LANDON SWARTZ

Graduate Student in Computer Science

@ lgsm2n@umsystem.edu   📞 417-493-5050   ✉ 1021 Ashland Road, Apt 206, 65201
📍 Columbia, MO, USA   🌐 landonswartz.github.io   in landon-swartz-96923b1a3   ⌂ LandonSwartz
iD 0000-0001-7067-8851

EXPERIENCE

Graduate Student
Computational Imaging and VisAnalysis Lab

🗓 Jan 2023 – Ongoing   📍 University of Missouri

- Novel research into computer vision for measurement of traits in life science and biomedical fields
- 3D aerial reconstruction

Undergraduate Researcher
David Mendoza-Cozatl Lab

🗓 Feb 2019 – Dec 2023   📍 University of Missouri

- Automatic trait measurement of plants
- Embedded systems engineer for imaging robotics

PROJECTS

OPEN Leaf: Leaf Specific Phenotyping
National Science Foundation

🗓 March 2020 - Sept 2023   📍 DMC Labs

- Designed a plant phenotyping pipeline that measured traits of shape and color of multiple plants at a leaf specific level to understand nutrient stressors

Segment-Anything Integration in SMART
National Science Foundation

🗓 Summer 2023   📍 CIVA Labs

- Integrated the Segment-Anything Model (SAM) into a plant image analysis library (SMART) for improved trait measurement
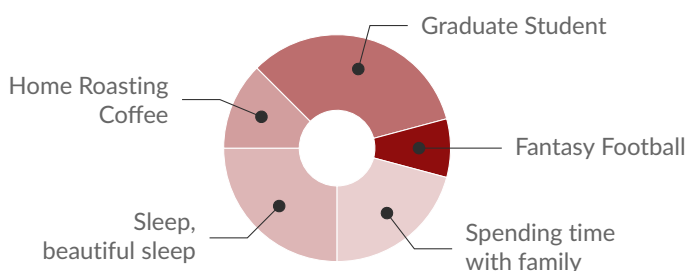
Leaf Tracking
National Science Foundation

🗓 Ongoing   📍 CIVA Labs

- Implemented tracking algorithm for leaves throughout time to perform dynamic trait measurement in the context of time

A DAY OF MY LIFE

MY LIFE PHILOSOPHY

"Trying to change the world for the better, one data set at a time."

MOST PROUD OF

🏆 **OPEN Leaf Paper**
being in the top 1% of papers on social media

❤ **Interdisciplinary**
Apart of many cross-discipline teams for novel projects

TECHNICAL SKILLS

Machine Learning   Statistical Analysis
Computer Vision   Digital Image Processing
Precision Agriculture

C++   R   Python   PyTorch   Open3D
Git   OpenCV

SOFT SKILLS

Hard-working   Eye for detail
Motivator & Leader   Writer   Personable

EDUCATION

Ph.D. in Computer Science
University of Missouri

🗓 Jan 2023 - Present

M.Sc. in Computer Science
University of Missouri

🗓 Jan 2023 - Present

- Expected date of award: Dec 2024

B.Sc. in Computer Engineering
University of Missouri

🗓 Aug 2018 - May 2022

- Minors in Mathematics and Biological Sciences
- Honors College Certificate

PUBLICATIONS

📄 Journal Articles

- L. G. Swartz, S. Liu, D. Dahlquist, *et al.*, "Open leaf: An open-source cloud-based phenotyping system for tracking dynamic changes at leaf-specific resolution in arabidopsis," *The Plant Journal*, vol. n/a, no. n/a, DOI: https://doi.org/10.1111/tpj.16449. eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1111/tpj.16449.

👥 Conference Proceedings

- L. G. Swartz, K. Palaniappan, D. G. Mendoza-Cozatl, and S. Liu, "Segmenting arabidopsis leaves using segment-anything," in *52nd Annual Applied Imagery Pattern Recognition Workshop*, 2023.

PRESENTATIONS

The OPEN Series Design Philosophy, High Throughput Phenotyping in the Hands of Users

2023 North American Plant Phenotyping Network - 2 mins

📅 Feb 2023   📍 Danforth Plant Science Center, MO, USA

Open-Source Cloud Based Phenotyping Series (OPEN Leaf)

International Plant Sulfur Workshop - 15 mins

📅 July 2022   📍 Western University, Canada

Open-Source Cloud Based Phenotyping Series (OPEN Leaf and Root)

2022 North American Plant Phenotyping Network - 15 mins

📅 Feb 2022   📍 University of Georgia, GA, USA

POSTERS

Segmentation of Arabidopsis thaliana using Segment-Anything

2023 Artificial Intelligence and Pattern Recognition

📅 Sept 2023   📍 St. Louis University, MO, USA

OPEN Leaf: An open-source cloud-based plant phenotyping platform to track dynamic rosette changes at a leaf-specific resolution

2022 Interdisciplinary Plant Science Symposium

📅 May 2022   📍 University of Missouri, MO, USA

- Outstanding Poster Award

REFEREES

Distinguished Prof. Kannappan Palaniappan

@ University of Missouri

✉ pal@missouri.edu

205 Naka Hall
Columbia, MO, USA

Prof. David Mendoza-Cozatl

@ University of Missouri

✉ mendozad@missouri.edu

271f Bond Life Sciences Center
Columbia, MO, USA

COLLABORATIONS

OPEN Root

📅 2021 - Present   📍 DMC Labs

- Built an open-source high-throughput root phenotyper that captures initial Arabidopsis thaliana seedling root length and direction to study nutrient uptake for improved crop production

Synthetic Genetic Circuit Plants

📅 2022 - Present   📍 Dr. Jen Brophy, Stanford

- Conducted ionomics analysis of macro and micro nutrients on transgenic Arabidopsis thaliana lines created by Dr. Jen Brophy, assistant professor of bioengineering at Stanford, with synthetic genetic circuits to control root system architecture.

Yeast-II Hybrid

📅 2018 - Present   📍 DMC Labs

- Designed imaging platform for standardized image capture of yeast plates for transcription factor network analysis of entire genomes