

John A. Ramey II

Ph.D. Candidate, Department of Statistics, Baylor University
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Personal Statement

My research interests are primarily in statistics with an emphasis on bioinformatics applications in the areas of statistical pattern recognition, machine learning, modern multivariate analysis, computational statistics, and Bayesian methods.

Education

Baylor University

Ph.D. Statistics

Waco, TX

May 2012 (Anticipated)

– Adviser: Dean M. Young, Ph.D.

Baylor University

M.Sc. Statistics

Waco, TX

Dec. 2009

Baylor University

B.Sc. Mathematics (Minor: Computer Science)

Waco, TX

Aug. 2008

Awards, Grants & Honors

Outstanding Graduate Student - Department of Statistical Science, Baylor University 2011
JSM Stat Bowl - Champion 2010
Outstanding First Year Graduate Student - Department of Statistical Science 2009
Baylor University Dean's Scholarship 2008-2013

Publications

Ramey, J. A. and Young, P. D., "A Comparison of Regularization Methods Applied to the Linear Discriminant Function with High-Dimensional Microarray Data," *Journal of Statistical Computation and Simulation*. (in press)

Sego, L. H., Shulman, S. A., Anderson, K. K., Wilson, J. E., Pulsipher, B. A., Sieber, W. K., and **Ramey, J. A.**, "A Bayesian Acceptance Sampling Model for Combining Judgmental and Randomly Selected Samples," *Technometrics*. (minor revision)

Submitted Publications

Greer, B., Young, D., Harvill, J., and **Ramey, J.**, "Pseudo-likelihood Intervals for the Ratio of Two Poisson Rates with Data Subject to Under-Reporting," *Computational Statistics and Data Analysis*. (submitted)

Publications in Preparation

Ramey, J. A., Sego, L. H., and Young, D. M. “Cluster Stability Evaluation of Gene Expression Data via Cluster Omission.” To Be Submitted to *Bioinformatics*.

Ramey, J. A., Sego, L.H., and Young, D. M., “A Probabilistic Interpretation of Comembership and Similarity Indices in Clustering Evaluation with Applications to Proteomics.” To Be Submitted to *Biometrics*.

Ramey, J. A. and Young, D. M., “Diagonal Discriminant Analysis after Simultaneous Diagonalization of Covariance Matrices with High-Dimensional Microarray Data.” To Be Submitted to *IEEE Transactions on Knowledge and Data Engineering*.

Ramey, J. A. and Young, D. M., “On the Choice of Error Rate Estimators for Model Selection with Regularized Discriminant Analysis: Beyond Cross-Validation.” To Be Submitted to *Computational Statistics and Data Analysis*.

Ramey, J. A., “A Bayesian Perspective of the Information Density Approach to Active Learning.” To Be Submitted to *International Conference on Machine Learning, 2012*.

Ramey, J. A., “**activelearning**: An R Package for Querying Unlabeled Observations with Active Learning.” To Be Submitted to *Journal of Statistical Software*.

Ramey, J. A., “**errorest**: An R Package for Error Rate Estimation for Statistical and Machine Learning.” To Be Submitted to *R Journal*.

Ramey, J. A., “Error Rate Estimation via High-Performance Computing and the MapReduce Framework.”

Ramey, J. A. and Young, P. D., “On an Adjustment to the Moore-Penrose Inverse for Improved Estimation of a Precision Matrix.”

Conference Papers

Ramey, J. A. and Young, D. M. (2010). *A More Computationally Efficient Model Selection Method for Regularized Discriminant Analysis*, Joint Statistical Meetings Proceedings, Vancouver, BC, Canada.

Invited Talks

Ramey, J. A. (February 2011). *Diagonal Discriminant Analysis after Simultaneous Diagonalization of Covariance Matrices with High-Dimensional Data*. Pacific Northwest National Laboratory, Richland, Washington, USA.

Poster Presentations

Ramey, J. A. and Young, D. M. (August 2010). *Efficient Model Selection for Regularized Discriminant Analysis*. Joint Statistical Meetings, Vancouver, British Columbia, Canada.

Ramey, J. A. (April 2010). *Bayesian Regularized Logistic Regression in High-Dimensional Classification*. Instituto Panamericano de Estudios Avanzados en Probabilidad y Estadística: Semana en Métodos de Reducción de Dimensión. Centro de Investigación en Matemáticas, A.C. Guanajuato, Mexico.

Journal Reviewer

Journal of Statistical Computation and Simulation

Research Experience

Pacific Northwest National Laboratory

Research Associate, National Security Internship Program

Richland, WA

June 2011 - Present

- Apply machine learning and multivariate statistical methods to genomic and proteomic data.
- Construct clustering evaluation and validation methods for microarray and proteomic data.
- Employ supervised, semi-supervised, unsupervised, and active learning methods along with semi-supervised clustering with large data sets to incorporate subject-matter expertise for improved performance and understanding of data.

Statistical and Machine Learning Research Group

Department of Statistical Science, Baylor University

Waco, TX

2009-present

Research Experience for Undergraduates at The Ohio State University

Vertical Integration of Research and Education in Computational Mathematics

Columbus, OH

Summer 2004

- Focused on Number Theory with an emphasis on Random Matrix Theory.

Software Projects (Available at <http://github.com/ramey>)

activelearning: An R Package for Querying Unlabeled Observations with Active Learning.

classify: A Supervised Classification Benchmarking Framework in R.

diagdiscrim: An R Package for Diagonal Discriminant Analysis Models.

errorest: An R Package for Error Rate Estimation for Statistical and Machine Learning.

regdiscrim: An R Package for Covariance Matrix Regularization in Discriminant Analysis.

Professional Membership

Student Member – Association for Computing Machinery

2011-present

Student Member – Institute of Electrical and Electronics Engineers

2011-present

Founder – R Users Group

Department of Statistical Science, Baylor University

Waco, TX

2010-present

Student Member – American Statistical Association

2008-present

Teaching Experience

Elementary Statistics

Teacher of Record

Baylor University

Aug. 2009 - May 2011

- Taught this freshman level course in the Statistics Department.
- Developed homework, quizzes and exams for the class.
- Attended weekly meetings to enhance and improve teaching skills and techniques.

Statistics Department Tutoring Lab

Graduate Teaching Assistant

Baylor University

Aug. 2008 - May 2011

- Conducted one-on-one and group tutoring to students in undergraduate statistics courses.

Statistics for Psychology Majors

Graduate Teaching Assistant

Baylor University

Aug. 2008 - Jul. 2009

- Provided weekly supplemental instruction to a small group of undergraduate students.
- Lectured to a large number of students in an auditorium during professor absences.
- Led weekly course seminars.

Other Professional Experience

Candidate Resources, Inc.

Senior Web Programmer

Grand Prairie, TX

Jan. 2007 - Nov. 2007

Skills

Programming and Markup Languages

- **Skilled:** R
- **Proficient:** L^AT_EX, Linux, Python, SQL, WinBUGS
- **Experienced:** ASP, C#, C++, Java, Mathematica, MATLAB, .NET, PHP

Miscellaneous

United States Soccer Federation

Referee

1995 - present

References

Dr. Dean Young (Adviser)

Department of Statistics, Baylor University

Dean_Young@baylor.edu

Dr. John Seaman

Department of Statistics, Baylor University

John_Seaman@baylor.edu

Dr. James Stamey

Department of Statistics, Baylor University

James_Stamey@baylor.edu