

Logan Frank

<https://loganfrank.github.io>

Email: frank.580@osu.edu
Phone: Available Upon Request

EDUCATION

Ohio State University

Ph.D. in Computer Science and Engineering
Advisor: Prof. Jim Davis

Columbus, OH
Expected Spring 2026

Wright State University

B.S. in Computer Engineering

Dayton, OH
May 2019

EXPERIENCE

Ohio State University, Computer Vision Laboratory

Graduate Research Associate

Columbus, OH
August 2019 - Present

What Makes a Good Dataset for Knowledge Distillation? (on arXiv):

- Examined the scenario in knowledge distillation where the original dataset used to train the teacher is unavailable for training the student by investigating using surrogate distillation datasets from various different sources
- Identified key characteristics of datasets that, when present, enable successful distillation from teacher to student
- Leveraged our insights to demonstrate that with minimal setup, a teacher can be distilled successfully using unnatural synthetic OOD imagery in the form of OpenGL shader images
- Proposed an adversarial attack strategy that can exploit a teacher model's decision boundaries, enforce the desired characteristics on a dataset's examples, and improve knowledge transfer for many surrogate datasets

Improvements to Batch Normalization (ECCV 2022):

- Observed that the learned affine transformation parameters of batch normalization do not alter much from their initial state and can allow overly large values (output from the preceding normalization) to be passed forward
- Proposed an alternative initialization and updating strategy to the scale parameter of batch normalization, which resulted in statistically significant accuracy gains over the default initialization and other related approaches

Agricultural Crop Stress Recognition (WACV 2021):

- Collaborated with the Department of Food, Agricultural, and Biological Engineering at Ohio State to apply a confidence grounded hierarchical inference approach to plant stress identification

GE Aerospace, AI & CV Group

Computer Vision Research Intern (Mentor: Dr. Paul Ardis)

Niskayuna, NY
Summer 2024

- Conducted a literature review on state-of-the-art uni-modal and multi-modal object re-identification approaches
- Developed a novel method for multi-modal target recognition and object re-identification to match project requirements

Air Force Research Laboratory, Sensors Directorate

Graduate Research Intern (Mentor: Dr. Christopher Liberatore)

Dayton, OH
Summer 2023

- Created a feature augmentation method for addressing long-tail imbalanced classification (work is under U.S. CUI)
- Investigated existing long-tail imbalanced classification approaches applied to DoD-specific data

PUBLICATIONS

L. Frank, J. Davis

"What Makes a Good Dataset for Knowledge Distillation?"

arXiv:2411.12817 [cs.CV] (November 2024)

J. Davis, L. Frank

"Revisiting Batch Norm Initialization"

European Conference on Computer Vision (2022)

L. Frank, C. Wiegman, J. Davis, S. Shearer

"Confidence-Driven Hierarchical Classification of Cultivated Plant Stresses"

IEEE/CVF Winter Conference on Applications of Computer Vision (2021)

Z. Daniels, L. Frank, C. Menart, M. Raymer, P. Hitzler

"A Framework for Explainable Deep Neural Models Using External Knowledge Graphs"

SPIE Defense and Commercial Sensing: AI and ML for Multi-Domain Operations Applications Track (2020)

PROFESSIONAL SERVICE, AWARDS, AND ACTIVITIES

Reviewer: CVPR'25, 24, 23, 22, ECCV'24, 22, ICCV'23, WACV'25

SMART Scholarship Recipient, United States Department of Defense

2019

NCAA Division 1 Athlete - Swimming, Wright State University Athletics

August 2015 - May 2017