

CURRICULUM VITAE

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NAME: Xiao Zhang, Ph.D

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EDUCATION:

Jul 1990 - Jul 1994	B.S. in Mathematics, Department of Mathematics, Shandong Normal University, China
Jul 1994 - Jul 1997	M.S. in Probability and Statistics, Department of Probability and Statistics, Beijing University, China
Sep 2000 - Jun 2004	Ph.D. in Biostatistics, Department of Biostatistics, UCLA School of Public Health, Los Angeles, CA

PROFESSIONAL EXPERIENCE:

Sep 1997 – Jun 1999	Lecturer, Department of Mathematics, Beijing Medical University
Jul 2004 – Aug 2005	Postdoctoral Fellow, Department of Biostatistics, UCLA School of Public Health, Los Angeles, CA
Sep 2005 – Sep 2007	Postdoctoral Fellow, Department of Biostatistics, UAB School of Public Health, Birmingham, AL
Oct 2007 – Dec 2012	Assistant Professor, Department of Biostatistics, UAB School of Public Health, Birmingham, AL
Jan 2013 – Aug 2015	Research Scientist, Samuel Oschin Comprehensive Cancer Institute, Cedars-Sinai Medical Center Assistant Professor, UCLA School of Medicine
May 2016 – June 2016	Biostatistician, Kite Pharma

August 2017 – present Assistant Professor,
Department of Mathematical Sciences,
Michigan Technological University, Houghton, MI

PROFESSIONAL ACTIVITIES:

Professional Memberships:

- International Society for Bayesian Analysis 2000-2005
- American Statistical Association 2010-present

Other Professional Activities

- Organizer, SOPH-NORC Professional Development Workshop: Choosing and Navigating Your Career Path, UAB School of Public Health, October 2012
- Organizer, Monthly Departmental Journal Club, Department of Biostatistics, UAB School of Public Health, Jan 2011 – Dec 2012
- Member, Protocol Review Monitoring Committee, Samuel Oschin Comprehensive Cancer Institute, Cedars-Sinai Medical Center, Jan 2015-Aug 2015

Editorial Services:

Paper Review Activities:

- Communications in Statistics-Theory and Methods, 2008
- Journal of Clinical Endocrinology and Metabolism, 2008, 2009, 2010, 2012
- Journal of Statistical Planning and Inference, 2009, 2010
- Contemporary Clinical Trials, 2010
- Journal of Applied Statistics, 2013
- Annals of Epidemiology, 2013
- Circulation: Cardiovascular Quality and Outcomes, 2013
- Vaccine, 2014
- International Journal of Machine Learning and Cybernetics, 2015

HONORS AND SPECIAL AWARDS:

1995	Tai Chang Scholarship, Beijing University
1996	Second Class Scholarship of the Fifth Challenge Cup, Beijing University
2001	Wayne SooHoo Memorial Scholarship, UCLA School of Public Health
2004	Ruth F. Richards Outstanding Student Award, UCLA School of Public Health Alumni Association
2011	Back of Envelope Research Award, UAB School of Public Health

COMPUTER SKILLS:

Proficient in Statistical Data Analysis using R and SAS

Proficient Programming with C and C++

RESEARCH GRANTS AND FELLOWSHIPS RECEIVED:

1. Karen Cropsey, ..., **Xiao Zhang (Co-Investigator)**. Integrated Smoking Cessation Treatment for Low Income Community Corrections. The purpose of this application is to improve effectiveness of smoking cessation interventions and programs in low income adult populations. NIH R01 CA 141663. Period: 8/14/2009 – 7/31/2014.

Role: Be responsible for the design of the clinical trial, writing the statistical section for the protocol, conducting statistical analysis using SAS, preparing statistical reports for Data and Safety Monitoring Board (DSMB), and assisting with the final manuscript.

2. David Warnock, ..., **Xiao Zhang (Biostatistician)**. Renal Study in the cohort of the REasons for Geographic And Racial Differences in Stroke (REGARDS) Study. This project will investigate chronic kidney disease, cardiovascular disease and all-cause mortality in the REasons for Geographic And Racial Differences in Stroke (REGARDS) Study. AMGEN, Inc. Period: 12/22/2003 – 4/30/2012.

Role: Be responsible for statistical analysis using SAS and assisting with the manuscript submission.

3. David Warnock, ..., **Xiao Zhang (Biostatistician)**. The Fabrazyme+Arbs+ACE inhibitors Treatments (FAACET) Study. The goal of this project is to determine whether decline of GFR can be slowed by titrating ACEI/ARB anti-proteinuric therapy to target urine protein/creatinine ratio of ≤ 0.5 , or 50% reduction from baseline, in Fabry patients with significant kidney involvement ($20 \leq \text{eGFR}_{\text{MDRD}} \leq 60 \text{ ml/min/1.73 m}^2$ and baseline urine protein/creatinine ratio > 0.5 (based on the last value obtained before initiating ACEI/ARB therapy or obtained at screening before the first Evaluation Visit of the FAACET Study), who are receiving standard of care treatment for chronic kidney disease (CKD) and Fabry disease. Genzyme. Period: 1/15/2007 – 12/31/2012.

Role: Be responsible for statistical analysis using SAS and assisting with the manuscript submission.

4. David Buller, ..., **Xiao Zhang (Co-Investigator)**. Go Sun Smart Dissemination. The goal is investigate the effect of Dissemination Go Sun Smart to a recreation industry. 0238-0121-A01. Period: 10/26/07 – 05/31/2008.

Role: Be responsible for statistical analysis using SAS, preparing reports for DSMB, and assisting with the manuscript submission.

5. Lou Bridges, ..., **Xiao Zhang (Co-Investigator)**. Treatment Efficacy and Toxicity in Rheumatoid Arthritis Database (TETRAD). The goals of this project are: 1) to create

a collaborative network of leading academic investigators that will harmonize efforts to collect treatment response data and biologic samples in RA patients starting MTX or biologic agents; and 2) to implement a protocol recently constructed by leading academic rheumatologists, biostatisticians, geneticists, and immunologists to facilitate uniform data and specimen collection from RA patients starting treatment. NIH RC2 AR 058964. Period: 9/30/2009 – 12/31/2012.

Role: Be responsible for statistical analysis using SAS, preparing reports for DSMB, and assisting with the manuscript submission.

6. Medina-Kauwe,..., **Xiao Zhang (Co-Investigator)**.

Title: Protein-DNA Drug Carriers for Targeting Drug-Resistant Tumors

Abstract: Elevation of the human epidermal growth factor receptor subunit 2 (HER2) characterizes HER2+ tumors, and facilitates aggressive tumor progression, metastasis, and recalcitrance to standard therapies through amplified HER2 signaling. Period: 9/1/2014 – 12/31/2015.

Role: Be responsible for the design of the clinical trial, writing the statistical section for the protocol, conducting statistical analysis using SAS.

7. Medina-Kauwe,..., **Xiao Zhang (Co-Investigator)**.

Title: Tumor-Targeted Corroles for Detection and Intervention

Abstract: This is a Competitive Renewal of a previous study exploring protein-corrole complexes for tumor-detection and intervention. . Period: 9/1/2014 – 12/31/2015.

Role: Be responsible for the design of the clinical trial, writing the statistical section for the protocol, conducting statistical analysis using SAS.

INVITED LECTURES/PRESENTATIONS:

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| Aug 2003 | 2003 Joint Statistical Meeting, San Francisco, CA.
Title: Sampling algorithms for correlation matrices |
| Apr 2004 | Department of Biostatistics, University of Alabama at Birmingham, Birmingham, AL.
Title: Bayesian Analysis for Ordinal and Mixture of Ordinal and Continuous Repeated Measures. |
| Nov 2004 | Department of Biostatistics, School of Public Health, University of California at Los Angeles, CA.
Title: Sampling Correlation Matrices in Bayesian Models with Correlated Latent Variables. |
| Jul 2007 | 2007 Joint Statistical Meeting, Salt Lake City, UT |

- Title:** A Bayesian Method of Estimating Kappa Coefficient Using Multivariate Probit Models.
- Jan 2008 The 7th International Conference on Health Policy Statistics, Philadelphia, Pennsylvania
Title: Bayesian Analysis for Mixtures of Continuous, Ordinal, and Nominal Data.
- Jun 2009 International Workshop on Probability and Theory, Statistics and Their Applications to Biology, Beijing, P.R. China
Title: Bayesian Analysis for Mixtures of Continuous, Ordinal, and Nominal Data
- Jun 2011 International Chinese Statistical Association, New York
Title: Bayesian Analysis for Incomplete Mixtures of Continuous, Ordinal, and Nominal Data
- Jun 2012 International Chinese Statistical Association, Boston
Title: Using Markov Chain Transition Probabilities to analyze Longitudinal Ordinal

TEACHING EXPERIENCE:

- Sep 1995 – Jul 1997 Graduate Student Researcher and Teaching Assistant, Department of Probability and Statistics, Beijing University.
- Oct 2001 – Dec 2001 Teaching Assistant, Department of Biostatistics, UCLA School of Public Health.
- Jan 2010 – May 2010 Course master for BST725: Advanced Clinical Trails, Department of Biostatistics, UAB School of Public Health.
- Jan 2012 – May 2012 Course master for BST 795: Missing Data Analysis. Department of Biostatistics, UAB School of Public Health.
- Aug 2017 – Dec 2017 Course master for MA4710: Applied Linear Regression Models, Department of Mathematics, University of Michigan.
- Jan 2018 – May 2018 Course masters for MA3710 R01 and MA3710 R03: Statistical Methods for Engineers

CURRENT RESEARCH INTERESTS:

- Bayesian computation
- Missing data analysis
- Longitudinal and multivariate data analysis
- Survival analysis
- Multi-state modeling
- Statistical genetics

RESEARCH PAPERS-PEER REVIEWED PUBLICATIONS:

1. **Zhang X.** Confidence Limits about the Mean Time between the Failures in Assurance Test. *Acta Scientiarum Naturalium Universitatis Pekinensis*, 35(1): 23-30. 1999.
2. Boscardin WJ, **Zhang X.** Modeling the Covariance and Correlation Matrix of Repeated Measures. In *Applied Bayesian Modeling and Causal Inference from Incomplete-Data Perspectives* (Gelman, A., Meng, X.L, eds). John Wiley & Sons, New York, 215-226. 2004.
3. **Zhang X**, Boscardin WJ, Belin TR. Sampling Correlation Matrices in Bayesian Models with Correlated Latent Variables. *Journal of Computational and Graphical Statistics*, 15:880-896. 2006.
4. Boscardin WJ, **Zhang X**, Belin TR. Modeling a Mixture of Ordinal and Continuous Repeated Measures. *Journal of Statistical Computation and Simulation*, 78: 873-886. 2008.
5. **Zhang X**, Boscardin WJ, Belin TR. Bayesian Analysis of Multivariate Nominal Measures Using Multivariate Multinomial Probit Models. *Computational Statistics and Data Analysis*, 52: 3697-3708. 2008.
6. **Zhang X**, Cutter G. Bayesian Interim Analysis in Clinical Trials. *Contemporary Clinical Trials*, 29: 751-755. 2008.
7. Cettomai D, Pulicken M, Gordon-Lipkin E, Balcer LJ, Frohman E, Salter A, **Zhang X**, Cutter G, Calabresi PA. Reproducibility of Optical Coherence Tomography in Multiple Sclerosis. *Archives of Neurology*, 65: 1218-1222. (PMID: 18779426) 2008.
8. **Zhang X**, Cutter GA. Bayesian Method of Estimating Kappa Coefficient with Application to a Rheumatoid Arthritis Study. *Communications in Statistics-Theory and Methods*, 38: 3432-3444. 2009.

9. Koffeman EC, Amox1 D, Genovese M, Santana E, Matteson EL, Kavanaugh A, Molitor JA, Schiff MH, Posever JO, Bathon JM, Kivitz AJ, Samodal R, Belardi F, Dennehey C, Keogh E, **Zhang X**, Zeiseniss P, Barnett J, Prakken BA, Le T, Cutter G, Albani I S. Epitope-specific Immunotherapy of Rheumatoid Arthritis: Clinical Responsiveness Occurs with Immune Deviation and Relies on the Expression of a Cluster of Molecules Associated with T cell Tolerance in a Double-blind, Placebo-controlled Pilot Phase II Trial. *Arthritis & Rheumatism*, 60: 3207-3216. (PMID: 19877047) 2009.
10. Fogo AB, Bostad L, Svarstad E, Cook WJ, Moll S, Barbey F, Geldenhuys L, West M, Ferluga D, Vujkovic B, Howie AJ, Burns A, Reeve R, Waldek S, Noël LH, Grünfeld JP, Valbuena C, Oliveira JP, Müller J, Breunig F, **Zhang X**, Warnock DG; all members of the International Study Group of Fabry Nephropathy (ISGFN). Scoring System for Renal Pathology in Fabry Disease: Report of the International Study Group of Fabry Nephropathy (ISGFN). *Nephrol Dial Transplant*, 25: 2168-77 (PMID: 19833663) 2010.
11. Warnock DG, Muntner P, McCullough PA, **Zhang X**, McClure LA, Zakai N, Cushman M, Newsome BB, Kewalramani R, Steffes MW, Howard G, McClellan WM, REGARDS Investigators. Kidney Function, Albuminuria, and All-cause Mortality in the REGARDS (Reasons for Geographic and Racial Differences in Stroke) Study. *American Journal of Kidney Diseases*, 56: 861-871. (PMID: 20692752) 2010.
12. Baber U, Howard VJ, Halperin JL, Soliman EZ, **Zhang X**, McClellan W, Warnock DG, Muntner P. Association of Chronic Kidney Disease with Atrial Fibrillation among Adults in the United States: Reasons for Geographic and Racial Differences in Stroke (REGARDS) Study. *Circ Arrhythm Electrophysiol*, 4: 26-32. (PMID: 21076159) 2011.
13. **Zhang X**, Cutter G, Belin T. Bayesian Sample Size Determination under Hypothesis Tests. *Contemporary Clinical Trials* 32: 393-398. (PMID: 21199689) 2011.
14. Jiang B, **Zhang X**, Zuo Y, Kang G. A Powerful Truncated Tail Strength Method for Testing Multiple Null Hypotheses on One Data Set. *Journal of Theoretical Biology* 277: 67-73. (PMID: 21295595) 2011.
15. Peralta CA, Shlipak MG, Judd S, Cushman M, McClellan W, Zakai NA, Safford MM, **Zhang X**, Muntner P, Warnock D. Detection of Chronic Kidney Disease With Creatinine, Cystatin C, and Urine Albumin-to-Creatinine Ratio and Association With Progression to End-Stage Renal Disease and Mortality. *JAMA*, 305:1545-1552. (PMID: 21482744) 2011.
16. **Zhang X**. An Introduction to Bayesian Statistics for Clinicians. Invited Commentary on: "A new statistical trend in clinical research-Bayesian statistics." Wong et al. *Phys Ther Rev*. 15(5). *Physical Therapy Reviews* 16: 278-292. 2011.

17. Wan X, Qu Y, Huang Y, **Zhang X**, Song H, Jiang H. Nonparametric Estimation of Age-Specific Reference Percentile Curves with Radial Smoothing. *Contemporary Clinical Trials* 33: 13-22. (PMID: 21983622) 2012.
18. Buller DB, Andersen PA, Walkosz BJ, Scott MD, Cutter GR, Dignan MB, Kane I L, **Zhang X**. Enhancing Industry-based Dissemination of an Occupational Sun Protection Program with Theory-based Strategies Employing Personal Contact. *American Journal of Health Promotion* 26: 356-365. (PMID: 22102323) 2012.
19. Buller DB, Walkosz BJ, Andersen PA, Scott MD, Dignan MB, Cutter GR, **Zhang X**, Kane IL. Sustainability of the Dissemination of an Occupational Sun Protection Program in a Randomized Trial. *Health Education & Behavior* 39: 498-502. (PMID: 22102323) 2012.
20. Nelson MD, Szczepaniak LS, Wei J, Haftabaradaren A, Bharadwaj M, Sharif B, Mehta P, **Zhang X**, Thomson L, Berman D, Li D, Bairey Merz CN. Diastolic dysfunction in women with signs and symptoms of ischemia in the absence of obstructive coronary artery disease: A hypothesis generating study. *Circulation: Cardiovascular Imaging. Circulation: Cardiovascular Imaging* 7: 510-516. (PMID: 24633782) 2014.
21. Shen S, Sun Q, Liang Z, Cui X, Ren X, Chen H, **Zhang X**, Zhou Y. A prognostic model of Triple-Negative breast cancer based on miR-27b-3p and node status. *Plos One* 9: 1-9. (PMID: 24945253) 2014.
22. Mehta P, Polk D, **Zhang X**, Li N, Painovich J, Kothawade K, Kirschner J, Qiao Y, Ma X, Chen Y, Brantman A, Shufelt C, Minissian M, Bairey Merz C. A Randomized Controlled Trial of Autonomic Remodeling by Sympatho-vagal Modulation Using Acupuncture in Stable Ischemic Heart Disease Patients. *International Journal of Cardiology*, 176: 367-374. (PMID: 25103909) 2014.
23. Jin Y, Han B, Chen J, Wiedemeyer R, Orsulic S, Bose S, **Zhang X**, Karlan BY, Giuliano AE, Cui Y, Cui X. FOXC1 is a Critical Mediator of EGFR Function in Human Basal-like Breast Cancer. *Annals of Surgical Oncology*, 4: 758-766. (PMID: 25124473) 2014.
24. Maher D, Wong W, Woo P, Padilla C, **Zhang X**, Shamloo B, Rosner H, Wender R, Yumul R, Louy C. Perioperative Factors Associated with HCAHPS Responses of 2,758 Surgical Patients. *Pain Medicine*, 16(4): 791-801. (PMID: 25545695) 2015.
25. Thom N, Ritchlin CT, **Zhang X**, Reveille J, Weisman WH. Prevalence of Chronic Axial Pain, Inflammatory Back Pain and Spondyloarthritis in Diagnosed Psoriasis. *Arthritis Care & Research*, 67(6): 829-835. (PMID: 25469666) 2015.

26. **Zhang X**, Boscardin J, Belin T, Wan X, He Y, Zhang, K. A Bayesian Method for Analyzing Combinations of Continuous, Ordinal, and Nominal Categorical Data with Missing Values. *Journal of Multivariate Analysis*, 135: 43-58. 2015.
27. **Zhang X**, Li Q, Rogatko A, Tighiouart M, Kelsey S, Hardison R, Brooks M, Kaul S, Bairey Merz C. Analysis of the Bypass Angioplasty Revascularization Investigation Trial Using a Multi-state Model of Clinical Outcomes. *Journal of American Cardiology*. 115(8): 1073-9. (PMID: 25724784) 2015.
28. Cropsey KL, Clark CB, **Zhang X**, Hendricks PS, Jardin BF, Lahti AC. Race and medication compliance moderate smoking cessation outcomes in criminal justice smokers: results of a randomized clinical trial. *American Journal of Preventive Medicine*, 49(3): 335–344. (PMID: 26091924) 2015.
29. Chung A, Choi M, Han B, Bose S, **Zhang X**, Medina-Kauwe L, Sims J, Murali R, Taguiam M, Varda M, Schiff R, Giuliano A, Cui X. Basal protein expression is associated with worse outcome and trastuzumab resistance in Her2+ invasive breast cancer. *Clinical Breast Cancer*, 5(6): 448-457. (PMID: 26248960) 2015.
30. Chaudhary SC, Tang X, Arumugam A, Srivastava RK, Weng Z, Xu J, Li C, **Zhang X**, Kim AL, Elmets CA, Kopelovich L, Bickers DR, Athar M. Shh and p50/Bcl3 Signaling Crosstalk Drives Pathogenesis of BCCs in Gorlin Syndrome. *Oncotarget*, 6(34): 36789-814. (PMID: 26413810) 2015.
31. Chung A, Gangi A, Amersi F, Bose S, **Zhang X**, Giuliano A. Impact of Consensus Guidelines by Society of Surgical Oncology/American Society for Radiation Oncology on Margins for Breast Conserving Surgery in Stages I and II Invasive Breast Cancer. *Annals of Surgical Oncology*, Suppl 3: 422-7. (PMID: 26310280) 2015.
32. Chung A, Gangi A, Amersi F, Bose S, **Zhang X**, Giuliano A. Not Performing a Sentinel Node Biopsy for Older Patients With Early-Stage Invasive Breast Cancer. *JAMA Surg*, 150(7): 683-4. (PMID: 26016903) 2015.
33. Yue Y, Kristine A, Cui X, **Zhang X**, Fraass B, Bose S. Stratifying Triple-negative Breast Cancer Prognosis using 18F-FDG-PET/CT Imaging. *Breast Cancer Research and Treatment*, 153(3): 607-616. (PMID: 26346756) 2015.
34. Han B, Qu Y, Jin Y, Yu Y, Deng N, Wawrowsky K, **Zhang X**, Li N, Bose S, Wang Q, Sakkiah S, Abrol R, Jensen TW, Berman B, Tanaka H, Johnson J, Gao B, Hao J, Liu Z, Buttyan R, Ray PS, Hung M, Giuliano AE, Cui X. FOXC1 Activates Smoothed-Independent Hedgehog Signaling in Basal-like Breast Cancer. *Cell*, 13(5): 1046-58. (PMID: 26565916) 2015.

35. Yumul R, White P, Elvir L, Cao X, Tang J, Jacques T, Iyayi D, **Zhang X**, Wender R. Effect of obesity on the time required to achieve an FEO₂ of 90% during reoxygenation. *Journal of Diabetes and Obesity*, 2(4): 1-6. 2015.
36. Borenstein JE, Aronow HU, Burns Bolton L, Dimalanta MI, Chan E, **Zhang X**, Palmer K, Rosen B, Braunstein GD. Identification and Team-Based Interprofessional Management of Hospitalized Vulnerable Older Adults. *Nursing Outlook*, 64(2):137-45. (PMID: 26833250) 2016.
37. Maher DP, Lee J, Woo P, White PF, **Zhang X**, Yumul R, Conte AH. Ritonavir Use in Human Immunodeficiency Virus-Positive Surgical Patients Is Not Associated with an Increase in Postoperative Critical Respiratory Events. *Journal of Pain and Palliative Care Pharmacotherapy. Journal of Pain & Palliative Care Pharmacotherapy*, 30(1): 25-30. (PMID: 26861563) 2016.
38. Yue Y, Astvatsaturyan K, Cui X, **Zhang X**, Fraass B, Bose S. Stratification of Prognosis of Triple-Negative Breast Cancer Patients Using Combinatorial Biomarkers. *PLOS ONE*, 11(3). (PMID: 26930401) 2016.
39. Yumul R, Elvir-Lazo O, White P, Sloninsky A, Kaplan R, Naruse R, Parker N, Pham C, **Zhang X**, Wender R. Comparison of three video laryngoscopy devices to direct laryngoscopy for intubating obese patients: a randomized controlled trial. *Journal of Clinical Anesthesia*, 31: 71-77. 2016.
40. Maher DP, Woo P, Wong W, **Zhang X**, Yumul R, Louy C. Perioperative factors associated with Hospital Consumer Assessment of Healthcare Providers and Systems responses of total hip arthroplasty patients. *Journal of Clinical Anesthesia Articles*, 34: 232-238. 2016.
41. Maher DP, Serna-Gallegos D, Mardirosian R, Thomas OJ, Mckenna R, Yumul R, **Zhang X**, Zhang V. The Combination of IV and Perineural Dexamethasone Prolongs the Analgesic Duration of Intercostal Nerve Blocks Compared to IV Dexamethasone Alone. *Pain Medicine*, 0: 1-9. 2016.
42. Johnson J, Choi M, Dadmanesh F, Han B, Qu Y, Yu-Rice Y, **Zhang X**, Bagaria S, Taylor C, Giuliano AE, Amersi F, Cui X. FOXC1 identifies basal-like breast cancer in a hereditary breast cancer cohort. *Oncotarget*, 7: 75729-75738. 2016.
43. **Zhang X**, Li Q, Cropsey K, Yang X, Zhang K, Belin T. A multiple imputation method for incomplete correlated ordinal data using multivariate probit models. *Communications in Statistics - Simulation and Computation*, 46. 2017
44. Cruz DS, Wei J, Shufelt C, Mehta P, **Zhang X**, Thomson L, Petersen J, Anderson D, Berman D, Pepine C, Bairey-Merz CN. Cold Pressor Stress Cardiac Magnetic Resonance Myocardial Flow Reserve is Not Useful for Detection of Coronary

Endothelial Dysfunction in Women with Signs and Symptoms of Ischemia and No Obstructive CAD. *PLOS ONE*. 2017.

45. Xuezhao Cao, Roya Yumul, Ofelia L. Elvir-Lazo, Jeremy Friedman, Omar Durra, **Xiao Zhang**, Paul F. White. A novel visual facial anxiety scale for assessing preoperative anxiety. *PLOS ONE*. 2017.

Working manuscripts

1. Jean Bao, Cory Donovan, Farin Amersi, **Xiao Zhang**, Armando E Giuliano, Alice Chung. Outcomes in patients with small node-negative invasive breast cancer.
2. Xuezhao Cao, Roya Yumul, Ofelia Loani Elvir Lazo, Joseph Stuart, Asmik Asatrian, Charles Louy, **Xiao Zhang**, Jun Tang, Bahman Shamloo, Howard Rosner. Effect of intraoperative or postoperative intravenous acetaminophen on postoperative pain score and opioid requirements in abdominal and spinal surgery patients.
3. Qiuying Sha, Zhenchuan Wang, **Xiao Zhang**, Shuanglin Zhang. A clustering linear combination approach to jointly analyze multiple phenotypes for GWAS.
4. **Xiao Zhang**. Multiple imputation for mixed outcomes.