

# lukefostvedt

curriculum vitae

## about

*Updated July 2014*  
Iowa State University  
Department of Statistics  
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Summary: I am a motivated, soon to be PhD statistician, who has the ambition and skills to be a valuable team member for any company. My research has focused on methods for analyzing test score data including: quantile regression and multivariate linear mixed effects models. I have experience with data imputation approaches, reliability, time series, machine learning, bayesian statistical methods, microarray data analysis, and design of experiments. I have mostly used R, but have prior experience used SAS and C++.

Skills: multivariate regression, quantile regression, logistic regression, prediction algorithms: random forests, support vector machines (SVM), hierarchical clustering, k-means clustering, time series, Bayesian analysis, experiment design, etc.

## education

present	<b>Ph.D. Statistics</b> (anticipated September 2014) Major Professor: Mack C. Shelley Area of Study: Multilevel Models with Missing Data, Quantile Regression	Iowa State University
2010	<b>M.S. Statistics</b> Major Professor: Daniel J. Nordman Area of Study: Random Graphs, Algorithm Analysis	Iowa State University
2008	<b>B.S. Mathematics, cum laude</b> minor in Chemistry	University of Redlands

## awards

2014	<b>Data Visualization Contest (Track 1: 1<sup>st</sup> Place)</b>	UseR! Conference
2008	<b>GlaxoSmithKline Scholar Award</b>	Iowa State University
2008	<b>Jebe Fellowship</b>	Iowa State University
2004	<b>Presidential Scholarship</b>	University of Redlands
2004	<b>Achievement Award</b>	University of Redlands

## presentations

1. **Data imputation in multi-level quantile regression**  
Fostvedt, L., Shelley, M.  
Joint Statistical Meetings, 2014, Boston, USA, paper to be presented
2. **A longitudinal study of the effect of a new approach to teaching science based on multivariate mixed effects models**  
Fostvedt, L., Shelley, M., Baenziger, J., Laugerman, M., Gonwa-Reeves, C., Le, D., Hand, B., Therrien, W.  
Joint Statistical Meetings, 2013, Montreal, Canada
3. **An inquiry-based approach to teaching science: A multilevel mediation model**  
Shelley, M., Fostvedt, L., Baenziger, J., Laugerman, M., Gonwa-Reeves, C., Le, D., Hand, B., Therrien, W.  
Joint Statistical Meetings, 2013, Montreal, Canada

4. **Are Teachers to Blame?: Two-Level Quantile Regression of Teacher Quality on Student Performance**  
Fostvedt, L., Shelley, M., Baenziger, J., Laugerman, M., Gonwa-Reeves, C., Le, D., Hand, B., Therrien, W.  
American Educational Research Association Annual Meeting, 2013, San Francisco, USA
5. **Effect of the Science Writing Heuristic learning approach on Future Achievement**  
Fostvedt, L., Shelley, M., Baenziger, J., Laugerman, M., Gonwa-Reeves, C., Le, D., Hand, B., Therrien, W.  
National Association for Research in Science Teaching Annual International Conference, 2013, Puerto Rico
6. **Investigation of Cornell Critical Thinking Results as Affected by Science Writing Heuristic**  
Fostvedt, L., McGill, M., Shelley, M., Baenziger, J., Hand, B., Therrien, W.  
European Association for Research on Learning and Instruction: SIG18, 2012, Zürich, Switzerland
7. **Assessing the Impact of a New Science Curriculum on Under- And Over-Achieving Students**  
Fostvedt, L., Shelley, M., Baenziger, J., Hand, B., Therrien, W.  
Joint Statistical Meetings, 2012, San Diego, USA
8. **Student Learning and Inquiry-Based Science Instruction: Testing Effectiveness in a Randomized Trial**  
Fostvedt, L., Shelley, M., Hand, B., Therrien, W., Gonwa-Reeves, C., Baenziger, J., Villanueva, M.  
American Educational Research Association Annual Meeting, 2012, Vancouver, B.C., Canada
9. **An Example of Performance Analysis for Network Community Detection**  
Fostvedt, L., Nordman, D., Wilson, A.  
Joint Statistical Meetings, 2010, Vancouver, B.C., Canada
10. **Post-Election Audit Project**  
Fostvedt, L., Hobbs, J., Pintar, A., Rockoff, D., Kim, E., Griffiths, R.  
Survey Working Group, Iowa State Univ., 2009
11. **The Pros of Pro Bono Statistical Consulting**  
Fostvedt, L. - Invited Panelist  
Joint Statistical Meetings, 2009, Washington D.C., USA

## publications

1. **Why do simple algorithms for triangle enumeration work in the real world?**  
Berry, J., Fostvedt, L., Nordman, D., Phillips, C., Seshadhri C., and Wilson, A.  
Proceedings of the 5th Innovations in Theoretical Computer Science (ITCS) Conference, 2014, accepted
2. **Fixed-Cost Versus Fixed-Risk Post-Election Audits in Iowa**  
Hobbs, J., Fostvedt, L., Pintar, A., Rockoff, D., Kim, E., Griffiths, R.,  
Chance, Volume 23, Issue 3, 2010
3. **Asymptotic results for configuration model random graphs with arbitrary degree distributions**  
Fostvedt, L., Nordman, D., Wilson, A.  
Tech. Rep. 2010-09, Iowa State University Department of Statistics Preprint, 2010

## work in progress/submitted

1. **Data imputation in multi-level quantile regression with an application to PISA 2012 outcomes**  
Fostvedt, L., Shelley, M. (*Submitted to J. of Amer. Stat. Assoc., July, 2014*)
2. **Multi-level quantile regression: a bayesian approach**  
Fostvedt, L., Shelley, M. (*in preparation*)
3. **Effect of correlation on the estimation of multivariate mixed effects models**  
Fostvedt, L., Shelley, M., Hand, B., Therrien, W. (*Plan to submit to J. of Educ. and Beh. Sc.*)
4. **An inquiry-based approach to teaching science: A multilevel mediation model**  
Fostvedt, L., Laugerman, M., Hand, B., Therrien, W., Shelley, M., (*Plan to submit to J. of Elem. Educ.*)

## service

### 1. Articles Reviewed

- **Testing the gold standard: Evaluation of a clinically proven gel toothpaste with daily tooth brushing**  
Milella, L., Journal of Veterinary Dentistry
- **Oral Health Benefits of a Daily Dental Chew in Dogs**  
Quest, B.W., Journal of Veterinary Dentistry
- **Risk Assessment on Feline Tooth Resorption: a Portuguese Clinical Case Control Study**  
Mestrinho, L., Journal of Veterinary Dentistry
- **Bridging plate development for treatment of segmental bone defect of the canine mandible - Mechanical tests and FEM**  
Perez de Freitas, E., Journal of Veterinary Dentistry

### 2. **StatCom**, (Statistics in the Community) is a student organization that provides Pro Bono statistical consulting to government and non-profit organizations.

- Evaluated the post-election audit legislation proposed during the 2008 House session.
- Worked with the Iowa Department of Transportation evaluating Iowa's Public Transit Systems.

### 3. **Africa Centre**, studied issues regarding food security in one of Cape Town's urban poor areas

- Assisted with clean data and creating illustrations of the findings from the *Everyday African Urbanism* initiative.

## assistantships

RA	<b>Science Writing Heuristic Grant</b> - topics: ed. stats, missing data, multilevel models	S12-Su13
RA	<b>Network Grand Challenge Grant</b> - topics: random graphs, algorithm analysis	F09-Su10
TA	<b>STAT 105: Intro. to Eng. Stat.</b> - Instructor	F13, S14
TA	<b>STAT 101: Intro. to Stat.</b> - Instructor	F10, S11, F11

## professional memberships

current	<b>American Statistical Association</b>
current	<b>Institute of Mathematics Statistics</b>
current	<b>American Educational Research Association</b>

## miscellanea

1. Proficient with R and LaTeX, prior experience with C++ and SAS
2. Letter to the Editor of the New York Times: **Using a Formula to Rate Teachers**, Page A24 of the New York edition, March 14, 2011.

## references

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| 1. PhD Advisor<br>Mack C. Shelley, PhD<br>Iowa State University<br>1121 Snedecor Hall<br>Ames, IA, 50011<br><a href="mailto:mshelley@iastate.edu">mshelley@iastate.edu</a><br>515-294-8346 | 2. Masters Advisor<br>Dan Nordman, PhD<br>Iowa State University<br>1121 Snedecor Hall<br>Ames, IA, 50011<br><a href="mailto:dnordman@iastate.edu">dnordman@iastate.edu</a><br>515-294-7777 | 3. PhD Committee Member<br>Di Cook, PhD<br>Iowa State University<br>1121 Snedecor Hall<br>Ames, IA, 50011<br><a href="mailto:dicoock@iastate.edu">dicoock@iastate.edu</a><br>515-294-8865 |
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