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
Concentrations in molecular (MPS) and computational plant science (IMPACTS)
Supervisor: Dr. Shin-han Shiu

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

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
Research intern on the Breeding Technologies team

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

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

Publications

[1] Abigail E Bryson, Maya Wilson Brown, Joey Mullins, Wei Dong, Keivan Bahmani, Nolan Bornowski, Christina Chiu, Philip Engelgau, Bethany Gettings, (**Lotreck, Serena G** author 19 of 36) Gomezcano, Fabio, et al. Composite modeling of leaf shape across shoots discriminates Vitis species better than individual leaves. *bioRxiv*, 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.

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SLotreck • *serenalotreck*

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*

Science Communication

2022 **MSU SciComm's *The SciFiles*:** *Automated Hypothesis Generation for the Plant Sciences*

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

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

2021 Wilderness First Aid certification, exp. 06/2023

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

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