

# Serena G. Lotreck

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

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## 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

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

## 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

2020-2021 Plant Biology Peer Mentorship Program Committee, Chair

2020-2021 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)