

Chen Feng

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Education

- 2015 — May 2019 (expected)** **Ph.D.** in Industrial Engineering, major in **Statistics**, and minor in **Machine Learning** - H. Milton Stewart School of Industrial & Systems Engineering, **Georgia Institute of Technology**
Advisors: Dr. Yajun Mei and Dr. Brani Vidakovic
Dissertation Title: Feature Learning and Personalized Screening Techniques in Healthcare
GPA: 4.0/4.0
- 2011-2015** **B.S.** in Mathematics - **Xi'an Jiaotong University**, Xi'an, P. R. China
GPA: 3.79/4.0

Honors and Awards

- 2018** *Best Student Poster Presentation award (First Place)* at Georgia Statistics Day
University of Georgia, Atlanta, GA, October 26, 2018
- 2018** *Best Student Poster Presentation award* at The 6th Workshop on Biostatistics and Bioinformatics
Georgia State University, Atlanta, GA, May 4, 2018
- 2017** *Travel Award to CHEST Annual Meeting, Doctoral Student Professional Development Fund*,
College of Engineering, Georgia Institute of Technology
- 2015-2017** *Wally George Fellowship*, H. Milton Stewart School of Industrial & Systems Engineering,
Georgia Institute of Technology

Professional Experience

- June 24th, 2019** **Quantitative Associate**, Wells Fargo, San Francisco, CA
- May 2018 - Aug 2018** **Statistician Intern**, The Climate Corporation, San Francisco, CA
- Led the development of a machine learning based nitrogen management tool to provide accurate nitrogen recommendations for corn growers.
 - Interpreted and validated the new nitrogen recommendation tool on large-scale agricultural data.
- Mar 2017 - Jan 2019** **Statistical Consultant**, Georgia Clinical & Translational Science Alliance, GA
- Provided statistical support to junior researchers from Georgia Tech bio-related research labs in weekly consulting sections, under the supervision of Dr. Brani Vidakovic and Dr. Yajun Mei

Software Engineering Skills

Proficient: Python, R, Matlab, SQL, WinBUGS, Latex, Excel, Power Point, Word
Basic Knowledge: C++, SAS

Research Publications

Journal/Book Chapter/Manuscripts

- **Chen Feng** and Feifang Hu, "Optimal Responses-Adaptive Designs Based on Efficiency, Ethic, and Cost." *Statistics and Its Interface*, Vol. 11, No. 1 (2018), pp. 99-107.
- **Chen Feng**, Yajun Mei, and Brani Vidakovic, "Mammogram Diagnostics Using Robust Wavelet-based Estimator of Hurst Exponent." *New Frontiers of Biostatistics and Bioinformatics*. Springer, Cham, 2018. 109-140.
- Stephen H. Sprigle, Sharon E. Sonenblum, and **Chen Feng**, "Pressure redistributing in-seat movement activities by persons with spinal cord injury over multiple epochs." *PloS one* 14.2 (2019): e0210978.
- **Chen Feng** and Brani Vidakovic, "Wavelet-based robust estimation of Hurst Exponent with Application in Visual Impairment Classification." Submitted.
- **Chen Feng** and Yajun Mei, "A Personalized Threshold Method via Boosting for Sepsis Screening." Submitted.
- Jelena Velickovic, **Chen Feng**, and Brani Vidakovic, "The assessment of postoperative morbidity in high-risk patients after major abdominal surgery: A comparison of the Clavien-Dindo classification and the Comprehensive Complication Index." Submitted.
- Ofer Sadan, **Chen Feng**, Brani Vidakovic, Yajun Mei, Kathleen Martin, Owen Samuels, C. L. Hall, "Glucose variability as measured by inter-measurement percentage change is predictive of in-patient mortality in aneurysmal subarachnoid hemorrhage." Submitted.
- Owen Samuels, Ofer Sadan, **Chen Feng**, Kathleen Martin, Khalid Medani, Jose Binongo, Yajun Mei and Daniel Barrow, "Aneurysmal Subarachnoid Hemorrhage: trends, outcomes and predictions from a 15-year perspective of a single neurocritical care unit." Submitted.

Conference Proceedings

- **Chen Feng**, Shravan Kethireddy, Griffin Paul, and Yajun Mei, "The Age Adjusted 12-Year Incidence and Mortality Rates of Sepsis Using the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3) on MIMIC-III Data." *CHEST JOURNAL*, October 2017, Volume 152, Issue 4, Supplement, Page A402.
- Ofer Sadan, **Chen Feng**, Brani Vidakovic, Yajun Mei, Kathleen Martin, Owen Samuels and C.L. Hall, "Blood glucose variability is associated with clinical outcome in aneurysmal subarachnoid hemorrhage patients ." Accepted by *Neurocritical Care Society Conference, September 2018*.
- Owen Samuels, Ofer Sadan, **Chen Feng**, Kathleen Martin, Yajun Mei and Daniel Barrow, "Aneurysmal subarachnoid hemorrhage over 15 years: improvement and lessons for the future." Accepted by *Neurocritical Care Society Conference, September 2018*.

Research Experience

• Robust Estimation of the Hurst Exponent

Collaborators: Professor Brani Vidakovic and Professor Yajun Mei, ISyE, Georgia Institute of Technology

- Proposed the robust methods to estimate Hurst exponent for 1-dimensional and 2-dimensional time series data based on non-decimated wavelet transforms
- Applied to a real 1-dimensional pupillary response behavior dataset to classify individuals according to the degree of their visual impairment
- Applied to 2-dimensional mammograms to classify individuals as cancerous or non-cancerous

- **A personalized threshold method via boosting for sepsis screening**
Collaborators: Professor Yajun Mei, ISyE, Georgia Institute of Technology; Professor Paul Griffin, Center for Health-care Engineering, Purdue University; Dr. Shравan Kethireddy, Critical Care Medicine, Northeast Georgia Medical Center
 - Proposed a boosting alike method to self-learn the personalized thresholds in sepsis screening that depends on patients' demographic information
 - Developed gradient descent algorithm in Python
- **Adaptive Designs in Clinical Trials**
Collaborator: Professor Feifang Hu, George Washington University
 - Proposed a response-adaptive design in clinical trials that jointly optimize the efficiency, ethic, and cost
- **Scoring system for prediction of postoperative morbidity and mortality**
Collaborators: Professor Brani Vidakovic, ISyE, Georgia Institute of Technology; Dr. Jelena Velickovic, Clinical Center of Serbia, Belgrade
 - Evaluated and validated the existing POSSUM and P-POSSUM scores to predict morbidity and mortality in patients undergoing major elective digestive surgery
 - Created a new score for prediction of postoperative complications and compared its characteristics with the existing POSSUM score
- **Cohort study of aneurysmal subarachnoid hemorrhage patients**
Collaborators: Professor Ofer Sadan, Neurocritical Care, Emory; Professor Yajun Mei, ISyE, Georgia Institute of Technology
 - Analyzed if glucose variability is correlated with bad outcome in aneurysmal subarachnoid hemorrhage patients
 - Identified the trends in treatment and outcomes for aneurysmal subarachnoid hemorrhage patients enrolled in Emory hospital over the past 15 years
- **In-seat movement by persons with spinal cord injury**
Collaborator: Professor Stephen H. Sprigle, School of Industrial Design, Georgia Institute of Technology
 - Investigated in-seat movements of wheelchair users that included unweighting the sitting surface as well as redirecting loads over the sitting surface
 - Created databases and cleaned data using SQL and Python
 - Predicted pressure ulcers for wheelchair users using machine learning algorithms in R
- **Retrospective study on septic shock patients who developed CRH**
Collaborators: Professor Yajun Mei, ISyE, Georgia Institute of Technology; Professor Paul Griffin, Center for Health-care Engineering, Purdue University; Dr. Shравan Kethireddy, Critical Care Medicine, Northeast Georgia Medical Center
 - Cleaned 20 GB clinical data using Python and SQL
 - Conducted statistical tests in R to compare the baseline characteristics between CRH and non-CRH groups
 - Assessed the effects of pre-hospital ACE inhibitors and statins prescriptions on developing CRH
- **The Age-Adjusted Incidence Rates of Sepsis Using Different Definitions**
Collaborators: Professor Yajun Mei, ISyE, Georgia Institute of Technology; Professor Paul Griffin, Center for Health-care Engineering, Purdue University
 - Cleaned 30 GB MIMIC III dataset using Python and SQL
 - Calculated SOFA scores for patients based on their first 24 hours' measurements
 - Implemented statistical tests in R to compare between the Sepsis 3 definitions and the traditional ICD-9 coding system for sepsis

Research Presentations

- **Poster presentation**, “A Personalized Threshold Method via Boosting for Sepsis Screening”, *Georgia Statistics Day 2018*, Atlanta, GA, October 26, 2018.
- **Poster presentation**, “Mammogram Diagnostics Using Robust Wavelet-based Estimator of Hurst Exponent”, *The 6th Workshop on Biostatistics and Bioinformatics*, Atlanta, GA, May 4, 2018.
- **Invited talk**, “The Age Adjusted 12-year Incidence and Mortality Rates of Sepsis Using the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3) on MIMIC Data”, *CHEST Annual Meeting 2017*, Toronto, October 28th-November 1st, 2017.
- **Poster presentation**, “Estimation of the Hurst Exponent Using Trimean Estimators on Nondecimated Wavelet Coefficients,” *Georgia Statistics Day 2017*, Emory Rollins School of Public Health, Atlanta, GA, October 9, 2017.
- **Poster presentation**, “Optimal Responses-Adaptive Designs Based on Efficiency, Ethic, and Cost,” *The 5th Workshop on Biostatistics and Bioinformatics*, Georgia State University, Atlanta, GA, May 5-7, 2017.

Teaching Experiences

Jan 2018 - **Instructor**, H. Milton Stewart School of Industrial and Systems Engineering,
May 2018 *Georgia Institute of Technology, Atlanta, GA*

- ISyE 3133: Engineering Optimization
- Gave two hours recitation lectures to undergraduate students and held office hours every week

Sep 2015 - **Graduate Teaching Assistant**, H. Milton Stewart School of Industrial and Systems Engineering,
Present *Georgia Institute of Technology, Atlanta, GA* (Graded the assignments & Held office hours)

- ISyE 2028: Basic Statistical Methods (Undergraduate)
- ISyE 3770: Statistics & Applications (Undergraduate)
- ISyE 6420: Bayesian Statistics (Graduate)
- ISyE 6412: Theoretical Statistics (Graduate, core course for PhD Statistics and PhD Machine Learning)

Academic Service

Reviewer

Journal of Applied Statistics (reviewed 4 papers from 2017 to current)

Volunteer

Travel Courses on incomplete data analysis, American Statistical Association, Georgia Chapter, March 2018

INFORMS Annual Meeting, Nashville, TN, 2016

Georgia Statistics Day, Atlanta, GA, 2016

The 25th International Chinese Statistical Association Applied Statistical Symposium, Atlanta, GA, 2016