BEN TEO

(+1) 608 960 2789 ⋄ bteo@wisc.edu ⋄ https://github.com/bstkj
Personal website: https://bstkj.github.io

EDUCATION

University of Wisconsin-Madison Aug 2018 – Fall 2024
Ph.D. Dissertator in Statistics

Carnegie Mellon University Aug 2013 – May 2017
B.S. Mathematics (Additional Minor in Computer Science)

RESEARCH INTERESTS

Statistical and computational techniques for scalable inference of trait models on phylogenetic networks.

PUBLICATIONS

Teo, B., Bastide, P., Ané, C. 2024. *Leveraging graphical model techniques to study evolution on phylogenetic networks*. Philosophical Transactions of the Royal Society B (in press). https://doi.org/10.48550/arXiv.2405.09327.

Teo, B., Rose, J. P., Bastide, P., and Ané, C. 2023. *Accounting for within-species variation in continuous trait evolution on a phylogenetic network*. Bulletin of the Society of Systematic Biologists. https://doi.org/10.18061/bssb.v2i3.8977.

Tang, S., Lee, T. S., Li, M., Zhang, Y., Xu, Y., Liu, F., **Teo, B.**, and Jiang, H. 2018. *Complex pattern selectivity in macaque primary visual cortex revealed by large-scale two-photon imaging*. Current Biology, 28(1):38–48. https://doi.org/10.1016/j.cub.2017.11.039.

MANUSCRIPTS

Teo, B., Bacharach, M., Kolb, A., Ané, C., Roch, S., Brandt, C. *Capabilities and limitations of explicit network methods for recombinant detection: a case study using Bovine Alphaherpesvirus 1*. In preparation.

TALKS

Leveraging graphical model techniques to study evolution on phylogenetic networks. 3rd Joint Congress on Evolutionary Biology. Montreal, Canada. July 2024

Belief propagation for continuous trait evolution on phylogenetic networks. UW-Madison SGSA Student Seminar. Madison, WI. Nov 2022

Accounting for within-species variation in continuous trait evolution on a phylogenetic network. Evolution Conference. Cleveland, OH. June 2022

WORKSHOPS

Theory, Methods, and Applications of Quantitative Phylogenomics. ICERM. Providence, RI. Fall 2024

SOFTWARE

Contributor to: PhyloGaussianBeliefProp.jl, PhyloNetworks.jl

HONORS AND AWARDS

SRGC Conference Presentation Award, UW-Madison Graduate School — Summer 2024
Mayr Symposium, Finalist. 3rd Joint Congress on Evolutionary Biology — July 2024
Statistics Poster Competition, 2nd place. CMU Undergraduate Research Symposium — May 2017

UW ACADEMIC EXPERIENCE

Teaching Assistant Fall 2018 – Fall 2022
Stat 301/324/371: Introductory Applied Statistics for Social Sciences/Life Sciences/Engineers
Stat 349: Time Series, Stat 424: Experimental Design, Stat 479: Bayesian Analysis
Stat 850: Theory/Application of Regression and Analysis of Variance II
Graduate Student Mentor
Stat 699: Directed Study Fall 2021
Research Assistant
Statistics Department Spring 2023 – Spring 2024
Institute for Foundations of Data Science Summer 2021

PAST PROJECTS

Sun Prairie Community Schools Data Dashboard Fall 2021
Phylogenetic analysis of Algonquian using SNAPP Spring 2021
Phylogenetic analysis of Algonquian using BEAST2 Summer 2020

CMU ACADEMIC EXPERIENCE

Project Assistant: Modeling/clustering neuron response to parametrized visual stimuli
Center for Neural Basis of Cognition, Lee Lab Summer 2017
Undergraduate Research: Hidden Markov Models to determine neuron population structure
Statistics Department Summer 2016 – Spring 2017

WORK EXPERIENCE

Research Programmer
CMU, Computational Biology Department, Murphy Lab Oct 2017 – July 2018

- Developer and Tester for CellOrganizer Project, a software package for learning generative models of cell/organelle shape/distribution from 2D/3D fluorescence micrographs.
- Worked with the OME-XML file format for reading and writing micrograph pixel/meta-data.
- Worked variously on segmentation related tasks for basal bodies and white blood cells.
- Compiled CellOrganizer source code for deployment, and built Docker container to export the compiled executables to other Docker-supported platforms.
- Created Bash tool scripts and XML tool definition files to enable CellOrganizer tools to be accessed through Galaxy Project's GUI.
- Linked CellOrganizer Project's GitLab repositories with Jenkins CI to enable automated testing.

TECHNICAL SKILLS

Programming Languages	Julia, R, Python, MATLAB, C, Bash
Markup Languages	Markdown, XML, LaTeX
Software & Tools	Git, Docker, Jenkins CI, Galaxy Project, BEAST2