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

- **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

Publications

- **Zhang**, **F.**, Jiang, W., Wong, P.C.M., and Wang, J.-P. (in press), Bayesian Probit Model with Spatially Varying Coefficients and Its Application to Functional Magnetic Resonance Imaging. *Statistics in Medicine.*

- Manasse, S.M., Espel, H.M., Kerrigan, S.G., Schumacher, L.M., **Zhang**, **F.,** Forman, E.M., and Juarascio, A.S. (in press), Does Impulsivity Predict Treatment Outcome for Binge Eating Disorder? A multimodal investigation. *Appetite.*

- Gou, J., and **Zhang, F.** (in press), Experience Simpson's Paradox in the Classroom. *The American Statistician.*

- 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.

- 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 Fuction 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.

- **Zhang, F.**, and Gou, J., A P-value Model for Theoretical Power Analysis and its Applications in Multiple Testing Procedures. Submitted.

- Schumacher, L.M., Gaspar, M., Remmert, J., **Zhang, F.,** Forman, E.M., and Butryn, M.L., Small Weight Gains During Obesity Treatment: Normative or Cause for Concern?. Submitted.

- Manasse, S.M., Flack, D., Dochat, C., Zhang, F., Butryn, M.L., Forman, E.M., An Investigation of Inhibitory Control and Delayed Discounting as Moderators of Outcome from Standard and Acceptance-based Behavioral Treatments for Obesity, Submitted

- Raman, K., Viswanathan, V., **Zhang, F.**, and Breiter, H., Steven's Law R.I.P., An Axiomatic Derivation of the Weber-Fechner Law based on Topological Considerations and Signal Processing. Submitted.

- **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.** (2007), FPGA Design in Accelerated Graphic Display in Primary Flight Display. *Journal of Electronic Technology and Application,* 4, 62-64.

- 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.

Grants

- ***A Smartphone App-based System to Anticipate and Prevent Lapses in Those Attempting to Follow a Weight Loss Diet,*** Drexel Ventures Innovation Fund, Role: Co-Investigator, Period: 2015-2016

- ***A Companion Smartphone App to Enhance Dietary Adherence through Predictive Machine Learning,*** Weight Watchers Karen Miller-Kovach Research Grant
Funding Agency: The Obesity Society, Role: Co-Investigator, Period: 2014-2015

- ***An Innovative, Physical Activity-Focused Approach to Weight Loss Maintenance***, NIH R01DK100345, Role: Co-Investigator, Period: 2014-2019

- ***Elucidating the Cognitive Underpinnings of Reading Comprehension Difficulties in Children with Down Syndrome,*** Jerome Lejeune Foundation, Role: Co-Investigator, Period: 2015-2016

- ***Developing Machine-Learning Algorithms to Detect Affect Liability using Wearable Sensors,*** Drexel University Clinical & Translational Research Institute, Role: Co-Investigator, Period: 2016-2017

Teaching

- PSY 865: Behavioral Data Mining
- PSY 265: Computer-assisted Data Analysis II
- PSY 610: Data Analysis in Psychology I
- PSY 710: Data Analysis in Psychology II

Presentations

- *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.

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 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. **T**his software package can be downloaded from http://capone.mtsu.edu/dhong/IMSmining.htm.