

## BAIMING ZOU

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### EDUCATION

- Ph.D. Biostatistics, University of North Carolina – Chapel Hill (2013)
- M.S. Computer Science, University of Wisconsin – Madison (1999)
- M.A. Physics, University of Wisconsin – Madison (1999)
- B.S. Physics, Wuhan University – China (1989)

### PROFESSIONAL EXPERIENCE

- Assistant Professor (Department of Biostatistics and School of Nursing, University of North Carolina - Chapel Hill: 2020 ~ present)
- Research Assistant Professor (Department of Biostatistics, University of Florida: 2013 ~ 2019)
- Graduate Research Assistant (Department of Biostatistics, University of North Carolina – Chapel Hill: 2009 ~ 2013)
- Software Engineer (IBM: 2000 ~ 2009)

### RESEARCH INTERESTS

- Non-parametric and Semi-parametric Modeling
- Machine Learning Methods for Large-scale Electronic Health Record Data Analysis
- High-dimensional Data Analysis

### RESEARCH SUPPORT

#### Ongoing Research Support

W81XWH2110263 Department of Defense Development and Pilot Testing of the Interactive Prostate Cancer Information, Communication and Support program (iPICS) Role: Co-Investigator	Song (PI)	07/01/21 ~ 06/30/24
1R03HD101413-01 NIH/NICHHD Placental Origins of Positive Child Health Role: Co-Investigator	Santos (PI)	04/08/20 ~ 03/31/22

1R01HS026473-01 Beeber (PI) 06/01/19 ~ 05/31/22  
 NIH/AHRQ 01/01/20 ~ 05/31/22  
 A Safer Assisted Living: Creating a Toolkit for Person and Family Engagement  
 Role: Co-Investigator

1R21EB027865-01 Kiefer (PI) 08/06/19 ~ 08/31/21  
 NIH/NIBIB 01/01/20 ~ 08/31/21  
 Leveraging Artificial-intelligence to Profile and Enhance Phenotypic Plasticity for Second Injury Prevention: An Innovative Precision Medicine Platform to Revolutionize Injury Care  
 Role: Co-Investigator

K23ES027026 Brooks (PI) 09/01/2016 ~ 08/31/2021  
 NIH/NIEHS 01/01/2021 ~ 08/31/2021  
 Inflammatory Markers, Hazardous Air Pollutants, and Psychosocial Factors Goal: This Mentored Patient-Oriented Research Career Development (K23) Award proposes to address inflammation as a potential biological pathway linking environmental pollutant exposure and psychosocial factors to cardiovascular disease in American Indian women. The working hypothesis is that American Indian women with positive psychosocial states are less susceptible to the inflammatory effects of environmental pollutants.  
 Role: Biostatistician

### Completed Research Support

R41MC33088-01-00 Angell (PI) 09/01/19 ~ 08/31/20  
 MCHB/HRSA  
 Characterizing the Health and Healthcare Utilization of Girls with Autism Spectrum Disorder in Florida  
 Role: Co-Investigator

R01AR071431 Allen (PI) 03/01/18 ~ 02/28/23  
 NIH/NIAMSD 03/01/18 ~ 12/31/19  
 OA Pathogenesis beyond Cartilage: A preclinical study of the sources of OA pain  
 Role: Co-Investigator

1R01HD091658-01A1 Hegland (PI) 09/01/17 ~ 08/31/22  
 NIH/NIDCD 09/01/17 ~ 12/31/19  
 Mechanisms of airway protection dysfunction in Parkinson's disease  
 Role: Co-Investigator

R01 FD005407 Stacpoole (PI) 06/01/16 ~ 05/31/20  
 NIH/FDA 06/01/16 ~ 12/31/19  
 Phase 3 Trial of DCA in PDC Deficiency IND028,625  
 Role: Co-Statistical PI

1R01GM114290-01 Tighe (PI) 07/01/15 ~ 06/30/20  
 NIH/NIGMS 07/01/15 ~ 12/31/19  
 Finding Good TEMporal Postoperative Pain Signatures (TEMPOS)  
 Role: Co-Investigator

R01EY024564-01A1 Li (PI) 09/01/15 ~ 08/31/20  
 NIH/NEI 09/01/15 ~ 12/31/19  
 Oral therapy for diabetic retinopathy using ACE2/Ang1-7 bioencapsulated in plant cells  
 Role: Co-Investigator

UL1 TR000064 Nelson (PI) 07/14/09 ~ 04/30/15  
 NIH/NCATS 08/31/13 ~ 04/30/15  
 University of Florida Clinical and Translational Science Award

Role: Biostatistician

1R21DC014567-01

Hegland (PI)

04/01/15 ~ 03/31/17

NIH/NIDCD

Airway Protection Deficits According Stimulus Type In Parkinson's Disease

Role: Co-Investigator

## SELECTED PUBLICATIONS

X. Mi, P.J. Tighe, F. Zou, **B. Zou** (2021). "A Deep Learning Semiparametric Regression for Adjusting Complex Confounding Structures". *Annals of Applied Statistics* (accepted).

F. Avorgbedor, K. Gondwe, **B. Zou**, J. Conklin, Y. Seonae (2021). "Systematic Review on Outcomes of Preterm Small for Gestational Age Infants Born to Women with Hypertensive Disorders in Pregnancy". *Journal of Perinatal and Neonatal Nursing*. (accepted).

**B. Zou**, X. Mi, P.J. Tighe, G.G. Koch, F. Zou (2021). "On Kernel Machine Learning for Propensity Score Estimation under Complex Confounding Structures". *Pharmaceutical Statistics*, 20(4):752~764.

X. Mi, **B. Zou**, F. Zou, J. Hu (2021). "Permutation-based Identification of Important Biomarkers for Complex Diseases via Machine Learning Models". *Nature Communications*, 12(1):3008.

A.M. Angell, A. Deavenport-Saman, L. Yin, **B. Zou**, C. Bai, D. Varma, O. Solomon (2021). "Sex Differences in Co-occurring Conditions Among Autistic Children and Youth in Florida: A Retrospective Cohort Study (2012–2019)". *J Autism Dev Disord*, 4(10): 1007.

R. Baharloo, J.C. Principe, R.B. Fillingim, M.R. Wallace, **B. Zou**, P.L. Crispen, H.K. Parvataneni, H.A. Prieto, T.N. Machuca, X. Mi, S.J. Hughes, G.J.A. Murad, P. Rashidi, P.J. Tighe (2021). "Slow Dynamics of Acute Postoperative Pain Intensity Time Series Determined via Wavelet Analysis Are Associated With the Risk of Severe Postoperative Day 30 Pain". *Anesth Analg*. 132(5):1465~1474.

C.R. Smith, R. Baharloo, P. Nickerson, M. Wallace, **B. Zou**, R.B. Fillingim, P. Crispen, H. Parvataneni, C. Gray, H. Prieto, T. Machuca, S. Hughes, G. Murad, P. Rashidi, P.J. Tighe (2021). "Predicting long-term postsurgical pain by examining the evolution of acute pain". *Eur J Pain*, 25(3):624~636.

C. Wu, D. Newman, T.A. Schwartz, **B. Zou**, J. Miller, M.H. Palmer (2020). "Effects of unsupervised behavioral and pelvic floor muscle training programs on nocturia, urinary urgency, and urinary frequency in postmenopausal women: Secondary analysis of a randomized, two-arm, parallel design, superiority trial (TULIP study)". *Maturitas*, 146:42~48.

B.N. Alzghoul, R. Reddy, M. Chizinga, A. Innabi, **B. Zou**, E.S. Papierniak, I Faruqi (2020). "Pulmonary Embolism in Acute Asthma Exacerbation: Clinical Characteristics, Prediction Model and Hospital Outcomes". *Lung*, 198(4):661~669.

S. Malcolm, M. Dorvil, **B. Zou**, V. DeGennaro (2020). "Estimating 10-year cardiovascular disease risk in urban and rural populations in Haiti". *Clinical Epidemiology and Global Health*. 8(4): 1134~1139.

C. Deb, S. Campion, V. Derrick, V. Ruiz, B. Abomoelak, A. Avdella, **B. Zou**, K. Horvath, D. Mehta (2020). "Sucrase-Isomaltase Gene Variants in Patients with Abnormal Sucrase Activity and Functional GI Disorders". *Journal of Pediatric Gastroenterology and Nutrition*. 72(1): 29~35.

S. Ghosh, M. Cabassa, J. Brady, M. Robinson, **B. Zou**, M. Weiss, P.B. Kang (2019). "Neurodevelopmental outcomes at 9-14 months gestational age after treatment of neonatal seizures due to brain

injury". *Childs Nerv Syst.* 35(9):1571~1578.

J.W. Skinner, D.M. Otzel, A. Bowser, D. Nargi, S. Agarwal, M.D. Peterson, **B. Zou**, S.E. Borst, and J.F. Yarrow (2018). "Muscular responses to testosterone replacement vary by administration route: a systematic review and meta-analysis". *Journal of Cachexia, Sarcopenia and Muscle*, 9(3): 465~481.

D.A. Fedele, D.M. Janicke, E.L. McQuaid, M. Abu-Hasan, D. Baker, **B. Zou**, M. Netz, and C. Lawless (2018). "A behavioral family intervention for children with overweight and asthma". *Clinical Practice in Pediatric Psychology*, 6(3): 259~269.

J. Sikora, J. Gregory, A. George, S. Clayton, **B. Zou**, M. Robinson, F. Mukhtar, and J.P. Pelletier (2018). "Soluble antigens in plasma allow mismatched transfusion without hemolysis". *Transfusion*, 58(4): 1006~1011.

**B. Zou**, J. Cai, G.G. Koch, H. Zhou, and F. Zou (2017). "A Model-Based Conditional Power Assessment for Decision Making in Randomized Controlled Trial Studies". *Statistics in Medicine*, 36(30): 4765~4776.

B.N. Newby, T.M. Brusko, **B. Zou**, M.A. Atkinson, M. Clare-Salzler, C.E. Mathews (2017). "Type 1 Interferons Potentiate Human CD8<sup>+</sup> T-Cell Cytotoxicity Through a STAT4- and Granzyme B-Dependent Pathway". *Diabetes*, 66(12):3061~3071.

P.W. Stacpoole, J. Shuster, J.L.P.S. Thompson, R.A. Prather, L.A. Lawson, **B. Zou**, R. Buchsbaum, and S.J. Nixon (2017). "Development of a novel observer reported outcome tool as the primary efficacy outcome measure for a rare disease randomized controlled trial". *Mitochondrion*, 42: 59~63.

J.L. Schaefer, Z.L. Lukowski, A.M. Meyer, A.J. Leoncavallo, A. Greer, G.M. Martorana, **B. Zou**, J.J. Shuster, M.B. Sherwood (2017). "Comparing Glaucomatous Disc Change Using Stereo Disc Viewing and the MatchedFlicker® Software Program in Ophthalmologists in Training". *The British Journal of Ophthalmology*, 102(3): 358~363.

J.G. Chen, **B. Zou**, J. Shuster (2017). "Relationship between Patient Satisfaction and Physician Characteristics". *Journal of Patient Experience*, 4(4): 177~184.

**B. Zou**, F. Zou, J.J. Shuster, P.J. Tighe, G.G. Koch, and H. Zhou (2016). "On Variance Estimate for Covariate Adjustment By Propensity Score Analysis". *Statistics in Medicine*, 35(20): 3537~3548.

M.J. Haller, S.E. Gitelman, P.A. Gottlieb, A.W. Michels, D.J. Perry, A.R. Schultz, M.A. Hulme, J.J. Shuster, **B. Zou**, C.H. Wasserfall, A.L. Posgai, C.E. Mathews, T.M. Brusko, M.A. Atkinson, D.A. Schatz (2016). "Antithymocyte Globulin Plus G-CSF Combination Therapy Leads to Sustained Immunomodulatory and Metabolic Effects in a Subset of Responders With Established Type 1 Diabetes". *Diabetes*, 65(12): 3765~3775.

A.M. Meyer, C.D. Rodgers, **B. Zou**, N.C. Rosenberg, A.D. Webel, M.B. Sherwood (2016). "Retrospective Comparison of Intermediate-term Efficacy of 350 mm<sup>2</sup> Glaucoma Drainage Implants and Medium-sized 230-250 mm<sup>2</sup> Implants". *J Curr Glaucoma Pract*, 11(1): 8~15.

P.J. Tighe, C.D. King, **B. Zou**, R.B. Fillingim (2016). "Time to Onset of Sustained Postoperative Pain Relief (SuPPR): Evaluation of a New Systems-level Metric for Acute Pain Management". *Clin J Pain*, 32(5):371~379.

J.L. Schaefer, Z.L. Lukowski, A.M. Meyer, A.J. Leoncavallo, G.M. Martorana, **B. Zou**, J.J. Shuster, M.B. Sherwood (2016). "Comparing Glaucomatous Disc Change Using Stereo Disc Viewing and the MatchedFlicker Software Program in Ophthalmologists-in-Training". *Am J Ophthalmol*, 167:88~95.

- A. Pawlowicz, C. Holland, **B. Zou**, T. Payton, J.A. Tyndall, B. Allen (2016). “Implementation of an evidence-based algorithm reduces blood culture overuse in an adult emergency department”. *Gen Int Med and Clin Innov*, 1(2): 26-29.
- B. Zou**, B. Jin, G.G. Koch, H. Zhou, S.E. Borst, S. Menon, and J.J. Shuster (2015) . “On Model Selections for Repeated Measurement Data in Clinical Studies”. *Statistics in Medicine*, 34(10): 1621~1633.
- P.J. Tighe, L. Le-Wendling, A. Patel, **B. Zou**, R.B. Fillingim. (2015) “Clinically derived early postoperative pain trajectories differ by age, sex, and type of surgery”. *Pain*, 156(4): 609~617.
- M.J. Haller, S.E. Gitelman, P.A. Gottlieb, A.W. Michels, S.M. Rosenthal, J.J. Shuster, **B. Zou**, T.M. Brusko, M.A. Hulme, C.H. Wasserfall, C.E. Mathews, M.A. Atkinson, D.A. Schatz. (2015) “Anti-thymocyte globulin/G-CSF treatment preserves  $\beta$  cell function in patients with established type 1 diabetes”. *J Clin Invest.*, 125(1): 448~455.
- L. Villanueva, T. McCabe, E.F. Egelund, **B. Zou**, V. Vijayan, and C. Peloquin. (2015) “Voriconazole Monitoring in Children with Invasive Fungal Infections”. *The Journal of Pediatric Pharmacology and Therapeutics*, 20(1): 17~23.
- S.E. Borst, J.F. Yarrow, C. Fernandez, C.F. Conover, F. Ye, J.R. Meuleman, M. Morrow, **B. Zou**, and J.J. Shuster (2014). “Cognitive Effects of Testosterone and Finasteride Administration in Older Hypogonadal Men”. *Clinical Interventions in Aging*, 2014(9): 1327~1333.
- L.A. Beggs, J.F. Yarrow, C.F. Conover, J.R. Meuleman, D.T. Beck, M. Morrow, **B. Zou**, J.J. Shuster, S.E. Borst (2014). “Testosterone Alters Iron Metabolism and Stimulates Red Blood Cell Production Independently of Dihydrotestosterone”. *Am J Physiol Endocrinol Metab.*, 307(5): 456~461.
- S.E. Borst, J.J. Shuster, **B. Zou**, F. Ye, H. Jia, A. Wokhlu, J.F. Yarrow (2014). “Cardiovascular Risks and Elevation of Serum DHT Vary by Route of Testosterone Administration: a Systematic Review and Meta-analysis”. *BMC Medicine*, 12:211: 1~16.
- D. B. Peden, M. A. Adams, B. Harris, M. L. Hernandez, **B. Zou**, W. Reed, P. A. Bromberg, R. B. Devlin, D. Diaz-Sanchez, S. Kleeberger, H. Zhou, J. C. Lay, and N. E. Alexis (2011). “Enhancement of Systemic and Sputum Granulocyte Response to Inhaled Endotoxin in Persons with the GSTM1 Null Genotype”. *Occupational and Environmental Medicine*, 68: 783 ~ 785.
- H. Zhou, **B. Zou**, M. Hazucha, and J. Carson (2011). “Nasal Nitric Oxide and Lifestyle Exposure to Tobacco Smoke”. *Annals of Otolaryngology, Rhinology & Laryngology*, 120: 455~459.
- M. Hernandez, W.J. Brickey, N.E. Alexis, R.C. Fry, J.E. Rager, **B. Zou**, J.P. Ting, H. Zhou, and D.B. Peden (2012). “Airway Cells from Atopic Asthmatic Patients Exposed to Ozone Display an Enhanced Innate Immune Gene Profile”. *J. Allergy Clin. Immunol.*, 129: 259~261.
- R.C. Fry, J.E. Rager, H. Zhou, **B. Zou**, W.J. Brickey, J.P. Ting, J.C. Lay, D.B. Peden, and N.E. Alexis (2012). “Individuals with Increased Inflammatory Response to Ozone Demonstrate Muted Signaling of Immune Cell Trafficking Pathways”. *Respiratory Research* 13(89): 1~11.

## HONORS

- Early Career Development Award (2015) Association of Clinical and Translational Statisticians

## STUDENT GUIDANCE

- University of North Carolina at Chapel Hill (PhD Dissertation Committee)

- Catherine Crawford (PhD, Spring of 2021)
- Chen Wu (PhD, Fall of 2020)
- Shannon Ford (PhD, Fall of 2020)
- University of Florida
  - Yang Wang (MS, Spring of 2017)
  - Xiaoqing Fu (MS, Spring of 2018)
  - Jiayue Zhang (MS, Spring of 2018)
  - Zehao Yu (MS, Spring of 2019)
  - Xiaoman Zhai (MS, Spring of 2019)
  - Gerard Garvan (MS, Fall of 2019)

### **PRESENTATIONS**

- International Indian Statistical Association Conference (2018) (Invited)
- IMS-China Conference (2017, 2019) (Invited)
- IBS-China Conference (2016, 2018) (Invited)
- Association of Clinical and Translational Statisticians Annual Meeting (2015) (Invited)
- Joint Statistical Meetings (2014)
- Florida Chapter ASA (2014) (Invited)
- Joint Statistical Meetings (2013) (Invited)

### **PROFESSIONAL REFEREE SERVICE**

- Nature
- BMJ
- Journal of the American Medical Directors Association
- Statistics in Medicine
- PLOS ONE
- Pharmaceutical Statistics
- Journal of Biopharmaceutical Statistics
- Journal of Dental Research

### **COURSE TEACHING**

- Bios992: Master Paper Project (Spring of 2021, Co-Instructor)
- Applied Survival Analysis (Fall of 2017, 2019)
- Applied Biostatistics I (Fall of 2016)
- Design and Conduct of Clinical Trials I (Fall of 2014, 2015)
- Design and Conduct of Clinical Trials II (Spring of 2015)

**PROFESSIONAL SERVICES**

- MPH Steering Committee and Data Science Admission Committee, School of Public Health, University of North Carolina (2020 ~ present)
- University of Florida Clinical Study Compliance Committee (2014 ~ 2016)
- College of Public Health and Health Professional Collaboration Research Committee, University of Florida (2014 ~ 2015)
- Clinical Track Faculty Search Committee, Department of Biostatistics, University of Florida (2016 ~ 2019)

**PROFESSIONAL AFFILIATIONS**

- American Statistical Association
- International Biometric Society
- Association of Clinical and Translational Statisticians

**COMPUTING SKILLS**

- R, SAS, C/C++, Java
- Parallel Computing
- Windows, Linux, Unix