Laura Greenstreet

I am a second-year masters student transitioning into the PhD program in Cornell's Department of Computer Science. I work with Dr. Carla Gomes to develop AI and optimization methods with sustainability applications. Previously, I worked with Dr. Claire Kremen to scale an analysis of functional connectivity to the global level and with Dr. Geoffrey Schiebinger to develop optimization methods for single-cell genomics.

Education

2021 - Present **M.Sc. Computer Science**,
Cornell University, GPA: 4.0

2020 **B.Sc. Honours Computer Science, Mathematics Minor**,
University of British Columbia, GPA: 4.3

Publications and Presentations

2022 Brennan, A., R. Naidoo, **L. Greenstreet**, Z. Mehrabi, N. Ramankutty, C. Kremen. *Functional Connectivity of the Worlds Protected Areas.* Science, 2022. https://doi.org/10.1126/science.abl8974

2022 **Greenstreet, L.**, N.J.A. Harvey, V. Sanches Portella. *Efficient and Optimal Fixed-Time Regret with Two Experts.* ALT, 2022. https://doi.org/10.48550/arXiv.2203.07577

2021 Zhang, S., A. Afanassiev, **L. Greenstreet**, T. Matsumoto, G. Schiebinger. *Optimal transport analysis reveals trajectories in steady-state systems.* PLOS Computational Biology, 2021. https://doi.org/10.1371/journal.pcbi.1009466

2021 Li, H., J. Ezike, A. Afanassiev, **L. Greenstreet**, et al. *Single Cell Analysis Elucidates the Maturation of Human Stem and Progenitor Cell Function from Fetal through Adult Hematopoiesis.* Blood, 2021. https://doi.org/10.1182/blood-2021-151090

2021 Shahan R., C. Hsu, T.M. Nolan, B.J. Cole, I.W. Taylor, **L. Greenstreet**, et al. *A single cell Arabidopsis root atlas reveals developmental trajectories in wild type and cell identity mutants.* Developmental Cell, 2021. https://doi.org/10.1016/j.devcel.2022.01.008

2020 Massri, A.J., **L. Greenstreet**, A. Afanassiev, A. Berrio Escobar, G.M. Wray, G. Schiebinger, D.R. McClay. *Developmental Single-cell transcriptomics in the* Lytechinus variegatus *Sea Urchin Embryo.* Development, 2020. https://doi.org/10.1242/dev.198614

2020 **Greenstreet, L**, and E. Lai. *Developing a Data-Driven Electric Vehicle Strategy in Surrey, BC.* SigKDD 2020 Social Impact Session.

Preprints

2022 **Greenstreet, L.**, A. Afanassiev, Y. Kijima, M. Heitz, S. Ichiguro, et al. *A DNA-based global positioning systema theoretical framework for large-scale spatial genomics.* Preprint. https://www.biorxiv.org/content/10.1101/2022.03.22.485380v1

Awards

2022 **Graduate Teaching Award**, Department of Computer Science, Cornell University

2020 **Undergraduate Summer Research Award**, Natural Sciences and Engineering Research Council of Canada (NSERC)

2019 **Data Science for Social Good Fellowship**, University of British Columbia Data Science Institute

2018 **Stanley M Grant Scholarship in Mathematics**, Department of Mathematics, University of British Columbia

Research Experience

05/2022 - 08/2022 **Research Assistant**, Computational Sustainability Lab, Cornell University, Ithaca, NY
- Improved species distribution models using graph neural networks (GNNs) to incorporate multi-resolution spatio-temporal information

05/2020 - 08/2021 **Research Assistant**, Schiebinger Lab, Department of Mathematics, University of British Columbia
- Helped generalize an optimization method to construct developmental trajectories from single cell data to systems in equilibrium
- Designed a manifold-learning approach for optics-free spatial transcriptomics

09/2019 - 09/2020 **Research Assistant**, WoRCS Lab, Institute for Resources, Environment, and Sustainability, University of British Columbia
- Assisted with a global assessment of the functional connectivity of protected areas
- Created acoustic permeability signatures to aid in the remote study of vocal amphibians

05/2019 - 08/2019 **Fellow - Data Science for Social Good Program**, University of British Columbia Data Science Institute
- Integrated six datasets and developed the database for an app helping city planners develop electric vehicle infrastructure
- Created a model to identify and rank charging sites with an objective that incorporates both potential usage and even access to chargers

Work Experience

09/2022 - Present **Head Teaching Assistant**, Cornell University, Ithaca, NY
- CS 2700 - Excursions in Computational Sustainability
- CS 4700/4701 - Foundations/Practicum in Artificial Intelligence

09/2021 - 05/2022 **Teaching Assistant**, Cornell University, Ithaca, NY
- CS 4220 - Numerical Analysis: Linear and Nonlinear Problems
- CS 3220 - Computational Mathematics for Computer Science

01/2019 - 05/2019 **Academic Assistant**, University of British Columbia Library, Vancouver, BC

07/2015 - 08/2017 **Information Technology Coordinator**, Tilth Alliance, Seattle, WA

Community Involvement

2022 **Volunteer**, Research Advocacy Day, Cornell

2020-2021 **Mentor,** Data Science for Social Good Program, UBC Data Science Institute

2019 **Math Tutor**, Emerging Indigenous Scholars Program, University of British Columbia

2014-2015 **Student Board Member**, SEED, Univ. of Washington Sustainability in Housing

2014-2015 **Volunteer**, University of Washington Student Farm