KASSANDRA MARIE FRONCZYK

3616 Richmond Ave #2211 • Houston, TX 77046
Phone: (602) 451 - 9447 • Email: kassandra.fronczyk@gmail.com

EDUCATION

2011	**UNIVERSITY OF CALIFORNIA SANTA CRUZ**	Santa Cruz CA

Ph.D. Statistics and Stochastic Modeling
Dissertation title: A new framework for Bayesian analysis of dose-response studies
        through dependent nonparametric modeling for categorical responses
Advisor: Athanasios Kottas

2007	**BRIGHAM YOUNG UNIVERSITY**	Provo UT

M.Sc. Statistics
Thesis title: Development of informative priors in microarray studies
Advisor: Natalie Blades

2006	**BRIGHAM YOUNG UNIVERSITY**	Provo UT

B.S. Statistics: Statistical Science

2004	**PARADISE VALLEY COMMUNITY COLLEGE**	Phoenix AZ

Associates in Arts

RESEARCH

Interests:

Bayesian nonparametrics, multivariate ordinal regression, analysis of dose-response studies, toxicology data, and nanomedical data, population dynamics modeling, principal component and independent component analysis.

HONORS AND AWARDS

2011-2013	NSF VIGRE Fellowship
2012	ISBA World Meeting Travel Award
2011	SBSS Student Paper Competition Winner
2011	MCMSki3 Conference, Young Investigator Invited Session Presenter
2010-2011	Travel Award: CRiSM Workshop Model Uncertainty; ISBA/Valencia World Meeting; SAMSI Summer Program on Semiparametric Bayesian Inference: Applications in Pharmacokinetics and Pharmacodynamics; MCMSki3; 8th Workshop on Bayesian Nonparametrics
2006	Frontier Undergraduate Research Fellowship
2004-2006	Mountain West Conference Scholar Athlete
2004	Phoenix Women's Sports Association Junior College Scholar/Athlete of the Year

ACADEMIC SERVICE

Winter 2012	Organizing committee for ICERM workshop on Bayesian Nonparametrics
Winter 2011	Referee for *Bayesian Analysis*
Winter 2011	Referee for *JASA*

EDITORIAL SERVICE

2013-2015	Managing Editor for *Bayesian Analysis*

TEACHING EXPERIENCE

Rice University: NSF VIGRE Instructor

August 2012-Present	Department of Statistics	
	• Elementary Applied Statistics	Fall 2012
	• Statistics for Bioengineering	Spring 2013

PROFESSIONAL EXPERIENCE

POSTDOCTORAL FELLOW
UT MD ANDERSON CANCER CENTER/ RICE UNIVERSITY

October 2011-Present | Department of Biostatistics/ Department of Statistics–
Research with Michele Guindani and Marina Vannucci
• Generalizations of principal component analysis/independent component analysis; inference for nanomedical data; development of Bayesian nonparametric models.

RESEARCH ASSISTANT
University of California Santa Cruz

January 2008-June 2011 | Department of Applied Math and Statistics–Research with Athanasios Kottas
• Inference for population dynamics models; development of Bayesian nonparametric models for collections of related distributions; modeling and risk assessment for developmental toxicity studies.

Brigham Young University

October 2005-April 2007 | Blades Expression Research Group, Department of Statistics
• Explored statistical aspects of genomic data sets. Assessed methods for the analysis of time course experiments using microarrays. Investigated multiple comparison corrections. Examined frequentist and Bayesian approaches for the analysis of microarrays.

TEACHING ASSISTANT
University of California Santa Cruz

September 2007-June 2011 | Department of Applied Math and Statistics
• Gambling and Gaming   March 2011 - June 2011
• Introduction to Probability Theory   March 2009 - June 2009
• Introduction to Statistics   August 2007 - March 2008

Brigham Young University

January 2006-April 2007 | Department of Statistics
• Statistical Theory 2   January 2007 - April 2007
• Experimental Design   August 2006 - April 2007
• Principles of Statistics   January 2006 - August 2006

INTERNSHIPS AND CONSULTING WORK
Translational Genomics Research Institute: Intern

April 2007-August 2007 | Computational Biology Division
• Categorized and explored differences between genes with analog and digital behavior in cancer and normal tissues. Evaluated survival analysis on censored colon cancer data. Supervised by Seungchan Kim.

Brigham Young University: Statistical Consulting

August 2006-December 2006 | Fragile Families Research Group, Department of Social Work
• Advised graduate students on statistical aspects of their theses. Formulated latent class and multivariate logistic regression models.

PUBLICATIONS AND WORKING PAPERS

1. Fronczyk K., Guindani M., and Vannucci M. (2012). "An infinite factor model for content and learning analytics." In preparation.

2. Fronczyk K., Guindani M., and Vannucci M. (2012). "A Bayesian hierarchical model for the optimization of adhesive strength in nanoparticles." In preparation.

3. Fronczyk K. and Kottas A. (2012). "Nonparametric Bayesian modeling for ordinal response bioassay experiments, with an application to cytogenetic dosimetry." In preparation for submission to *Biometrics*.

4. Fronczyk K. and Kottas A. (2012). "Nonparametric mixture modeling for developmental toxicology data with pre-implantation exposure." In preparation for *JRSS-C*. Available as Technical Report UCSC-SOE-10-16.

5. Fronczyk K. and Kottas A. (2012). "Risk assessment for toxicity experiments comprising joint discrete-continuous outcomes: A Bayesian nonparametric approach." In preparation for submission to *Annals of Applied Statistics*. Available as Technical Report UCSC-SOE-12-02.

6. Fronczyk K. and Kottas A. (2012). "Bayesian approach to the analysis of quantal bioassay settings with nonparametric mixture models." Under revision by *Biometrics*. Available as Technical Report UCSC-SOE-12-01.

7. Fronczyk K. and Kottas A. (2012). "A Bayesian nonparametric modeling framework for developmental toxicity studies." Under revision by the *Journal of the American Statistical Association*. Available as Technical Report UCSC-SOE-10-11.

8. Kottas A. and Fronczyk, K. (2013). "Flexible Bayesian modelling for clustered categorical responses in developmental toxicology," In *Bayesian Theory and Applications*, P. Damien, P. Dellaportas, N.G. Polson and D.A. Stephens (Editors), Oxford University Press, pp. 70-83.

9. Fronczyk K., Kottas A., and Munch S. (2012). "Flexible modeling for stock-recruitment relationships using Bayesian nonparametric mixtures." *Environmental and Ecological Statistics* **19**, 183-204.

10. Fronczyk K. (2007). "Development of informative priors in microarray studies," M.Sc. Thesis, Department of Statistics, Brigham Young University.

PRESENTATIONS AND TALKS

INVITED:

"A Bayesian approach to the analysis of bioassay studies with mixture models," Invited talk at WNAR, Fort Collins, CO, June 2012.

"A Bayesian approach to the analysis of bioassay studies with nonparametric mixture models," Invited talk at Dept of Statistics, Brigham Young University, Provo, UT, December 2011.

"A Bayesian nonparametric modeling framework for developmental toxicity studies," Invited talk at the Joint Statistical Meetings, Miami, FL, August 2011.

"A Bayesian nonparametric modeling framework for developmental toxicity studies," Invited talk at MCMSki3, Park City, UT, January 2011.

CONTRIBUTED:

"Generalized Bayesian infinite factor models," Presenter at the Joint Statistical Meetings, San Diego, CA, August 2012.

"A nonparametric Bayesian approach to the analysis of bioassay experiments with ordinal responses," Poster presentation at ISBA World Meeting, Kyoto, Japan, June 2012.

"Bayesian nonparametric modeling for devlopmental toxicology data," Poster presentation at the 8th Workshop on Bayesian Nonparametrics, Veracruz, Mexico, June 2011.

"Nonparametric mixture modeling for developmental toxicology data with pre-implantation exposure," Poster presentation at SAMSI Summer Program on Semiparametric Bayesian Inference: Applications in Pharmacokinetics and Pharmacodynamics, July 2010.

"A Bayesian nonparametric modeling framework for developmental toxicity studies," Poster presentation at 9th Valencia International Meeting - 2010 ISBA World Meeting, Benidorm, Spain, June 2010.

"A Bayesian nonparametric modeling framework for developmental toxicity studies," Poster presentation at CRiSM Model Uncertainty Workshop, University of Warwick, Coventry, UK, May 2010.

"Dependent Dirichlet process modeling for developmental toxicity studies," Poster presentation at the 7th Workshop on Bayesian Nonparametrics, Collegio Carlo Alberto, Moncalieri, Italy, June 2009.

"Nonparametric mixture modeling for stock-recruitment relationships," Poster presentation at the Graduate Symposium, University of California Santa Cruz, Santa Cruz, CA, April 2009.

"Development of informative priors for microarray experiments," Presented at Spring Research Conference, Brigham Young University, Provo, UT, April 2007.

"Statistical tools for the analysis of gene expression data," Co-presenter (with Wendy Bunn) Spring Research Conference, Brigham Young University, Provo, UT, April 2006.