

Fengqing Zhang

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Department of Psychology, Drexel University, Philadelphia, PA 19104

Education

- PhD in Statistics, Northwestern University (NU), Evanston, IL, USA, 2014. *Thesis: Statistical Modeling for High Dimensional Structured Data with Application to Neuroimaging.*
- M.S. in Mathematics, Middle Tennessee State University (MTSU), Murfreesboro, TN, USA, 2010. *Thesis: Multivariate Analysis Methods for Imaging Mass Spectrometry Data Biomarker Selection and Classification.*
- B.S. in Electrical Engineering, Beihang University, Beijing, China, 2008. *Thesis: Quantitative Proteomics Data Processing Based on SELDI-TOF Mass Spectrometry.*

Academic Employment

- Assistant Professor, Applied Cognitive & Brain Sciences, Department of Psychology, Drexel University, 2014-Present

Honors

- **Teaching Excellence Award**, College of Arts and Sciences, Drexel University, 2017
- **Drexel Career Development Award**, Drexel University, 2017
- **Travel Fund Award**, Statistical and Applied Mathematical Sciences Institute, 2013
- **ETD Master's Thesis Award**, Conference of Southern Graduate Schools, 2011
- **Graduate School Fellowship**, Northwestern University, 2010
- **Harold S. Spraker Graduate Mathematics Award**, MTSU, 2010
- **Excellent Graduates Award**, Beijing Municipal Commission of Education, 2008
- **Kwang-Hua Scholarship**, Kwang-Hua Education Foundation, 2005

Grants

- ***Evaluating Impacts of the Philadelphia Police School Diversion Program: An Alternative-to-Arrest Policing Strategy***
Funding Agency: National Institute of Justice
PI: Naomi Goldstein, Role: Co-Investigator
Period: 2018-2020
Total Costs: \$1,281,046
- ***Long-Term Outcomes and Sustained Impact of the Philadelphia Police School Diversion Program***
Funding Agency: Office of Juvenile Justice and Delinquency Prevention
PI: Naomi Goldstein, Role: Co-Investigator
Period: 2017-2020

Total Costs: \$1,281,046

- ***Mechanisms of Music Therapy to Palliate Pain in Patients with Advanced Cancer: A Mixed Methods Investigation***
 Funding Agency: National Institute of Nursing Research
 PI: Joke Bradt, Role: Co-Investigator
 Period: 2017-2020
 Total Costs: \$442,634
- ***Improving Weight Loss Maintenance by Using Digital Data Sharing to Provide Responsive Support and Accountability***
 Funding Agency: National Institute of Diabetes Digestive and Kidney Diseases
 PI: Meghan Butryn, Role: Co-Investigator
 Period: 2017-2019
 Total Costs: \$424,725
- ***An Innovative, Physical Activity-Focused Approach to Weight Loss Maintenance, [R01DK100345]***
 Funding Agency: National Institutes of Health
 PI: Meghan Butryn, Role: Co-Investigator
 Period: 2014-2019
 Total Costs: \$2,709,126
- ***Arts-based Interventions for Socio-Emotional Well-being and Physiological Health in Contexts of Stress***
 Funding Agency: National Endowment for the Arts
 PI: Girija Kaimal, Joke Bradt, Role: Key Personnel
 Period: 2017-2019
 Total Costs: \$150,000
- ***Elucidating the Cognitive Underpinnings of Reading Comprehension Difficulties in Children with Down Syndrome***
 Funding Agency: Jerome Lejeune Foundation
 PI: Nancy Lee, Role: Co-Investigator
 Period: 2015-2017
 Total Costs: \$38,209
- ***Developing Machine-Learning Algorithms to Detect Affect Liability using Wearable Sensors***
 Funding Agency: Drexel University Clinical and Translational Research Institute
 PI: Adrienne Juarascio, Role: Co-Investigator
 Period: 2016-2017
 Total Costs: \$50,000

- ***Big Data Approach for Assessing Multimodal Neuroimaging Signatures of Eating Disorders***
 Funding Agency: Drexel University Faculty Summer Research Award
 PI: Fengqing Zhang
 Period: 2017-2017
 Total Costs: \$6,424
- ***A Smartphone App-based System to Anticipate and Prevent Lapses in Those Attempting to Follow a Weight Loss Diet***
 Funding Agency: Drexel Ventures Innovation Fund
 PI: Evan Forman, Role: Co-Investigator
 Period: 2015-2016
 Total Costs: \$75,000
- ***A Companion Smartphone App to Enhance Dietary Adherence through Predictive Machine Learning***
 Funding Agency: The Obesity Society
 PI: Evan Forman, Role: Co-Investigator
 Period: 2014-2015
 Total Costs: \$60,000

Publications

- Rosenbaum, D.L., Espel, H.M., Butryn, M., **Zhang, F.** & Lowe, M.R. (2017). Daily self-weighting and weight gain prevention: A longitudinal study of college-aged women. *Journal of Behavioral Medicine* **40**(5), 846-853.
- **Zhang, F.** (2017). Resting-state functional connectivity abnormalities in adolescent depression. *EBioMedicine* **17**, 20-21.
- Butryn, M.L., Forman, E.M., Lowe, M.R., Gorin, A., **Zhang, F.**, & Schaumberg, K. (2017). Efficacy of environmental and acceptance-based enhancements to behavioral weight loss treatment: the ENACT trial. *Obesity* **25**(5), 866-872.
- Goldstein, S.P., Evans, B.C., Flack, D., Juarascio, A.S., Manasse, S.M., **Zhang, F.** & Forman, E.M. (2017). Return of the JITAI: Applying a just-in-time adaptive intervention framework to the development of m-Health solutions for addictive behaviors. *International Journal of Behavioral Medicine, E-Health Interventions for Addictive Behaviors Special Issue*, 1-10.
- Manasse, S.M., Flack, D., Dochat, C., **Zhang, F.**, Butryn, M.L., Forman, E.M. (2017), An Investigation of Inhibitory Control and Delayed Discounting as Moderators of Outcome from Standard and Acceptance-based Behavioral Treatments for Obesity. *Appetite* **113**, 193-199.

- Gou, J., and **Zhang, F.** (2017), Experience Simpson's Paradox in the Classroom. *The American Statistician* **71**(1), 61-66.
- Schumacher, L.M., Gaspar, M.E., Remmert, J., **Zhang, F.**, Forman, E.M., and Butryn, M.L. (2016), Small Weight Gains During Obesity Treatment: Normative or Cause for Concern?. *Obesity Science & Practice* **2**(4), 366-375.
- **Zhang, F.**, and Gou, J. (2016), A P-value Model for Theoretical Power Analysis and its Applications in Multiple Testing Procedures. *BMC Medical Research Methodology* **16**, 135.
- **Zhang, F.**, Jiang, W., Wong, P.C.M., and Wang, J.-P. (2016), Bayesian Probit Model with Spatially Varying Coefficients and Its Application to Functional Magnetic Resonance Imaging. *Statistics in Medicine* **35**(24), 4380-4397.
- Viswanathan, V., Shultz, D., Block M., Blood A.J., Breiter, H.C., Calder B., Chamberlain L., Lee N., Livengood S., Mulhern, F., Raman, K., Stern, D.B., and **Zhang, F.** (2016), Using fMRI Analysis to Unpack a Portion of Prospect Theory for Advertising/Marketing Understanding. *Rediscovering the Essentiality of Marketing*, 453-470.
- Manasse, S.M., Espel, H.M., Kerrigan, S.G., Schumacher, L.M., **Zhang, F.**, Forman, E.M., and Juarascio, A.S. (2016), Does Impulsivity Predict Treatment Outcome for Binge Eating Disorder? A multimodal investigation. *Appetite* **105**, 172-179.
- Liang, J., Hong, D., **Zhang, F.**, and Zou, J. (2015), IMSmining: A Tool for Imaging Mass Spectrometry Data Biomarker Selection and Classification, *Springer Proceedings in Mathematics & Statistics* **139**, 155-162.
- Block M.P., Schultz D.E., Breiter H., Blood A., Calder B., Chamberlain L., **Zhang F.** (2015), Redefining neuromarketing. In: American Academy of Advertising, Conference, Proceedings (Online) American Academy of Advertising, 53.
- Manasse, S.M., Espel, H.M., Forman, E.M., Juarascio, A.S., Butryn, M.L., Ruocco, A.C., **Zhang, F.**, and Lowe, M.R. (2015), The Independent and Interacting Effects of Hedonic Hunger and Executive Function on Binge Eating. *Appetite* **89**, 16-21.
- **Zhang, F.**, Wang, J.-P., Kim, J., Todd, P., and Wong, P.C.M. (2015), Decoding Multiple Sound Categories in the Human Temporal Cortex Using High Resolution fMRI. *PLOS ONE* **10**(2), e0117303.
- Breiter, H.C., Block M., Blood A.J., Calder B., Chamberlain L., Lee N., Livengood S., Mulhern, F., Raman, K., Shultz, D., Stern, D.B., Viswanathan, V., and **Zhang, F***. (2014), Redefining Neuromarketing as an Integrated Science of Influence. *Frontiers in Human Neuroscience* **8**, 1073.

*Co-first author

- **Zhang, F.**, and Hong, D. (2011), Elastic Net Based Framework for Imaging Mass Spectrometry Data Biomarker Selection and Classification. *Statistics in Medicine* **30**, 753-768.
- Hong, D., and **Zhang, F.** (2010), Weighted Elastic Net Model for Mass Spectrometry Imaging Processing. *Journal of Mathematical Modeling of Natural Phenomena* **5**(3), 115-133.
- Hong, D., Qin, S.Y., and **Zhang, F.** (2010), Mathematical Tools and Statistical Techniques for Proteomic Data Mining. *International Journal of Mathematics and Computer Science* **5**(2), 123-140.
- **Zhang, F.** and Kong, Q.C. (2007) Distributed Remote Control System of UAV Based on Man-in-loop Real-time Operation. *Proceedings of the 26th China Control Conference*, 119-122.
- Kong, Q.C., Li, C.G., and **Zhang, F.** (2006), A New Method of Accelerated Graph Display in Primary Flight Display Based on FPGA. *Proc. SPIE 6357, Sixth International Symposium on Instrumentation and Control Technology*, 635732.

Google Scholar Page:

<https://scholar.google.com/citations?user=EgbEMqsAAAAJ&hl=en>

Presentations

- *Statistical Modeling for High Dimensional Structured Data with Application to Neuroimaging*, **Philadelphia Big Data Symposium**, Philadelphia, PA, 10/12/2017.
- *An Integrative Model for Assessing Multimodal Neuroimaging Signatures of Post-traumatic Stress Disorder*, **The 2017 Joint Statistical Meetings (JSM)**, Baltimore, MD, 07/31/2017.
- *An Integrative Classification Model for Multiple Sclerosis Lesion Detection in Multimodal MRI*, **The 2016 Joint Statistical Meetings (JSM)**, Chicago, IL, 08/01/2016.
- *Statistical Modeling for High Dimensional Biomedical Imaging Data*, **Drexel Math Department Seminar**, Philadelphia, PA, 05/02/2016.
- *Analytical Modeling for High Dimensional Structured Neuroimaging Data*, **Brain Behavior Lab**, University of Pennsylvania, Philadelphia, PA, 10/26/2015
- *New Statistical Methods for High Dimensional Biomedical Imaging Data Analysis*, **Biological Discovery from Big Data Workshop**, Philadelphia, PA, 6/29/2015
- *An Integrative Segmentation Method of Multiple Sclerosis Lesions in Multimodal MRI*,

The 21th Annual Meeting of the Organization of Human Brain Mapping, Honolulu, HI, 6/16/2015

- *Statistical Modeling for High Dimensional Structured Data with Application to Neuroimaging*, **The College of Arts and Sciences Dean's Seminar Series**, Drexel University, Philadelphia, PA, 4/22/2015
- *Redefining Neuromarketing*, **The 2015 American Academy of Advertising Conference**, Chicago, IL, 03/26/2015.
- *Bayesian Probit Model with Spatially Varying Coefficients and Its Application to Functional Magnetic Resonance Imaging*, **Imaging Genetics Seminar**, University of Pennsylvania, Philadelphia, PA, 09/18/2014.
- *Bayesian Probit Model with Spatially Varying Coefficients and Its Application to Functional Magnetic Resonance Imaging*, **The 2013 Joint Statistical Meetings (JSM)**, Montreal, Canada, 08/06/2013.
- *Bayesian Probit Model with Spatially Varying Coefficients and Its Application to Functional Magnetic Resonance Imaging*, **The 19th Annual Meeting of the Organization of Human Brain Mapping**, Seattle, WA, 06/18/2013.
- *Sex Differences in Emotional Intelligence: Preliminary results from an Integrative Meta-Analysis and Implications for Organizations*. **The European Association of Work and Organizational Psychology Congress**, Muenster, Germany, 05/24/2013.
- *Decoding Multiple Sound Categories in the Human Temporal Cortex Using High Resolution fMRI*, **The 18th Annual Meeting of the Organization of Human Brain Mapping**, Beijing, China, 06/10/2012.
- *Sound Category Representation in the Human Temporal Cortex Using High Resolution fMRI*, **Cognitive Neuroscience Annual Data Blitz**, Northwestern University, Chicago, IL, 05/18/2012
- *Imaging Mass Spectrometry Data Biomarker Selection and Classification*, **Statistics Department Seminar**, Northwestern University, Evanston, IL, 03/02/2011.
- *New IMS based Proteomic Data Analysis Tools and Software Development*, **Mass Spectrometry Research Center Seminar**, Vanderbilt University, Nashville, TN, 04/01/2010.
- *Multivariate Analysis Methods for Imaging Mass Spectrometry Data Biomarker Selection and Classification*, **Bio-math Seminar**, Math Department, Middle Tennessee State University, Murfreesboro, TN, 03/29/2010.
- *New Imaging Mass Spectrometry based Proteomic Data Analysis Tools and Software*

Development, Scholar Week Presentation, Middle Tennessee State University, Murfreesboro, TN, 03/26/2010.

- *Elastic Net Based Model for Imaging Mass Spectrometry Proteomic Data Processing, Eastern North American Region (ENAR) Spring Meetings*, New Orleans, LA, 03/22/2010.
- *Multivariate Analysis Methods for Imaging Mass Spectrometry Data Biomarker Selection and Classification, Master Thesis Defense*, 03/01/2010.
- *Recent Progress on Biomarker Selection of IMS Data, Bio-math Seminar*, Math Department, Middle Tennessee State University, Murfreesboro, TN, 10/05/2009.
- *On Imaging Mass Spectrometry Data Analysis, Mathematical Modeling in the Medical Sciences in conjunction with the 24th Annual Shanks Conference*, Vanderbilt University, Nashville, TN, 05/20/2009.
- *Variable Selection Methods for IMS Data Analysis, Mass Spectrometry Research Center Seminar*, Vanderbilt University, Nashville, TN, 05/07/2009.
- *Some New Results of Wavelet Applications in Proteomics, Scholar Week Presentation*, Middle Tennessee State University, Murfreesboro, TN, 04/03/2009.
- *Distributed Remote Control System of UAV Based on Man-in-loop Real-time Operation, the 26th China Control Conference*, Zhangjiajie, China, 07/27/2007.

Teaching & Advising

- PSY 264: Computer-assisted Data Analysis I
Fall 2017
- PSY 265: Computer-assisted Data Analysis II
Summer 2015
- PSY 610: Data Analysis in Psychology I
Fall 2015, Fall 2016
- PSY 710: Data Analysis in Psychology II
Winter 2016, Winter 2017
- PSY 865: Behavioral Data Mining
Winter 2015, Winter 2017

Professional Memberships

- American Statistical Association (ASA) member

- Member of Organization for Human Brain Mapping (OHBM)
- Eastern North American Region (ENAR) member
- Society for Industrial and Applied Mathematics (SIAM) member

Other Academic Services

- Editorial Board Member, Psychology and Cognitive Sciences - Open Journal, 2014-Present
- Editorial Board Member, Health & Medical Informatics, 2015-Present
- Editorial Board Member, Acta Psychopathological Journal, 2015-Present
- Abstract Review Committee, 2015 & 2016 Human Brain Mapping Conference
- Grant Review: Technology and Business Development Fund Application Review, CUHK

Software Development

- **IMSmining: a tool for imaging mass spectrometry data biomarker selection and classification.** This software package can be downloaded from <http://capone.mtsu.edu/dhong/IMSmining.htm>
- **gsrsb: an R package for group sequential refined secondary boundaries.** This software package can be downloaded from <https://CRAN.R-project.org/package=gsrsb>