Michael Lerch

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Summary

I am competent. I am a quick learner who loves finding patterns and solutions. I take as much pride in performing appropriate analyses as I do in explaining results and conclusions in understandable terms. I work smart and think critically.

My entrance to modeling and analysis came via physics and mathematics. I completed a masters degree in physics in 2008. Afterwards, I worked in the ionbeams lab at Montana State University until I discovered the field of statistics and realized that is where I actually belong.

My physics work was experimental with associated deterministic modeling. The applications of my statistical work has mostly been in the fields of ecology and biology and in phenomenological modeling, but my skills are diverse and widely applicable. I have no interest to try list the statistical techniques I am familiar with because I know being able to use the techniques *appropriately* and explain the results is more important than any list.

I am technologically savvy and due to my vast scientific background have experience with a wide variety of hardware, software, and programming languages.

I am currently enrolled in the PhD program in statistics at Montana State University, but I have realized that obtaining a PhD is not that important to me. What I really want is an exciting job with smart, interested, and happy people.

Education

PhD Statistics — Montana State University
Cost of measurement variable selection after pilot studies via regularization — *In Progress*

MS Statistics — Montana State University
Posterior predictive checks for model assessment in occupancy modeling — *2012*

MS Physics — Montana State University
Atomistic modeling techniques — *2008*

BS Physics, Mathematics — Susquehanna University
2006

Skills

Primary computing languages and environments: R, stan, jags, git, linux
Additional computing: python, C++, C, Matlab/Octave
Analysis skills: Bayesian statistics, classical statistics, MCMC, machine learning

Recent awards and positions

Consulting Statistician MSU Statistical Consulting and Research Services. 2014-2015.
Outstanding Graduate Teacher in Mathematics Award. MSU Mathematics Department. 2014.
Field Technician. Tracked and observed big horn sheep. Penn State University. Summer 2013.
Outstanding Graduate Student Award. MSU Mathematics Department. 2013.
Statistician. Modeling of emergent plant occupancy. Under Kathi Irvine (USGS). Summer 2012.
Statistician. Data mining and summary statistics. MSU Office of Student Success. 2012.
Graduate Researcher. Missing data problems. MSU Center for Biofilm Engineering. Summer 2011.
Outstanding Teaching Assistant Award. MSU Physics Department. 2010.
Graduate Representative. Twice elected. MSU Physics Department. 2009-2010.

Published

Electronic current distribution calculation for a Ni-YSZ solid oxide fuel cell anode Childs, Law, Smith, Sofie, Key, Kopczyk, Lerch. Fuel Cells 13 (2). 2013.

Structure of ultra-thin Ti film on the Al(001) surface Kopczyk, Priyantha, Childs, Key, Lerch, Smith, Choi. Surface Science 604 (11-12). 2010.

Fe-Al interface intermixing and the role of Ti, V, and Zr as a stabilizing interlayer at the interface Priyantha, Smith, Chen, Kopczyk, Lerch, Key, Nachimuthu, Jiang. Journal of Applied Physics 105 (5). 2009.

Parameter recovery for a differential equation model Graham, Lerch. PRIMUS 17 (2). 2007.

In preparation

Equivalence testing for MCMC convergence assessment Lerch, Higgs.

Variable avian occupancy responses to a mountain pine beetle epidemic Mosher, Saab, Rotella, Lerch.

Seasonal honey bee colony strength and pathogen abundance Cavigli, Flenniken, Lerch, others.

Statistical consulting (selected projects)

Increasing adult intention to acquire dental sealants for rural, American Indian children Public Health and Nursing. *to appear*.

Effect of permafrost thaw on CO_2 and CH_4 exchange in western Alaska peatland chronosequence Environmental Research Letters. 2014. *acknowledged*.

Sample size and design for efficacy of genotyping in treating bipolar disorder in young patients Letter of Intent for PCORI grant. for NAMI-MT.

The importance of non-labor income: socioeconomic preference in western counties Journal of Regional Analysis and Policy. 2014. *acknowledged*.

Personal

Backpacking Favorites: Spanish Lakes, Beartooth Plateau.

Gardening A difficult task in Bozeman. I have grown many pepper plants but few peppers. There's been some success with tomatoes.

Hockey Playing and watching.

Mountain biking Dislocated hip last time I rode.

Skiing Regular backcountry trips up History Rock in Hyalite.