

# MATTHEW ALAN TADDY

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**Assistant Professor of Econometrics and Statistics**  
**Neubauer Family Faculty Fellow**  
**University of Chicago Booth School of Business**

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## RESEARCH

Bayesian statistics and data mining, including nonparametric methods and inference for complex high-dimensional data and space-time processes. Applications in economics, marketing, and social research.

## EDUCATION

UNIVERSITY OF CALIFORNIA SANTA CRUZ

Baskin School of Engineering

Department of Applied Mathematics and Statistics (AMS).

**Ph.D. Statistics and Stochastic Modeling**, June 2008.

*Advisor:* Associate Professor Athanasios Kottas (with *co-advisor* Professor Herbert Lee).

*Thesis Dissertation:* Bayesian nonparametric analysis of conditional distributions and inference for Poisson point processes

MCGILL UNIVERSITY, MONTRÉAL

Department of Mathematics and Statistics.

**M.S. Mathematical Statistics**, June 2005.

*Advisor:* Associate Professor Russell Steele

*Project Dissertation:* Variable selection for neural network treatment classification via parallel sampling.

MCGILL UNIVERSITY, MONTRÉAL

Faculty of Arts.

**B.A. Philosophy and Mathematics**, June 2003.

## REFEREED PUBLICATIONS

M.A. Taddy. On Estimation and Selection for Topic Models. To appear in proceedings of the *Fifteenth International Conference on Artificial Intelligence and Statistics (AISTATS 2012)*.

M.A. Taddy and A. Kottas. Mixture Modeling for Marked Poisson Processes. To appear in *Bayesian Analysis*.

M.A. Taddy, R.B. Gramacy and N.G. Polson (2011). Dynamic Trees for Learning and Design. *Journal of the American Statistical Association* 106, 109–123.

M.A. Taddy (2010). An Auto-Regressive Mixture Model for Dynamic Spatial Poisson Processes: Application to Tracking the Intensity of Violent Crime. *Journal of the American Statistical Association* 105, 1403–1417.

C.M. Carvalho, H.F. Lopes, N.G. Polson, and M.A. Taddy (2010). Particle Learning for General Mixtures. *Bayesian Analysis* 5, 709–740.

M.A. Taddy and A. Kottas (2010). A Bayesian Nonparametric Approach to Inference for Quantile Regression. *Journal of Business and Economic Statistics* 28, 357–369.

H.K.H. Lee, M.A. Taddy, R.B. Gramacy, and G.A. Gray (2010). Designing and Analyzing a Circuit Device Experiment using treed Gaussian processes. *Handbook of Applied Bayesian Analysis, Chap. 28*, Oxford University Press.

R.B. Gramacy and M.A. Taddy (2010). Categorical Inputs, Sensitivity Analysis, Optimization and Importance Tempering with tgp version 2, an R Package for Treed Gaussian Process Models. *Journal of Statistical Software* 33, Issue 6.

H.K.H. Lee, M.A. Taddy, and G.A. Gray (2010). Selection of a Representative Sample. *Journal of Classification* 27, 41–53.

M.A. Taddy, H.K.H. Lee, G.A. Gray, and J. Griffin (2009). Bayesian Guidance for Robust Pattern Search Optimization. *Technometrics* 51, 389–401.

M.A. Taddy and A. Kottas (2009). Markov Switching Dirichlet Process Mixture Regression. *Bayesian Analysis* 4, 793–816.

M.A. Taddy, B. Sansó and H.K.H. Lee (2009). Fast Inference for Statistical Inverse Problems. *Inverse Problems* 25 085001.

R.D. Morris, A. Kottas, M.A. Taddy, R. Furfaro and B.D. Ganapol (2008). A Statistical Framework for the Sensitivity Analysis of Radiative Transfer Models. *IEEE Transactions on Geoscience and Remote Sensing* 46, 4062–4074.

**TEACHING  
EXPERIENCE**

BOOTH SCHOOL OF BUSINESS, THE UNIVERSITY OF CHICAGO  
Data Mining: Spring 2011, 2012.  
Applied Regression Analysis: Fall 2008, Winter/Fall 2010.

APPLIED MATH AND STATISTICS, UCSC  
Teaching Assistant for Introductory Statistics: Fall 2005, Winter 2006.  
Teaching Assistant for Probability Theory: Spring 2006

MATHEMATICS AND STATISTICS, MCGILL  
Teaching Assistant for Integral Calculus: Fall 2003.  
Teaching Assistant for Introductory Statistics: Winter-Spring 2004, Winter-Spring 2005.  
Teaching Assistant for Probability Theory: Summer 2004, Fall 2004

**FUNDING  
AND  
AWARDS**

Fama-Miller Center Research Grant, 2011-2012.  
*Analysis of Economic and Financial News*, with B.T. Kelley and R.S.J. Koijen.  
Neubauer Family Faculty Fellow, University of Chicago, 2011 - 2012.  
Robert L. Graves Scholar, University of Chicago, 2010 - 2011.  
ISBA Savage Award Honorable Mention, 2010.  
- For outstanding PhD dissertation contribution in applied Bayesian methodology.  
IBM Corporation Scholar, University of Chicago, 2009 - 2010.  
Research member of the NMFS Center for Stock Assessment Research, 2007 - 2008.  
Awarded Fonds Québécoise de la recherche sur la nature et les technologies, 2004.  
Awarded the Petro-Canada Olympic Torch scholarship for student athletes, 1999-2000.  
Canadian 18 & under national sailing champion, 1999.

**RESEARCH  
POSITIONS**

UCSC AMS student researcher at  
- LAWRENCE LIVERMORE NATIONAL LABORATORY (2007) advised by Herbie Lee and Bruno Sansó  
- NASA AMES (2007) advised by Athanasios Kottas and Robin Morris  
- SANDIA NATIONAL LABORATORIES (2006 - 2007) advised by Genetha Grey and Herbie Lee  
- LOS ALAMOS NATIONAL LABORATORY (2006) advised by Dave Higdon, Herbie Lee, and Bruno Sansó.  
  
MONTRÉAL JEWISH GENERAL HOSPITAL, CENTRE FOR CLINICAL EPIDEMIOLOGY AND COMMUNITY STUDIES in collaboration with URGENCES-SANTÉ (2004), assistant researcher for Dr Alain Vandal.

**SOFTWARE  
R PACKAGES**

*textir: Inverse Regression for Analysis of Sentiment in Text.*  
*dynaTree: Sequential inference for dynamic treed regression and classification* , with R.B. Gramacy.  
*Bmix: Sampling algorithms for (dynamic) stick-breaking mixtures.*  
*tgp: Nonlinear regression with treed Gaussian processes*, with R.B. Gramacy.

**INVITED  
AND  
REFEREED  
TALKS**

*Text Mining and Sentiment Analysis*  
June 2011 - AMA Advanced Research Techniques Tutorial, Palm Springs CA  
March 2011 - Milton Friedman Institute, University of Chicago

*Inverse Regression for Analysis of Sentiment in Text*  
Oct 2011 - UC Santa Cruz, Dept of Applied Math & Stats, Santa Cruz CA  
Oct 2011 - Brigham Young University, Statistics Dept, Provo UT  
June 2011 - Yeditepe Conference on Bayesian Learning, Istanbul Turkey  
April 2011 - SBIES, Washington University, St Louis MO  
March 2011 - University of Toronto Department of Economics  
May 2010 - Cambridge University Statistics Laboratory, Cambridge UK  
May 2010 - SBIES, University of Texas, Austin TX  
April 2010 - Duke University Department of Statistical Sciences, Durham NC

*Dynamic regression trees for learning and design*  
September 2010 - Wharton Statistics, Philadelphia PA  
February 2010 - Johannes Kepler University IFAS, Linz Austria  
October 2009 - INFORMS, San Diego CA  
April 2009 - Schloss Dagstuhl, Saarland Germany

*AR mixtures for a marked Poisson process of crime*  
June 2010 - ISBA, Alicante Spain  
June 2009 - BISP6, Brixen Italy

*Particle learning for general mixtures*  
February 2010 - EBEB X, Rio de Janeiro Brazil  
February 2009 - SAMSI Sequential MC workshop, Durham NC

*Bayesian nonparametric implied conditional regression*  
January 2008 - University of Chicago Graduate School of Business, Chicago IL  
January 2008 - London School of Economics, London UK  
February 2008 - RAND Corporation, Santa Monica CA

*Spatial-temporal modeling for point process data*  
October 2007 - Lawrence Livermore National Laboratory, Livermore CA

*Optimization and sensitivity analysis with help from statistics*  
August 2007 - ICCOPT-II, Hamilton ON

*Bayesian nonparametric Markov switching regression models*  
June 2007 - BISP5, Valencia Spain

*Emulator guided pattern search*  
February 2007 - SIAM-CSE, Costa Mesa CA

*Multi-resolution treed Gaussian processes*  
August 2006 - SAMSI Computer Experiments Workshop, Vancouver BC