Justin Dulay

https://dulayjm.github.io

University of Notre Dame

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EDUCATION

University of Notre Dame   June 2021 - Present
Ph.D. in Computer Science & Engineering
Advisor: Prof. Walter Scheirer
Dean's Fellow

Saint Louis University   August 2017 - May 2021
B.S. in Computer Science
Research Advisor: Prof. Abby Stylianou

RESEARCH INTERESTS

Psychophysics, Computer Vision, Machine Learning, Deep Learning, Algorithms

AWARDS & HONORS

Dean's Fellowship at Notre Dame
- *Fully university-funded research and stipend for a min. of 5 years*
- *Valued at over $350,000*
- *Most selective graduate fellowship at Notre Dame*
Vice President's Scholarship at Saint Louis University
- *Valued at over $150,000 over 4 years*
James Costigan Fellowship at Saint Louis University

PUBLICATIONS

Journal Publications
J.1. *submitted*

J.2. *submitted*

Peer-Reviewed Conference Papers
C.1. *submitted*

Peer-Reviewed Conference Workshop Papers
W.1. Justin Dulay, Chao Ren, Greg Rowles, Abby Stylianou, "The Sorghum-100 Dataset" to appear at the CVPR Workshop on Fine-Grained Visual Categorization (FGVC8), 2021

W.2. Chao Ren, Justin Dulay, Greg Rowles, Duke Pauli, Nadia Shakoor, Abby Stylianou, "Multi-resolution Outlier Pooling for Sorghum Classification" CVPR Workshop on Agriculture Vision, 2021

Pre-prints
P.1. Justin Dulay, Walter Scheirer "Using Human Perception to Regularize Transfer Learning", 2022

P.2. Jin Huang, Derek Prijatelj, Justin Dulay, Walter Scheirer, "Measuring Human Perception to Improve Open Set Recognition", 2022

P.3. Justin Dulay, Sonia Poltoratski, Till Hartmann, Samuel Anthony, Walter Scheirer, "Guiding Machine Perception with Psychophysics", 2022

WORK EXPERIENCE

University of Notre Dame   June 2021 - Present
Graduate Research Assistant   *Notre Dame, IN*

· Worked with Dr. Scheirer on new computer vision research, specifically in visual psychophysics, cognitive science, reinforcement learning, and autonomous vehicles.

Saint Louis University   May 2020 - May 2021
Research Assistant   *St. Louis, MO*

· Worked on state-of-the-art artificial intelligence image infilling techniques on occluded images, potentially creating virtually infinite training sets.
· Published two papers as an undergraduate at CVPR workshops, mostly in agriculture science and dataset curating.
· Created a iOS mobile app that utilized multiple cameras simultaneously in order to capture crops at different angles. It also utilized the LiDAR technology on the Apple iPhone 11 Pro Max.
· Research directly benefited TraffickCam, a non-profit designated to stop human trafficking using artificial intelligence to track down perpetrators.

MEDLaunch   September 2018 - April 2021
President   *St. Louis, MO*

· Led a student incubator of more than 50 medical and engineering students, managed finances of the organization, and strategized with a premier board of directors.
· Interviewed candidates, tracked performance, and committed to leading a diverse and equitable environment.

Centene Corporation   May 2019 - May 2020
Software Developer Intern   *St. Louis, MO*

· Wrote microservices in Go in a highly agile environment for Centene's TruCare NextGen project, a comprehensive insurance claims and health management platform.
· Worked stories from beginning to end – from development and peer review to deployments in production, utilizing a microservices architecture with Go, Jenkins, and Kubernetes.

SoHeart   May 2020 - October 2020
Software Developer   *St. Louis, MO*

· Worked on front end iOS Swift Development for a startup that specialized in developing an app to connect people in addiction recovery with care counselors and providers in a fresh, appealing, and dignified environment.

United States Food and Drug Administration   May 2018 - August 2018
ORISE Fellow   *St. Louis, MO*

· Developed methods for chemometrics of Raman spectral data for pharmaceutical assays, including machine learning, PCA, KNN, and PLS regression models.
· Utilized various backscattering and transmission Raman spectroscopic instruments.
· Drafted a scientific publication detailing a novel method to non-destructively screen for pharmaceutical degradation in compounding facilities.

TECHNICAL STRENGTHS

Programming Languages	Python, Swift, Go, C/C++, Java
Protocols	Agile, Kubernetes, CI/CD Jenkins
Databases	MySQL, MongoDB, Microsoft SQL
Skills	Project Management, Public Speaking, Writing

INVITED TALKS

Poster Presentations

"The Sorghum-100 Dataset" with Abby Stylianou, poster presentation at the CVPR Workshop on Fine-Grained Visual Categorization (FGVC8), Virtual, June 2021.

ACADEMIC SERVICE

Professional and Academic Membership

Student member of the IEEE

Academic Service

Reviewer, ECCV 2022

Reviewer, WACV 2023

Reviewer, CVPR 2023