

Serena G. Lotreck

I study applications of information extraction and knowledge graph construction in the plant sciences.

EDUCATION

Michigan State University, East Lansing, MI — *PhD*

AUGUST 2019 - PRESENT

Dual degree in Plant Biology & Computational Math., Sci. and Engineering
Concentrations in molecular (MPS) and computational plant science (IMPACTS)

Cornell University, Ithaca, NY — *Bachelor of Arts*

AUGUST 2015 - MAY 2019

B.A. in Biological Sciences, concentration Biochemistry. *Magna cum laude*.

PUBLICATIONS AND PRESENTATIONS

Peer-reviewed publications

Cusack, S. A., Wang, P., **Lotreck, S. G.**, Moore, B. M., Meng, F., Conner, J. K., ... & Shiu, S. H. (2021). *Predictive models of genetic redundancy in Arabidopsis thaliana*. Molecular Biology and Evolution.

A. E. Bryson et al. (**Serena Lotreck** author #19 of 36), "[Composite modeling of leaf shape across shoots discriminates Vitis species better than individual leaves](#)," Applications in plant sciences 8.12 (2020): e11404.

Science communication

Lotreck, Serena G., "[Knowledge Graphs](#)," MSU SciComm Voices Blog, June 2020

Research talks

2021 GLBRC ASM: "[Machine Learning for Plant Biology: what, why and how?](#)"
2020 STEM Village Virtual Sym.: "[Domain-specific knowledge graphs in plant biology](#)"
2018 Plant Genomics @ MSU Symposium: [Ten-minute talk on REU research](#)

RESEARCH EXPERIENCE

Michigan State U., East Lansing, MI — *Graduate Research Assistant*

AUGUST 2019 - PRESENT

Supervisor: Professor Shinhan Shiu

Research Focus: Applications of natural language processing in plant biology

Michigan State U., East Lansing, MI — *REU Student*

JUNE 2018 - JULY 2018

Supervisor: Professor Robert VanBuren/Jennifer Wai, PhD

Research Focus: Stomatal control in CAM photosynthesis

Boyce Thompson Institute, Ithaca, NY — *Research Intern*

JANUARY 2017 - MAY 2019

Supervisor: Professor Georg Jander/Kevin Ahern

Research Focus: Neonicotinoid pesticide uptake in maize

Michigan State University

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serenalotreck.github.io

[Linkedin](#)

[Github](#)

SKILLS

Programming languages:

Python, R

Software packages:

Scikit-learn, spaCy, pandas, git

Natural languages:

Spanish (fluent)

FELLOWSHIPS

2020–2021 NSF–NRT IMPACTS Trainee

2019–2020 MPS Fellow

2019 NSF GRFP Honorable Mention

SERVICE

2021–present MSU QT–Grad, *President*

2020–present Plant Biology Peer
Mentorship Program Committee

2020–present Plant Biology Peer
Mentorship Program, *Mentor*

Sept. 2020 Out for Undergrad
Engineering Conference, *Mentor*

HOBBIES AND INTERESTS

2021 Happendance Velocity Company,
Lansing, MI, *Dancer*

2021 Wilderness First Aid certification
(exp. 06/2023)

2020 Fieldston Emerging Leaders, NY,
NY, *Climbing/hiking trip leader*
(Cancelled due to COVID-19)

2017–2019 Cornell Outdoor Education,
Ithaca, NY, *Rock climbing instructor*