Serena G. Lotreck

Applied machine learning practitioner

Education

2019–Present **PhD**, *Michigan State University*, East Lansing, MI
Dual PhD in Plant Biology and Computational Mathematics, Science & Engineering

2015–2019 **Bachelor of Arts**, *Cornell University*, Ithaca, NY
Major in biology with a concentration in biochemistry. *Magna cum laude.*

Fall 2018 **Study Abroad**, *La Universidad de Sevilla*, Sevilla, Spain
Language immersion study abroad program, with course focus in history & geography

Summer 2014 **Russian Summer Program**, *National Security Language Initiative for Youth*, Chisinau, Moldova
Six week Russian-language immersion program sponsored by the US State Department

Experience

2019–Present **Graduate Research Assistant**, *Michigan State University*, East Lansing, MI
Supervisor: Dr. Shin-han Shiu
Research focus: Applications of natural language processing in plant biology

2022–Present **Graduate Research Intern**, *Corteva Agrisciences*, Johnston, IA
Crop modeling for sustainable cropping systems

Spring 2022 **Graduate Teaching Assistant**, *Michigan State University*, East Lansing, MI
Graduate TA for CMSE 202: Computational Modeling and Data Analysis II.

2017-2019 **Undergraduate Research Intern**, *Cornell University*, Ithaca, NY
Supervisor: Dr. Georg Jander
Research focus: Neonicotinoid pesticide uptake in maize

Summer 2018 **REU student**, *Michigan State University*, East Lansing, MI
Supervisor: Dr. Robert VanBuren
Research focus: Stomatal control in CAM photosynthesis

Summer 2017 **Conservation Intern**, *The Ara Project*, Punta Islita, Costa Rica
Built and installed nest boxes for wild-release Scarlet Macaws, in addition to caring for breeding birds and providing site tours in both English and Spanish

Publications

[1] Abigail E Bryson, (**Serena G Lotreck** author 19 of 36), et al. Composite modeling of leaf shape across shoots discriminates Vitis species better than individual leaves.

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SLotreck • *serenalotreck*

Applications in plant sciences, 8(12):e11404, 2020.

[2] Siobhan A Cusack, Peipei Wang, **Lotreck, Serena G**, Bethany M Moore, Fanrui Meng, Jeffrey K Conner, Patrick J Krysan, Melissa D Lehti-Shiu, and Shin-Han Shiu. Predictive models of genetic redundancy in Arabidopsis thaliana. *Molecular biology and evolution*, 38(8):3397–3414, 2021.

Research Talks

May 2021 **GLBRC ASM:** *Machine Learning for Plant Biology: what, why and how?*

August 2020 **STEM Village Virtual Sym.:** *Domain-specific knowledge graphs in plant biology*

July 2018 **Plant Genomics @ MSU Symposium:** *Ten minute talk on REU research*

Science Communication

Feb. 2022 ***The SciFiles*:** *Automated Hypothesis Generation for the Plant Sciences*

June 2020 **SciComm Voices:** *Knowledge Graphs* (MSU SciComm's 2020 Blog Contest winner)

Fellowships

2020-2021 NSF-NRT IMPACTS Trainee

2019-2020 MPS Fellow

2019 GRFP Honorable Mention

Service

2021-2022 **MSU QT-Grad**, *President*

2020-2022 **Plant Biology Peer Mentorship Program Committee**

2020-Present **Plant Biology Peer Mentorship Program**, *Mentor*

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

Languages

Spanish: Fluent

Scottish Gaelic: Novice

Skills

Programming languages: Python, R

Software packages: scikit-learn, spaCy, pandas, git

Interests

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

June 2021 Wilderness First Aid certification, exp. 06/2023

June 2020 **Trip leader**, *Fieldston Emerging Leaders*, NY, NY (Canceled due to COVID-19)

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