

# Curriculum Vitae

Athanasios Kottas

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## Office address

Department of Applied Mathematics and Statistics  
Baskin School of Engineering  
University of California  
Santa Cruz, CA 95064, USA  
email: thanos@ams.ucsc.edu  
<http://www.ams.ucsc.edu/~thanos>

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## Employment

*July 2008 – present:* Associate Professor, Department of Applied Mathematics and Statistics (AMS), University of California at Santa Cruz (UCSC).  
*September 2002 – June 2008:* Assistant Professor, AMS, UCSC.  
*September 2000 – August 2002:* Visiting Assistant Professor, Institute of Statistics and Decision Sciences, Duke University.

## Education

*January 1997 – August 2000:* Ph.D. in Statistics from the Department of Statistics, University of Connecticut.  
*1994 – 1996:* M.Sc. in Mathematics, specializing in Statistics and Operations Research, from the Department of Mathematics, University of Ioannina, Greece.  
*1989 – 1994:* B.Sc. in Mathematics, majoring in Statistics and Operations Research, from the Department of Mathematics, University of Ioannina, Greece.

## Research work

### Research interests

Bayesian nonparametric modeling and inference; Analysis of computer model experiments; Inference under probability order constraints; Mixture models; Quantile regression; Spatial statistics; Survival analysis. Applications in ecology and engineering.

### Journal articles

1. Kottas, A., and Krnjajić, M. “Bayesian Semiparametric Modeling in Quantile Regression.” To appear in *Scandinavian Journal of Statistics*.
2. Morris, R.D., Kottas, A., Taddy, M., Furfaro, R., and Ganapol, B.D. “A Statistical Framework for the Sensitivity Analysis of Radiative Transfer Models.” To appear in *IEEE Transactions in Geoscience and Remote Sensing*.

3. Munch, S.B., and Kottas, A. "A Bayesian Modeling Approach for Determining Productivity Regimes and their Characteristics." To appear in *Ecological Applications*.
4. Hanson, T.E., Kottas, A., and Branscum, A.J. (2008). "Modeling stochastic order in the analysis of receiver operating characteristic data: Bayesian nonparametric approaches." *Applied Statistics (Journal of the Royal Statistical Society, Series C)*, 57, 207-225.
5. Krnjajić, M., Kottas, A., and Draper, D. (2008). "Parametric and Nonparametric Bayesian Model Specification: A Case Study Involving Models for Count Data." *Computational Statistics & Data Analysis*, 52, 2110-2128.
6. Kottas, A., Duan, J.A., and Gelfand, A.E. (2008). "Modeling Disease Incidence Data with Spatial and Spatio-temporal Dirichlet Process Mixtures." *Biometrical Journal*, 50, 29-42.
7. Viswanath, K., Obraczka, K., Kottas, A., and Sansó, B. (2007). "Statistical Equivalent Models for Computer Simulators with an Application to the Random Waypoint Mobility Model." *SIMULATION*, 83, 157-172.
8. Kottas, A., and Sansó, B. (2007). "Bayesian Mixture Modeling for Spatial Poisson Process Intensities, with Applications to Extreme Value Analysis." *Journal of Statistical Planning and Inference* (Special Issue on "Bayesian Inference for Stochastic Processes"), 137, 3151-3163.
9. Kottas, A. (2006). "Nonparametric Bayesian Survival Analysis using Mixtures of Weibull Distributions." *Journal of Statistical Planning and Inference*, 136, 578-596.
10. Kottas, A., Müller, P., and Quintana, F. (2005) "Nonparametric Bayesian modeling for multivariate ordinal data." *Journal of Computational and Graphical Statistics*, 14, 610-625.
11. Gelfand, A.E., Kottas, A., and MacEachern, S.N. (2005) "Bayesian Nonparametric Spatial Modeling With Dirichlet Processes Mixing." *Journal of the American Statistical Association*, 100, 1021-1035.
12. Munch, S.B., Kottas, A., and Mangel, M. (2005) "Bayesian Non-parametric Analysis of Stock-Recruitment Relationships." *Canadian Journal of Fisheries and Aquatic Sciences*, 62, 1808-1821.
13. Gelfand, A.E., and Kottas, A. (2003) "Bayesian Semiparametric Regression for Median Residual Life." *Scandinavian Journal of Statistics*, 30, 651-665.
14. Kottas, A., Branco, M.D., and Gelfand, A.E. (2002) "A Nonparametric Bayesian Modeling Approach for Cytogenetic Dosimetry." *Biometrics*, 58, 593-600.
15. Gelfand, A.E., and Kottas, A. (2002) "A Computational Approach for Full Nonparametric Bayesian Inference under Dirichlet Process Mixture Models." *Journal of Computational and Graphical Statistics*, 11, 289-305.
16. Kottas, A., and Gelfand, A.E. (2001) "Modeling Variability Order: A Semiparametric Bayesian Approach." *Methodology and Computing in Applied Probability*, 3, 427-442.
17. Kottas, A., and Gelfand, A.E. (2001) "Bayesian Semiparametric Median Regression Modeling." *Journal of the American Statistical Association*, 96, 1458-1468.
18. Gelfand, A.E., and Kottas, A. (2001) "Nonparametric Bayesian Modeling for Stochastic Order." *Annals of the Institute of Statistical Mathematics*, 53, 865-876.
19. Kottas, A., Adamidis, K., and Loukas, S. (1999) "Bivariate Distributions with Pearson Type VII Conditionals." *Annals of the Institute of Statistical Mathematics*, 51, 331-344.

### Papers in progress

- Fellingham, G.W. and Kottas, A. “Nonparametric Bayesian Modeling of Health Insurance Claims Costs.” (Revised version submitted to *North American Actuarial Journal*.)
- Bayarri, M.J., Berger, J.O., Kennedy, M.C., Kottas, A., Paulo, R., Sacks, J., Cafeo, J.A., Lin, C.H. and Tu, J. “Validation of Computer Models for Functional and Hierarchical Data: Predicting Vehicle Crashworthiness.” (Revised version submitted to *Journal of the American Statistical Association, Applications and Case Studies*.)
- Kottas, A. and Behseta, S. “Bayesian nonparametric modeling for comparison of single-neuron firing intensities.” (Under revision for *Biometrics*.)
- Taddy, M. and Kottas, A. “A Nonparametric Model-based Approach to Inference for Quantile Regression.” (Under revision for the *Journal of Business and Economic Statistics*.)

### Refereed conference proceedings papers

- Kottas, A. (2006). “Dirichlet Process Mixtures of Beta Distributions, with Applications to Density and Intensity Estimation.” In Proceedings of the *Workshop on Learning with Nonparametric Bayesian Methods, 23rd International Conference on Machine Learning*.
- Viswanath, K., Obraczka, K., Kottas, A., and Sansó, B. (2006). “A Statistical Equivalent Model for Random Waypoint Mobility: A Case Study.” In proceedings of *SPECTS 06: 2006 International Symposium on Performance Evaluation of Computer and Telecommunication Systems*.

### Encyclopedia articles

- Kottas, A. (2007). Survival Analysis, Nonparametric. In *Encyclopedia of Statistics in Quality and Reliability*, Ruggeri, F., Kenett, R. and Faltin, F.W. (eds). John Wiley & Sons Ltd, Chichester, UK, pp. 1958-1962.

### Proceedings papers (without refereeing)

- Kottas, A., Krnjajić, M., and Taddy, M. (2007). “Model-based approaches to nonparametric Bayesian quantile regression.” Proceedings of the *2007 Joint Statistical Meetings*, American Statistical Association, pp. 1137-1148.
- Morris, R.D., Kottas, A., Furfaro, R., Taddy, M., and Ganapol, B. (2007). “An Analysis of the Uncertainties in Radiative Transfer Models Used in Remote Sensed Data Product Generation.” Proceedings of the *NASA Science Technology Conference*, June 2007.
- Kottas, A., Duan, J., and Gelfand, A.E. (2006). “Bayesian Nonparametric Spatio-Temporal Models for Disease Incidence Data.” Proceedings of the *2006 Joint Statistical Meetings*, ASA Section on Bayesian Statistical Science, pp. 60-71.
- Kottas, A., Müller, P., and Quintana, F.A. (2003) “A Nonparametric Bayesian Model for Multivariate Ordinal Data.” Proceedings of the *2003 Joint Statistical Meetings*, pp 2253-2257.
- Bayarri, M.J., Berger, J.O., Higdon, D., Kennedy, M.C., Kottas, A., Paulo, R., Sacks, J., Cafeo, J.A., Cavendish, J., and Tu, J. (2002) “A Framework for Validation of Computer Models.” Proceedings of the Workshop on Foundations for V&V in the 21st Century, D. Pace and S. Stevenson (Editors). Society for Modeling and Simulation International.

MacEachern, S.N., Kottas, A., and Gelfand, A.E. (2001) “Spatial Nonparametric Bayesian Models.” Proceedings of the *2001 Joint Statistical Meetings*.

### Dissertations

Kottas, A. (2000) “Bayesian Nonparametric and Semiparametric Modeling using Dirichlet Process Mixing: Full Inference with Novel Applications” Ph.D. Dissertation, Department of Statistics, University of Connecticut.

Kottas, A. (1996) “Modified Likelihood Functions” (in Greek), M.Sc. Thesis, Department of Mathematics, University of Ioannina.

### **Grant support**

1. October 1, 2007 – September 30, 2010: “Improving Remote Sensed Data Products Using Bayesian Methodology for the Analysis of Computer Model Output.” **NASA, Applied Information Systems Research Program**. PI: Robin Morris (Research Institute for Advanced Computer Science, Universities Space Research Association), Co-Is: Athanasios Kottas (AMS, UCSC), Roberto Furfaro and Barry Ganapol (Department of Aerospace and Mechanical Engineering, University of Arizona).
2. September 1, 2007 – August 31, 2010: “Collaborative Research on Bayesian Semiparametric Population Dynamics Modeling.” **NSF, Division of Environmental Biology, Population Dynamics Program**. PIs: Athanasios Kottas (AMS, UCSC) and Stephan Munch (School of Marine and Atmospheric Sciences, Stony Brook University).
3. September 15, 2006 – April 30, 2007: “Improving Remote Sensed Data Products Using Bayesian Methodology for the Analysis of Computer Model Output.” **NASA, Applied Information Systems Research Program**. (Same PI and Co-Is with award 1. above).
4. August 1, 2005 – July 31, 2008: “Collaborative Research on Bayesian Nonparametric Methods for Spatial and Spatiotemporal Data.” **NSF, Division of Mathematical Sciences, Statistics Program**. PIs: Athanasios Kottas (AMS, UCSC) and Alan E. Gelfand (Department of Statistical Science, Duke University).

### **Invited conference presentations**

“Bayesian Model-based Approaches to Semiparametric and Nonparametric Quantile Regression” Joint Statistical Meetings 2007, Salt Lake City, Utah, *August 2007*.

“Bayesian Nonparametric Modeling of Stochastic Order in the Analysis of ROC Data” 2007 WNAR/IMS Meeting, UC Irvine, California, *June 2007*.

“Bayesian Nonparametric Spatial and Spatio-Temporal Models for Disease Incidence Data” Joint Statistical Meetings 2006, Seattle, Washington, *August 2006*.

“Modeling with Spatial Dirichlet Processes” NIPS 2005 Workshop: Open Problems and Challenges for Nonparametric Bayesian Methods in Machine Learning, Whistler, BC, Canada, *December 2005*.

“Bayesian Nonparametric Spatio-temporal Modeling for Disease Incidence Data” Fourth Workshop on Bayesian Inference in Stochastic Processes, Varenna, Italy, *June 2005*.

“Bayesian Nonparametric Modeling for Spatial Data” Joint Statistical Meetings 2004, Toronto, Canada, *August 2004*.

“Bayesian Nonparametric Spatial Modeling Using Dependent Dirichlet Processes” Bayesian Nonparametrics Meeting, IV Workshop, Università “La Sapienza”, Roma, Italy, *June 2004*.

“Full Inference under Dirichlet Process Mixture Models with Applications” Third International Bayesian Nonparametrics Conference, University of Michigan, USA, *July 2001*.

“A Computational Approach for Full Nonparametric Bayesian Inference under Dirichlet Process Mixture Models” Interface 2001: The 33rd Symposium on the Interface of Computer Science and Statistics, Orange County, California, USA, *June 2001*.

“Bayesian Semiparametric Median Regression Modeling” Second Bayesian Nonparametrics Workshop, University of Reading, UK, *July 1999*.

### Invited talks given at departmental seminars

Department of Statistics, Athens University of Economics and Business (*December, 2007*); Department of Statistics, University of California, Berkeley (*September, 2007*); Lawrence Livermore National Laboratory (*April, 2007* and *March, 2005*); Department of Mathematics, California State University, Bakersfield (*October, 2006*); Department of Statistics, The Wharton School, University of Pennsylvania (*September, 2006*); Department of Statistics, University of California, Irvine (*May, 2006*); NASA Ames Research Center (*November, 2002*); Georgia Tech, School of Industrial and Systems Engineering (*March, 2002*); University of Michigan, Department of Statistics (*March, 2002*); University of California at Irvine, Department of Statistics (*March, 2002*); University of California at Santa Cruz, School of Engineering (*March, 2002*); Michigan State University, Department of Statistics & Probability (*February, 2002*); Texas A&M University, Department of Statistics (*February, 2002*); University of Minnesota, School of Statistics (*March, 2001*); Penn State University, Department of Statistics (*April, 2000*); University of Michigan, Business School (*March, 2000*); North Carolina State University, Department of Statistics (*January, 2000*).

### Professional activities

- Associate Editor for journal *Bayesian Analysis* (since April 2008).
- Member of the Organizing Committee of the “Nonparametric Bayes 2008 Workshop” (July 9, 2008), held in conjunction with ICML/UAI/COLT in Helsinki, Finland.
- Member of the Organizing Committee of the “International Workshop on Bayesian Data Analysis” (August 7-10, 2003), University of California at Santa Cruz.
- Reviewer for *Annals of Applied Statistics*, *Annals of the Institute of Statistical Mathematics*, *Bayesian Analysis*, *Biometrics*, *Biostatistics*, *Canadian Journal of Statistics*, *Computational Statistics & Data Analysis*, *Journal of Agricultural, Biological, and Environmental Statistics*, *Journal of Business and Economic Statistics*, *Journal of Multivariate Analysis*, *Journal of Nonparametric Statistics*, *Journal of Statistical Planning and Inference*, *Journal of the American Statistical Association*, *Journal of the Royal Statistical Society, Series B*, *Scandinavian Journal of Statistics*, *Statistica Sinica*, *Statistics and Computing*, *TEST*, *The American Statistician*, the IMS Lecture Series, and the NSF.
- Member of the International Society for Bayesian Analysis (ISBA), and the American Statistical Association (ASA).
- Co-presenter (with David Draper) of short course on “Practical Bayesian Non-Parametric and Semi-Parametric Modeling”, June 15-17, 2005, 30th Annual Summer Institute of Applied Statistics, Department of Statistics, Brigham Young University.
- Co-presenter (with Alan Gelfand) of short course on “Applied Bayesian Nonparametric Modeling”, August 7, 2006, Continuing Education Program of the *Joint Statistical Meetings*, Seattle, Washington.

## Supervisory experience

- Ph.D. thesis advisor of Matthew Taddy, Ph.D. in Statistics and Stochastic Modeling, Spring 2008, School of Engineering, UCSC. (Dissertation title: Bayesian Nonparametric Analysis of Conditional Distributions and Inference for Poisson Point Processes.)
- M.Sc. thesis advisor of Joel Mefford, M.Sc. in Computer Science, Fall 2005, School of Engineering, UCSC. (Thesis title: Bayesian Nonparametric Mixtures of Weibull Distributions With Applications to Survival Analysis.)
- Co-advisor (with David Draper) of Milovan Krnjajić, Ph.D. in Computer Science, Summer 2005, School of Engineering, UCSC. (Dissertation title: Contributions to Bayesian Statistical Analysis: Model Specification and Nonparametric Inference.)
  
- (Fall 2007 – Spring 2008) Co-supervisor (with Marc Mangel) of Stephanie Carlson, NSF Bioinformatics Postdoctoral Fellow.

## Teaching

At **UCSC**: Introduction to Probability Theory; Statistics (undergraduate courses). Bayesian Nonparametric Methods; Generalized Linear Models; Probability Theory; Stochastic Processes (graduate courses).

At **Duke University**: Probability and Statistics in Engineering (undergraduate course). Bayesian Nonparametric Modeling; Probability and Measure Theory (graduate courses).

At **University of Connecticut**: Introduction to Statistics II (undergraduate course).

## References

Available upon request.