

# Tony Cannistra

*Environmentalist, Researcher*

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## Education

- 2016–Present **Ph.D., Biology (ongoing)**, *University of Washington*, Seattle, WA.  
Advised by Dr. Lauren Buckley (Biology) and Dr. Magda Balazinska (Computer Science)  
Supported by an NSF IGERT fellowship in Big Data and Data Science at the eScience Institute.
- 2011–2015 **B.S., Computer Science and Biology**, *Tufts University*, Medford, MA.  
Advised by Dr. Benjamin Hescott (CS) and Dr. Erik Dopman (Biology). Cum Laude.

## Experience

### Scientific Research

- 2016–Present **Graduate Student**, *Buckley Lab*, University of Washington.
- Assisted with building database for research on shifting insect phenology with climate change (*In Press, Journal of Integrative Biology*)
  - Designed and executed project to evaluate predictive power of physiological information in species distribution models when challenged with future climate scenarios.
  - Coursework: Data Management Systems, Big Data Management Systems, Fundamentals of Climate Change, Ecology Seminar
- 2013–2015 **Research Assistant**, *Hescott Lab*, Tufts University.  
Network-based protein function prediction.
- Developed and implemented algorithms in Python that built upon Hescott and Cowen's Diffusion State Distance (DSD) metric to incorporate genetic protein-protein interaction data into function prediction.
  - Currently writing scientific paper describing algorithms for submission to a peer-reviewed journal.
- Summer 2012 **Research Assistant**, *Raphael Lab*, Brown University.
- Worked with Professor Benjamin Raphael and postdoctoral fellow Dr. Suzanne Sindi at the Brown Center for Computational Molecular Biology.
  - Improved runtime, space efficiency, and usability of the GASVPro pipeline, a probabilistic toolkit for genomic structural variant analysis.

### Education and Teaching

- 2017–Present **Outdoor School Instructor**, *REI Puget Sound*, Seattle, WA.  
Teach myriad outdoor recreation skills to diverse participants.
- 2015–2016 **Mentor Naturalist**, *Aspen Center for Environmental Studies*, Aspen, CO.
- Trained and evaluated the fifteen 2016 Summer Naturalists.
  - Led private groups
- Summer/Fall 2015 **Naturalist**, *Aspen Center for Environmental Studies*, Aspen, CO.
- Led daily nature hikes, ski tours, and snowshoe tours for a diverse range of clients in the Aspen, Colorado area.
  - Independently researched and developed content and delivery strategies engineered to foster a deep respect and curiosity for place in a diverse group of participants.
  - Greeted guests, answered phones, and conducted on-site Naturalist duties at the Hallam Lake Nature Center in Aspen. Trained to become a Great Horned Owl and Golden Eagle handler.

- 2012–2015 **Teaching Assistant**, *Tufts University Department of Computer Science*.
- 5 Semesters: Programming Languages, Data Structures, Problem Solving by Computer, Machine Structure and Assembly Language Programming, Introduction to Computer Science.
  - Held office hours, labs, and graded programming assignments.

### Miscellaneous

- Summer 2015 **Photographer**, *Aspen Words*, Aspen, CO.  
Staff photographer of public lectures for social media and marketing publications.

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## Leadership

- 2015-2016 **Conference Organizer**, *TEDxTufts*.  
Working with a stellar team of 9 others I organized Tufts' first annual TEDx event.
- 2015-2016 **Executive Board Member**, *Tufts Computer Science Exchange*.  
Developed, organized, and marketed educational and career programming for the undergraduate computer science club at Tufts.
- 2012-2015 **Lodge Caretaker**, *Tufts Mountain Club*.  
Managed 26-person guest house owned by Tufts Mountain Club on select weekends during the school year.

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## Technologies

- Python pyspark, pandas/geopandas, scikit-learn, seaborn, numpy, multiprocessing  
R dplyr, parallel  
Apache Spark Python and R, AWS cluster deployment  
Amazon Web Services EC2, RDS, S3  
Unix shell scripting, configuration  
Tableau data analytics, dashboards, interactive visualization, geospatial visualization.

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## Honors and Awards

- 2016-2018 **Big Data and Data Science IGERT Ph.D. Fellowship**, *eScience Institute, University of Washington*.  
NSF IGERT DGE-1258485
- 2011-2015 **Dean's List**, *Tufts University*.

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## Volunteer Service

### Academic Service

- Autumn 2015 **Biology Recruitment Host**, *UW Biology*.

### Other

- 2016–Present **Science Interpretation Volunteer**, *Pacific Science Center*, Seattle, WA.  
I engage Pacific Science Center visitors with exhibits designed to inspire curiosity and a love for scientific thinking.