John Tipton | Curriculum Vitae

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Education

Colorado State University	**Fort Collins**
Ph.D. in Statistics	*2016*

Advisors - Mevin Hooten and Jean Opsomer

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

Colorado State University	**Fort Collins**
Masters of Science in Statistics	*2011*

Advisor - Jean Opsomer

Colorado State University	**Fort Collins**
Bachelors of Science in Mathematics and Zoology	*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 Press.

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. A reconstruction of water depth from assemblages of testate Amoeba species data in peat bogs.

Presentations

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
- LaTeX
- C++
- Linux