

John Tipton | Curriculum Vitae

2212 Vassar Ave – Fort Collins, CO, 80525
☎ (970) 231-9494 • ✉ jtipton25@gmail.com

Education

Colorado State University

Ph.D. Candidate in Statistics

Advisors - Mevin Hooten and Jean Opsomer

Dissertation - Improved estimation and prediction for computationally expensive ecological and paleoclimate models.

Fort Collins

2011–Present

Colorado State University

Masters of Science in Statistics

Advisor - Jean Opsomer

Fort Collins

2008–2011

Colorado State University

Bachelors of Science in Mathematics and Zoology

Fort Collins

2001–2005

Experience

PalEON

Graduate Research Assistant

2013–2016

Developed Bayesian hierarchical models for reconstruction of paleoclimate using proxy data.

Detailed achievements:

- Spatially explicit reconstruction of average July temperature in the U.S.
 - Data from historical military fort records
 - EOF regression with spatial random effects
 - Model selection techniques to provide shrinkage of estimates
 - Validation of predictive ability in a simulation experiment
- Reconstruction of temperature and precipitation from tree rings
 - Data assimilation from different sources and scales in the Hudson Valley, New York
 - Extension of cutting edge modeling techniques to increase predictive skill
 - Use of model selection to choose between non-linear process models for tree ring growth

United States Forest Service

Graduate Research Assistant

2009–2013

Research on sampling methods for pilot study of tree canopy cover and application of state of the art survey sampling methodologies to aid in development of the National Land Cover Database.

Detailed achievements:

- Inclusion of powerful machine learning methods in a statistical framework
- Analysis of remote sensing and statistical techniques for creation of land cover maps
- Sample size and power calculations to improve sampling methods and decrease cost

Teaching Experience

Colorado State University Statistics Department

Graduate Instructor/Teaching Assistant

2009–2015

Instructor of record for:

- ST 307 Intro to Biostatistics, three semesters
- ST 204 Business Statistics, two semesters

Teaching assistant for:

- ST 472 Statistical Consulting, one semester
- ST 301 Intro to Statistics Online, one semester
- ST 204 Business Statistics, one semester

Discussant

Workshop on Parallel Computing, CU/CSU, 2015

2015

Teaching Assistant

Building Capacity in Bayesian Modeling for Ecologists (NSF), 2 days

2015 and 2014

Teaching Assistant

R Workshop (CSU-CCFRWU), 1 day

2015 and 2013

Publications

Published and In Review.....

2016: Trevor Hefley, Kristin Broms, Brian Brost, Frances Buderman, Shannon Kay, Henry Scharf, John Tipton, Perry Williams, and Mevin Hooten. The basis function approach to modeling dependent ecological data. *Ecography*. In Review.

2016: Douglas Silver, Brett Johnson, William Pate, Kyle Christianson, John Tipton, James Sherwood, Brian Smith, Yun Hao, and Patrick Martinez. Effect of net size on estimates of abundance, size/age, and sex of *Mysis diluviana*. *Journal of Great Lakes Research*, In Review

2016: John Tipton, Mevin Hooten, Neil Pederson, Martin Tingley and Daniel Bishop. Reconstruction of late Holocene climate based on tree growth and mechanistic hierarchical models. *Environmetrics*, 27(1):42-54.

2013: John Tipton, Jean Opsomer, and Gretchen Moisen. Properties of endogenous post-stratified estimation using remote sensing data. *Remote Sensing of Environment*, 139:130-137.

2012: John Tipton, Gretchen Moisen, Paul Patterson, and Thomas Jackson. Sampling intensity and normalization: Exploring cost-driving factors in nationwide mapping of tree canopy cover. In: *McWilliams, Will and Roesch, Frank, (compilers). 2010 Forest Inventory and Analysis (FIA) Symposium*.

2012: Thomas Jackson, Gretchen Moisen, Paul Patterson and John Tipton. Repeatability in photo-interpretation of tree canopy cover and its effect on predictive mapping. In: *McWilliams, Will and Roesch, Frank, (compilers). 2010 Forest Inventory and Analysis (FIA) Symposium*.

2005: David Gammon, Myron Baker, and John Tipton. Cultural divergence within novel song in the black-capped chickadee (*Poecile atricapillus*). *The Auk*, 122, 853-871.

In Prep.....

2016: John Tipton, Mevin Hooten, Simon Goring, Jack Williams. Reconstruction of spatio-temporal temperature processes from sparse historical records using probabilistic principal component regression.

2016: John Tipton, Mevin Hooten, Connor Nolan, Bob Booth. Bayesian multispecies ecological models for paleoclimate reconstruction.

Presentations

Invited.....

2016: Scientific and mechanistic processes models applied to Bayesian hierarchical paleoclimate reconstructions

2015: Presentation - ASA - ENVR Student Paper Award: Reconstruction of late Holocene climate based on tree growth and mechanistic hierarchical models

2015: Poster - ASA - STATMOS: Reconstruction of late Holocene climate based on tree growth and mechanistic hierarchical models

2014: Presentation - American Geophysical Union: A statistical reconstruction of bivariate climate from tree ring width measurements using scientifically motivated process models

Contributed.....

2014: Poster - American Geophysical Union - co-author: Effects of European land use on contemporary tree-climate relationships in the northeastern United States: Implications for predictive models

2014: Presentation - ASA: Reconstruction of historical climate using a reduced rank predictive process model

2012: Presentation - Forest Inventory and Analysis Symposium: Properties of the endogenous post-stratified estimator using a random forest model

2012: Presentation - ASA: Endogenous post-stratification using random forests

Honors/Awards

2015: American Statistical Association ENVR Student Paper Competition Award

2014: Thomas J. and Eileen C. Boardman Statistical Consulting Award

2014: American Statistical Association Student Travel Award

2012: American Statistical Association Wray Jackson Smith Award

Software and Computing

- | | |
|-----------------------------------|---------|
| ○ R | ○ C++ |
| ○ L ^A T _E X | ○ LINUX |
| ○ R MARKDOWN | ○ JAGS |
| ○ STAN | |

References

Mevin B. Hooten

USGS Colorado Cooperative Fish and Wildlife
Colorado State University
Assistant Professor
201 Wagar
Fort Collins, CO 80523
✉ Mevin.Hooten@colostate.edu

Jean D. Opsomer

Department of Statistics
Colorado State University
Chair
101 Statistics
Fort Collins, CO 80523
✉ jopsomer@stat.colostate.edu

Jennifer Hoeting

Department of Statistics
Colorado State University
Professor
101 Statistics
Fort Collins, CO 80523
✉ jah@rams.colostate.edu