Will Beasley

1800 Peter Pan St., Norman OK 73072
405-701-5294
whb4@ou.edu

PROFESSIONAL EXPERIENCE

STATISTICAL ANALYSIS

Markov Chain Monte Carlo (MCMC) and Bayesian Statistics
- Developed simulation studies of MCMC applications in psychometrics and behavior genetics.
- Focused on Bayesian statistics for my doctoral general exam, dissertation, and many recent projects.
- Studied numerical analysis techniques for four semesters (1 class & 3 independent studies) in the OU Math Department, with a concentration in MCMC.

Bootstrapping
- Developed bootstrap procedures that can outperform existing parametric and bootstrap procedures with nonnormal, correlated data.
- Summarized the current state of bootstrap applications in the two most recent handbooks in Quantitative Psychology.

Graphical Data Analysis
- Can consistently create rich and coherent multivariate graphs.
- Lead six instructional workshops, focused on graphing and R.

Spatial Data Analysis
- Conducted applied research of the density between resources and special needs children in Oklahoma.
- Developed a software framework that
   (a) geocodes addresses of resources, and calculates the distance and drive time to each Census block,
   (b) combines the resource locations/distances with Census SF1 and RUCA data,
   (c) calculates measures of interest to state policy makers, such 2SFCA of resources, and
   (d) produces high quality graphs (see the attachment for examples)
   Most of this flexible framework is automated, and allows me to analyze access to new types of resources without spending much human time. I like talking about this, so feel free to contact me with questions.

Experimental Design and Outcome Analysis
- Developed the design and/or performed the analysis for studies in the following disciplines: psychology, psychometrics, behavioral neuroscience, orthopedic surgery, microbiology, ecology, medical judgment and decision-making, developmental pediatrics, and behavior genetics.
- Frequently use large, longitudinal state- and nation-wide datasets, with over 20,000 subjects.

Judgment and Decision Making
- Use a unique simulation software program, Archimedes, to examine the impacts of health care interventions for a set of prototypical patients with and without vascular complications.
- Developed software to assist differential diagnosis. Evidence is graphically represented on a balance beam.
- Developed software for an experimental study involving expected utility and risk aversion.

SOFTWARE DEVELOPMENT

Statistical Languages
- Taught labs in R, SAS, and SPSS to professionals and undergraduate and graduate students.
- Developed the R package NlsyLinks, which facilitates Behavior Genetics research with the NLSY (National Longitudinal Survey of Youth).
- Also proficient in JAGS/WinBUGS, Mathematica, and OpenMx.

Reporting Tools
- Developed several systems that query a live database and produce publication-quality reports in LaTeX. Multivariate graphics, tables and prose are automatically updated.
- My preferred reporting tools are LaTeX, Markdown, Sweave/knitr, and ggplot2. I've used SQL Server Reporting Services for three projects that didn't require statistical analysis and a Literate Programming approach.

High-Level Development Languages
- Most of my large data management projects are written in a .NET language, particularly if the customer requires a full desktop GUI.
- Used C++ for access to SSE and GPU acceleration.
- Established and managed small software projects with GitHub and Subversion repositories.

Will Beasley

HPC and Performance-Oriented Languages

- Attended an 11 session workshop on writing programs for highly parallel systems, hosted by the OU Supercomputing Center for Education & Research (OSCER), Spring 2009.
- When spatial density calculations are expected to take more an hour, I typically run them on OU's supercomputer. I have a good relationship with the OSCER staff.
- Assisted environmental scientists estimate computational chemistry models on the supercomputer, 2008-2012.
- Written code with SSE intrinsics (which executes on the vector registers) and CUDA (which executes on the graphics card); I have needed this degree of optimization only twice, but it was fun and successful. The hand-written SSE code was twice as fast as the SSE code created by Intel's MKL automatic vectorization.

Database Architecture

- Frequently create relational databases in SQL Server.
- Developed three medium-sized databases for OUHSC departments, most recently the main system for scheduling and patient records for a section in the Developmental Pediatrics Section.

SMALL PROJECT MANAGEMENT

President of Howard Live Oak, LLC. (founded in 2003; a Microsoft Certified Partner since 2004).

Responsibilities included: contract negotiation, requirements gathering, system architecture, coding and development, threat and security review, testing, maintenance, and writing documentation and publications for more than 20 projects.

EDUCATION

University of Oklahoma (Norman, OK) Ph.D. in Quantitative Psychology, 2010
University of Oklahoma (Norman, OK) M.A. in Quantitative Psychology, 2006
Davidson College (Davidson, NC) B.A. in Psychology, Concentration in Neuroscience, 2000

FIRST−AUTHOR PUBLICATIONS

Beasley, WH, & Rodgers, JL (2012). Bootstrapping and Monte Carlo methods. In H Cooper (Ed), *The Handbook of Research Methods in Psychology* (Part IX, Section 6, Chapter 2), Washington DC: APA Press. 39 Pages.

Beasley, WH (2010). Univariate sampling bootstrap procedures using prior information. (Doctoral dissertation). University of Oklahoma.

Beasley, WH & Rodgers, JL (2009). Resampling Methods. In RE Milsap & A Maydeu-Olivares (Eds.), *The Sage Handbook of Quantitative Methods in Psychology* (Ch. 16). Los Angeles: Sage.

Beasley, WH, Deshea, L, Toothaker, LE, Mendoza, JL, Bard, DE, & Rodgers, JL (2007). Bootstrapping to test for nonzero population correlation coefficients using univariate sampling. *Psychological Methods, 12,* 414-33.

(A complete list can be found here: http://scholar.google.com/citations?user=ffsJTC0AAAAJ)

RECENT EMPLOYMENT HISTORY

2010-Present   **Assistant Professor of Research**, Univ of Oklahoma Health Sciences Center, Dept of Pediatrics.
- Program Development & Evaluation Coordinator, Sooner SUCCESS (2010-2012)
- Investigator and Biostatistician on a MIECHV-funded research study (2012-Present)

2003-Present   **President**, Howard Live Oak, LLC. Provided statistical consulting and software development for:
- Department of Pediatrics, OU Health Sciences Center
- Department of Family and Preventative Medicine, OU Health Sciences Center
- Department of Microbiology and Plant Biology, OU Norman
- Psychological and Brain Sciences, Indiana University
- Sam Noble Oklahoma Museum of Natural History
- North Carolina Cardiopulmonary Rehabilitation Association
- Presort First Class, a document and mailing company
- Benesytes, provides online services for benefits and insurance

2006-2008   **Graduate Research Assistant**, University of Oklahoma Psychology Department.

2003-2008   **Instructor and Teaching Assistant**, University of Oklahoma Psychology Department.