

# AMIL DRAVID

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

## OVERVIEW

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I am a Northwestern computer science and statistics student with broad interests in artificial intelligence and computer vision. My research spans topics such as generative modeling, explainability, out-of-distribution data, domain adaptation, adversarial robustness, and autonomous systems, specifically in a vision context. 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

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**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; Discrete Math; Data Structures and 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

## EXPERIENCE

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**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.

**Research Intern at Microsoft Research, Computer Vision Group**

April 2022-June

Mentor: Vibhav Vineet

**Google Research Mentorship Program (CSRMP) Mentee**

Jan. 2021-July

Mentor: Boqing Gong

**High School Research, Northwestern University**

Dec. 2017-Jan. 2019

Mentors: Karl Hujsak, Yue Li

## PUBLICATIONS

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**medXGAN: Visual Explanations for Medical Classifiers through a Generative Latent Space**

Dravid A., Schiffers F., Gong B., Katsaggelos AK.

Accepted and to appear in *IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Trusted Computer Vision Workshop (long paper)*, 2022.

**Investigating the Potential Of Auxiliary-Classifer GANs for Image Classification in Low Data Regimes**

Dravid A., Schiffers F., Wu Y., Cossairt O., Katsaggelos AK.

Accepted and to appear in *IEEE International Conference on Acoustics, Speech and Signal Processing*, 2022.

## Visual Explanations for Convolutional Neural Networks via Latent Traversal of Generative Adversarial Networks

Dravid A., Katsaggelos AK.

Student Abstract in *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.

## HONORS AND AWARDS

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### 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

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### 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.