A Brief Introduction to Statistics at Clemson University

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Statistics from MTHSC 203

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$$I(A) = \begin{cases} 1, & \text{You} \in A, \\ 0, & \text{o.w.}, \end{cases} \tag{1}$$

where A is the set of persons who may choose Statistics as his/her research area in the future.

Faculty Research Areas in Statistics and Probability

- **C. Gallagher**: Limit theorems, Time series, Modeling heavy-tailed data
- **R. Lund**: Time series, Applied probability, Statistics in Climatology
- **C. Park**: Statistical computing, Simulation, Robust inference
- **X. Sun**: Statistical decision theory, Bayesian Statistics, multivariate analysis, and Optimal Experimental Design
- **R.L. Taylor** Laws of large numbers, Density estimation, Bootstrap estimation, Statistical education
- **C. L. Williams** Biostatistics, Computational statistics, Categorical data
- **B. Fralix** Applied Probability: Levy processes, Markov processes, Point processes and Palm measures
- **C. McMahan** Categorical data analysis, Group testing, Survival data analysis, Nonparametric methods, etc.

Faculty Research Areas in Applied Statistics

- **W. Bridges**: statistical design, applications of mixed models, categorical data analysis
- **R. Dubsky**: statistical education, data analysis
- **P. Gerard**: nonparametric density estimation, environmental statistics,
- **H. Hill**: applied regression analysis, sampling, statistical graphics, environmetrics
- **J. Luo**: asymptotics in large p, statistical applications in economics and biology
- **R. Martinez-Dawson**: statistics education-assessing statistical literacy, survey design and analysis
- **J. Rieck**: reliability, estimation
- **J. Sharp**: statistical computing, experimental design and analysis, biostatistics

Basic information

a. Some courses that I have taken so far: Mthsc800, 801, 802, 803, 805, 807, 809, 817, 881, 884, 885, 981(SAS), 981(Bayesian statistics).

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- MathSciNet http://www.ams.org/mathscinet/
- Arxiv http://arxiv.org/list/stat/new
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Remark: There are many other resources online, just use google!

My current research areas

a. Bayesian variable selection.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots, \beta_p X_p$$

c. A new Bayesian evidence for point null hypothesis testing

$$H_0 : \theta = 0 \quad \text{vs} \quad H_1 : \theta \neq 0,$$

the Bayesian evidence and the frequentist evidence conflict in some cases.

b. Estimation for the Birnbaum-Saunders distribution.

$$f(t \mid \alpha, \beta) = \frac{1}{2\sqrt{2}\alpha\beta}\left[\left(\frac{\beta}{t}\right)^{1/2} + \left(\frac{\beta}{t}\right)^{3/2}\right] \exp\left\{-\frac{1}{2\alpha^2}\left(\frac{t}{\beta} + \frac{\beta}{t} - 2\right)\right\}$$

d. .....

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- A degree in Stats (MS/PhD) would make it easy to find a job (from what I hear), and Knowledge about SAS is a big plus.
- You will love Statistics with probability one when you choose it as your research area.
- My office is M-306. We can discuss and learn Statistics together if you would like.

Questions?

Thank you!