

Adam J. Rothman

CONTACT INFORMATION

Department of Statistics
University of Michigan
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RESEARCH INTERESTS

Theory, methodology, and computational algorithms for statistical problems involving high-dimensional data; Multivariate Analysis; Machine Learning; Optimization and Statistical Computing; Applications in Biology, Medicine, Engineering, and others.

EDUCATION

Ph.D. Candidate in Statistics

University of Michigan, Ann Arbor, (Expected in April 2010).

- Advisors: Associate Professor Elizaveta Levina and Associate Professor Ji Zhu
- Dissertation title: "Sparse estimation of high-dimensional covariance matrices"

M.A. in Statistics

University of Michigan, Ann Arbor, 2007

B.S.E. in Electrical Engineering (Cum Laude)

University of Michigan, Ann Arbor, 2005
with a minor in Mathematics

PUBLICATIONS

Rothman, A.J., Levina, E., and Zhu, J. (2009). Sparse multivariate regression with covariance estimation. Technical report #499, Dept. of Statistics, Univ. of Michigan. *Submitted*.

Rothman, A.J., Levina, E., and Zhu, J. (2009). A new approach to Cholesky-based covariance regularization in high dimensions. *Biometrika*. Tentatively Accepted.

Rothman, A.J., Levina, E., and Zhu, J. (2009). Generalized thresholding of large covariance matrices. *Journal of the American Statistical Association (Theory and Methods)* **104**: 177-186.

Rothman, A.J., Bickel, P.J., Levina, E., and Zhu, J. (2008). Sparse permutation invariant covariance estimation. *Electronic Journal of Statistics*. **2**: 494-515. (One of four winning papers in the 2008 ASA Student Paper Competition sponsored by the Statistical Computing Section).

Levina, E., **Rothman, A.J.**, and Zhu, J. (2008). Sparse estimation of large covariance matrices via a nested Lasso penalty. *Annals of Applied Statistics*. **2**(1): 245-263.

(Papers are available on my website)

IN PREPARATION

Rothman, A.J. and Agarwal, D. (2009). Simultaneous dimensionality reduction and estimation of nested random effects models.

Rajaratnam, B., **Rothman, A.J.**, and Levina, E. (2009). Memory monotonic covariance models.

PROFESSIONAL
EXPERIENCE

Graduate Student Instructor, University of Michigan (Jan 2006-April 2008)

- Statistics 500 *Applied Statistics I*, Winter 2007
- Statistics 412 *Introduction to Probability and Statistics*, Winter 2007
- Statistics 406, *Introduction to Statistical Computing*, Fall 2006 and Fall 2007
- Statistics 350, *Introduction to Statistics and Data Analysis*, Winter 2006, Summer 2006, Winter 2008

Graduate Student Research Assistant, University of Michigan

- Fall 2009 – Present, Dissertation research. (Supported by the Yahoo! Ph.D. Student Fellowship).
- Summer 2009, Dissertation research. (Supported by my thesis advisors).
- Fall 2008 – Winter 2009, Dissertation research. (Supported by the Yahoo! Ph.D. Student Fellowship).
- Summer 2007, Dissertation research. (Supported by my thesis advisors).
- Summer 2006, Assisted with the computer simulations for the article “Regularized estimation of large covariance matrices” by P.J. Bickel and E. Levina published in the *Annals of Statistics* in 2008. (Supported by Liza Levina).

Intern, Yahoo! (Summer 2008)

Sunnyvale/Santa Clara, CA

Worked on statistical problems for web content optimization.

Graduate Student Mentor, University of Michigan (Fall 2007-Winter 2008)

Mentored new graduate student instructors.

Intern, General Dynamics (May 2004 - Aug 2006)

Advanced Information Systems, Ypsilanti MI

- Wrote Matlab, C++, Perl, and MYSQL code for the implementation and testing of Automatic Target Recognition (ATR) algorithms under the direction of Dr. Daniel Berwick.
- Contributed to mathematical derivations for complex-valued covariance matrix estimation with application to channel equalization of Multiple Input, Multiple Output (MIMO) communication systems, under the direction of Dr. Mark Stuff.

Computer Consultant II, University of Michigan (April 2003 - April 2005)

Housing Information Technology Office

- Wrote, filmed, and edited educational television programs for ResComp TV.
- Helped solve students' computer problems.

CONFERENCES &
PRESENTATIONS

Invited talk, Department of Statistics, Indiana University, Bloomington, to occur February 2010.

Invited talk, Department of Statistics, University of Michigan, Ann Arbor, to occur December 2009.

Poster and funded participant, Yahoo! Key Scientific Challenges Graduate Student Symposium, Sunnyvale, CA, September 2009.

Contributed talk, Joint Statistical Meetings, Washington, DC, August 2009.

Invited talk, International Chinese Statistical Association Symposium, San Francisco, CA, June

2009.

Poster, Michigan Student Symposium for Interdisciplinary Statistical Sciences, Winter 2009.

Invited talk, ASA Statistical Computing and Graphics sections paper competition award session, Joint Statistical Meetings, Denver, CO, 2008.

Poster and funded participant, Isaac Newton Institute programme on Theory and Methods for Complex, High Dimensional Data. Cambridge, UK, June 2008.

Poster, Michigan Student Symposium for Interdisciplinary Statistical Sciences, Winter 2007.

Funded participant, Workshop on Geometry, Random Matrices, and Statistical Inference, SAMSI, Winter 2007.

AWARDS

Yahoo! PhD Student Fellowship Award (2008-2010) (One of four students nationally to win the award)

Student Paper Competition Award, Computing and Graphics Sections, ASA (2008)

National Science Foundation Travel Grant, 2008.

Special Mention in Teaching Award, Department of Statistics, University of Michigan, 2008.

Outstanding Teaching Award, Department of Statistics, University of Michigan, 2007

Fellowship, Department of Statistics, University of Michigan, Fall 2005.

REFEREE SERVICE

Statistica Sinica

OTHER SERVICE

Session Chair, Joint Statistical Meetings, Washington DC, August 2009.

Organizer, Michigan Student Symposium for Interdisciplinary Statistical Sciences, Winter 2008.

COMPUTER SKILLS

Extensive experience with C/C++, R, and Matlab. Major experience with assembly language for digital signal processors.

MEMBERSHIPS

American Statistical Association

OTHER ACADEMIC INTERESTS

Electrical engineering areas including communication systems, signal processing, and electromagnetic waves.

PERSONAL

Born: Ann Arbor, Michigan

Citizenship: United States