine Learning March-June, 2021
As a teaching assistant, I graded coding and written assignments, held multiple weekly office hours, and taught some lectures.

Student-Led Mini-Class (Computer Science Dept., Northwestern)
Deep Learning in Practice Jan. 4-8, 2021
One-week workshop part of student-led classes pilot program. My workshop surveyed various applications of deep learning in professional, industry, and research settings. ∼50 students in this course learned how to code mini-projects in PyTorch and Tensorflow/Keras such as voice recognition or object detection systems.

Research Mentor
Mentee: Shreya Sridhar (Class of 2025) Jan. 2022-Present
Mentor a younger undergraduate student through a research project: optimizing data imputation for medical tabular data for downstream deep learning-based COVID-19 risk prediction. I guided the student through the research agenda and the writing of a proposal which was awarded a grant through the Northwestern McCormick School of Engineering.