

# 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

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](#)," bioRxiv, p. 2020.06.22.163899, Jun. 2020. *Accepted to Applications in Plant Sciences*

### 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: Knowledge graph construction from plant science literature

### 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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[lotrecks@msu.edu](mailto:lotrecks@msu.edu)

[serenalotreck.github.io](https://serenalotreck.github.io)

[Linkedin](#)

## SKILLS

Programming languages:

Python, R

Software packages:

Scikit-learn, PyTorch, spaCy,  
pandas, git

Natural languages:

Spanish (fluent)

## FELLOWSHIPS

2020-2021 NSF-NRT IMPACTS

Trainee: Full year of funding

2019-2020 MPS Fellow: Full year  
of funding

2019 NSF GRFP Honorable  
Mention

## SERVICE

2021-present MSU QT-Grad,  
President

2020-present Plant Biology Peer  
Mentorship Program Committee,  
Chair

2020-present Plant Biology Peer  
Mentorship Program, Mentor

Sept. 2020 Out for Undergrad  
Engineering Conference, Mentor

## HOBBIES AND INTERESTS

2017-2019 Cornell Outdoor  
Education, Ithaca, NY, Rock  
climbing instructor

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