

# Hui Xiong

Program of Applied Mathematics  
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## Education

- **University of Arizona** Tucson, AZ  
*Ph.D. in Applied Mathematics* 2009 - 08/2011(expected)
  - Dissertation: “Nonparametric Statistical Approaches for Benchmark Dose Estimation in Quantitative Risk Assessment.”
  - Advisor: Walter W. Piegorsch
- **University of Arizona** Tucson, AZ  
*M.S. Applied Mathematics* 2006 - 2009
  - GPA: 4.0/4.0
  - Relevant courses: Numerical Methods, Real Analysis, Probability Math, Theory of Statistics, Partial Differential Equations, Applied Biostatistics, Fundamental Optimization, Statistical Computing, Statistical Consulting, Data Management.
- **University of Arizona** Tucson, AZ  
*Graduate Certificate in Statistics* 2006 - 2009
- **Nanjing University** Nanjing, China  
*B.S. in Computational Mathematics* 2002 - 2006
  - Thesis: “Multigrid method in numerical analysis for solving differential equations.”

## Research Area

- Quantitative Risk Assessment, Statistical Bootstrap Analysis, Statistical Modeling
- Data Mining, Numerical Optimization

## Work Experience

- **Graduate Teaching Assistant** University of Arizona  
*Math 322-Mathematical Analysis for Engineers* Fall 2007-Fall 2008, Spring 2009, Spring 2011
  - Gave lectures, held office hours, graded homework assignments, composed and graded exams, assigned grades
- **Graduate Research Associate** University of Arizona  
*Public Health Service Grant #R21-ES016791* Summer 2009-Fall 2010
  - Conducted research, performed statistical simulations, prepared tables and figures to summarize research results

- **Consulting Assistant** Tucson  
*Arizona Statistics Consulting Laboratory* *Spring 2010*
  - Facilitated study design, developed new statistical methods to address emerging problems in science and medicine, conducted data analysis
- **Sales representative, Interpreter and Coordinator** Tucson  
*Tucson Gem and Mineral Show* *Spring 2010*
  - Showcased, introduced and sold gemstones and jewelry, conducted Chinese-English/English-Chinese interpretation, arranged and prepared display tables and catering

## Publications

My Ph.D. dissertation is invited to be published in the form of a printed book by the international publishing house, LAP Lambert Academic Publishing . . . . . 2011/Pending.

## Honors & Awards

- Winner in University of Arizona BIO5 what-why research statement contest . . . . . 2009
- Graduate College Fellowship, University of Arizona . . . . . 2006
- Outstanding Student Scholarship, Nanjing University . . . . . 2002-2006
- Winner in Nanjing BenQ photography competition . . . . . 2006

## Research Projects

- Dissertation Research
  - Built models for estimating hazardous exposure risks. Related an adverse outcome to a quantified dose or exposure of a hazardous agent via some functional model, and manipulated components of this model to yield a benchmark dose (BMD) of the agent at which a specified benchmark response (BMR) was attained.
- Advanced Statistical Research Tutorial Group
  - Simulated the space shuttle disaster by estimating an O-ring failure (a splitting of a ring that seals different parts of the space shuttle) probabilities at different temperatures and the reliability of these probabilities.
- Advanced Statistical Research Tutorial Group
  - Determined the relationship between the level of a chemical agent and the probability that it was effective, based on an experiment administering different levels to corresponding subjects, and observing the numbers on which these were effective by Bayes estimator.
- Case Study Research Tutorial Group
  - Analyzed the dynamical evolution of a neck, or narrowest point of a drop of glycerol pinching off in oil. Analyzed the applicability of two well-established aspects of pinch-off models to data gathered from video footage of our own drop.

- Independent Study Research Tutorial Group
  - Determined the connection between two mathematical branches: Probability (especially in Markov process and Brownian motion) and Potential theory. Based on this connection, a probabilistic solution to the Dirichlet problem was deduced.
- Senior Study Research Tutorial Group
  - Studied the basic properties of the random paths that came from the percolation model. Simulated the random paths near critical percolation and found out that the length scale of the paths only depended on the probability of the percolation.
- Undergraduate Thesis
  - Used Multigrid (MG) method in numerical analysis to solve differential equations to show the theoretical proof and analyze the iteration error for the method.

## Skills

- Analysis Skills
  - Mathematical Analysis, Statistical Analysis, Risk Analysis, Model Development, Model Evaluation
- Programming Languages
  - Matlab, R,  $\text{\LaTeX}$ , SAS, C++, JMP, Stata, SPSS, Maple, Mathematica, MS Office, Photoshop, Dreamweaver
- Languages
  - Cantonese, Chinese, English

## Leadership

- University of Arizona students study group director
- Nanjing University Student Association communications director
- Nanjing University math department table tennis coach