John A. Ramey II, Ph.D.

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Personal Statement

My research interests are in biostatistics and bioinformatics with an emphasis on statistical and machine learning, modern multivariate analysis, computational statistics, and Bayesian methods.

Education

Baylor University — Waco, TX
Ph.D. Statistics — *July 2012*
- Adviser: Dean M. Young, Ph.D.

Baylor University — Waco, TX
M.Sc. Statistics — *Dec. 2009*

Baylor University — Waco, TX
B.Sc. Mathematics (Minor: Computer Science) — *Aug. 2008*

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)

McDermott, J., Wang, J., Mitchell, H., Webb-Robertson, B., Hafen, R., **Ramey, J.**, and Rodland, K. (2013) "Challenges in Biomarker Discovery: Combining Expert Insights with Statistical Analysis of Complex Omics Data," *Expert Opinion on Medical Diagnostics.*, 7, 1, 37-51.

Articles Submitted for Publication

Ramey, J. A., Sego, L. H., and Young, D. M. "Cluster Stability Evaluation via Cluster Omission."

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

Articles in Preparation

Ramey, J. A. and Young, D. M., "A Generalization of Regularized Discriminant Analysis with Applications to High-dimensional Microarray Data."

Ramey, J. A. and Young, D. M., "Sparse Discriminant Analysis with Simultaneous Diagonalization of Covariance Matrices."

Ramey, J. A., Young, D. M., and Sego, L. H., "On Model Selection with Regularized Discriminant Analysis."

Ramey, J. A., Sego, L. H., and Young, D. M., "A Generalized Jaccard Similarity Coefficient for Comparing Partitions."

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 2008-2012

Research Experience

Fred Hutchinson Cancer Research Center Seattle, WA
Postdoctoral Researcher in Statistical Genetics under Raphael Gottardo *August 2012-present*

Pacific Northwest National Laboratory Richland, WA
Research Associate, National Security Internship Program *June 2011 - July 2012*

- Applied multivariate statistical learning methods to genomic and proteomic data.
- Constructed clustering evaluation and validation methods for microarray and proteomic data.
- Employed 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 Waco, TX
Department of Statistical Science, Baylor University *2009-2012*

Research Experience for Undergraduates at The Ohio State University Columbus, OH
Vertical Integration of Research and Education in Computational Mathematics *Summer 2004*

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

Journal Reviewer

Journal of Statistical Computation and Simulation

Invited Talks

Ramey, J. A. (November 2012). *Automated Bayesian Gating with OpenCyto.* FlowCAP-III Summit, National Institute of Health, Bethesda, Maryland, USA.

Ramey, J. A. (February 2012). *Diagonal Discriminant Analysis with Simultaneous Diagonalization of Covariance Matrices.* Fred Hutchison Cancer Research Center, Seattle, Washington, USA.

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.

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.

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.

Teaching Experience

Elementary Statistics Baylor University
Teacher of Record *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 Baylor University
Graduate Teaching Assistant *Aug. 2008 - May 2011*

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

Statistics for Psychology Majors Baylor University
Graduate Teaching Assistant *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.

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

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

`clusteval`: Evaluation of Clustering Algorithms in R.

`datamicroarray`: Collection of High-Dimensional Microarray Data Sets.

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

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

`sparsediscrim`: An R Package for Sparse Discriminant Analysis Models.

Professional Membership

Member – Seattle R Users Group

2012-present

Student Member – Association for Computing Machinery

2011-present

Student Member – Institute of Electrical and Electronics Engineers

2011-present

Student Member – American Statistical Association

2008-present

Skills

Programming and Markup Languages

- **Skilled:** R
- **Proficient:** BUGS, LaTeX, Linux, Python, SQL
- **Experienced:** ASP, C#, C++, Java, Mathematica, MATLAB, .NET, PHP

Miscellaneous

United States Soccer Federation
Referee *1995 - present*

References

Dr. Dean Young (Ph.D. Adviser)
Department of Statistical Science, Baylor University

Dr. John Seaman
Department of Statistical Science, Baylor University

Dr. Landon Sego
Applied Statistics and Computational Modeling, Pacific Northwest National Laboratory

Dr. James Stamey
Department of Statistical Science, Baylor University