

Professional Preparation

University of Toronto Mathematics B.S., 2007
Princeton University Operations Research and Financial Engineering Ph.D., 2012

Appointments

1/2013 - Present Assistant Professor
Department of Data Sciences and Operations
Marshall School of Business
University of Southern California, Los Angeles, CA

7/2012 - 12/2012 Instructor in Statistics
Department of Mathematics
Massachusetts Institute of Technology, Cambridge, MA

Selected Publications (* corresponding author; # co-corresponding author)

1. Tong, X.*, Feng, Y., and Li, J.J.# (2018) Neyman-Pearson (NP) classification algorithms and NP receiver operating characteristics (NP-ROC). *in press at Sciences Advances*.
2. Tong, X.* and Li, J.J. (2017). Discussion of "Random-projection ensemble classification" by Cannings, T.I. and Samworth, R.J. *Journal of the Royal Statistical Society: Series B* 79(4):1025-1026.
3. Zhao, A., Feng, Y., Wang, L. and Tong, X.* (2016) Neyman-Pearson classification under high-dimensional settings. *Journal of Machine Learning Research*, **17**, (213):1-39.
4. Fan, J., Qi, L., and Tong, X.* (2016) Penalized least squares estimation with weakly dependent data. *Science China Mathematics*, 59, DOI: 10.1007/s11425-016-0098-x (special issue in memory of Professor Xiru Chen).
5. Li, J.J.*, Tong, X. (2016) Genomic Applications of Neyman-Pearson Classification Paradigm, Chapter in Big Data Analytics in Genomics. *Springer (New York)*. DOI: 10.1007/978-3-319-41279-5; eBook ISBN: 978-3-319-41279-5.
6. Tong, X.*, Feng, Y. and Zhao, A. (2016) A survey on Neyman-Pearson classification and suggestions for future research. *Wiley Interdisciplinary Reviews-Computational Statistics*, 8, 64-81.
7. Fan, J.*, Feng, Y., Jiang, J., and Tong, X. (2016) Feature augmented nonparametrics and selection (FANS) high dimensional classification. *Journal of the American Statistical Association*, **111**, 275-287.
8. Fan, J., Tong, X.*, Zeng, Y. (2015) Multi-agent Learning in Social Networks: a Finite Population Learning Approach. *Journal of the American Statistical Association*, **110**, 149-158.

9. Tong, X.* (2013) A plug-in approach to Neyman-Pearson Classification. *Journal of Machine Learning Research*, **14**, 3011-3040.
10. Fan, J., Feng, Y., and Tong, X.* (2012) A road to classification in high dimensional space: the regularized optimal affine discriminant. *Journal of the Royal Statistical Society: Series B*, **74**, 745-771.
11. Rigollet, P.* and Tong, X. (2011) Neyman-Pearson classification under a strict constraint. *Conference on Learning Theory (COLT) 2011*.
12. Rigollet, P.* and Tong, X. (2011) Neyman-Pearson classification, convexity and stochastic constraints. *Journal of Machine Learning Research*, **12**, 2825-2849.

Manuscripts (* corresponding author; # co-corresponding author)

1. Xia, L., Zhao, R., Wu, Y.#, and Tong, X.* (2018) Detecting corruption and social events using censored social media posts: a Neyman-Pearson approach.
2. Tong, X., Xia, L., Wang, J., and Feng, Y.* (2018) Sparse Linear Discriminant Analysis under the Neyman-Pearson paradigm.
3. Chen, Y., Tong, X.# and Li, J.J.* (2018) Feature ranking under the Neyman-Pearson paradigm.
4. Lin, W., Tong, X.# and Li, J.J.* (2018) Stratified differential expression analysis using SC-RNA-SEQ data.

Work in Progress

1. Bickel, P., Li, J.J. and Tong, X. (2018) A generalized R^2 .
2. Tong, X. and Li, J.J. (2018) Community detection under partial information.
3. Yao, S. and Tong, X. (2018) Neyman-Pearson classification for time series data.
4. Chen, Y., Tong, X. and Li, J.J. (2018) Multi-class Neyman-Pearson classification.

Selected Fellowships and Awards

2016 - 2021	R01 GM120507 (Co-Investigator), National Institutes of Health
2016 - 2019	DMS 1613338 (Principal Investigator), National Science Foundation
2014	Zumberge Individual Fund, University of Southern California
2013	The Zellner Thesis Award in Business and Economic Statistics by American Statistical Association
2011	MS Laha Travel Award 2011 by the Institute of Mathematical Statistics
2008 - 2012	Princeton University Assistant in Instruction (i.e., Research Assistantship) Financial Support
2007 - 2008	The Gordon B. and Nancy R. Stewart. Jr. Fellowship at Princeton University
2003 - 2007	J.S. Mclean Scholarship at the University of Toronto
2005 & 2007	Galois Award in Mathematics at the University of Toronto
2006	The Norman Stuart Robertson Scholarship in Mathematics

Synergistic Activities

- 2015 - present Statistics seminar organizer at the Marshall School of Business, University of Southern California
- 2012 - Present Reviewer for *Annals of Statistics*, *Biometrika*, *Computational Statistics and Data Analysis*, *IEEE Transactions on Information Theory*, *Journal of the American Statistical Association*, *Journal of Machine Learning Research*, *Statistical Sciences*, *Transactions on Pattern Analysis and Machine Intelligence*
- 2010 - 2011 Statistics seminar organizer, Department of Operations Research & Financial Engineering, Princeton University

Collaborators and Other Affiliations

- Collaborators Yiling Chen (UCLA), Jianqing Fan (Princeton University), Yang Feng (Columbia University), Jiancheng Jiang (UNC Charlotte), Jingyi Jessica Li (UCLA), Wei Lin (USC), Lei Qi (Athena Capital Research), Philippe Rigollet (MIT), Lie Wang (MIT), Yanhui Wu (USC), Lucy Xia (Stanford), Yiqing Xing (Johns Hopkins University), Shunan Yao (USC), Yao Zeng (University of Washington-Seattle), Anqi Zhao (Harvard University)
- Ph.D. Advisors Jianqing Fan & Philippe Rigollet, Princeton University
- Undergraduate Advisor Don Fraser, the University of Toronto

Selected Invited Presentations

- Jun 2017 IMS-China International Conference on Statistics and Probability, Guangxi, China
- Jun 2017 ICSA Applied Statistics Symposium 2017, Chicago
- Jun 2017 EcoStat 2017 Conference, Hong Kong
- Jun 2017 Department of Mathematics at Hong Kong Baptist University, Hong Kong
- Oct 2016 Carey Business School, Johns Hopkins University, Baltimore, MD
- Jun 2016 IMS-CHINA 2016, Hong Kong
- Jun 2016 ICSA 2016, Atlanta, GA
- Apr 2016 Department of Mathematics, University of Southern California, Los Angeles, California
- Feb 2016 Department of Statistics, University of California at Riverside, Riverside, CA
- Jul 2015 IMS-China International Conference on Statistics and Probability 2015, Kunming, China
- Jun 2015 ICSA/Graybill 2015, Fort Collins, CO
- Apr 2015 Department of Statistics, University of Toronto, Toronto, ON
- Mar 2015 ENAR Spring meeting, Miami FL
- Jul 2014 The Third Institute of Mathematical Statistics Asia Pacific Rim Meeting, Taipei
- Dec 2013 Department of Mathematics, University of Arizona, Tucson, Arizona
Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China
Mathematical Sciences Center, Tsinghua University, Beijing, China
The Ninth ICSA (International Chinese Statistical Association) International Conference, Hong Kong
- May 2013 Department of Biostatistics, Harvard School of Public Health, Cambridge, MA
- Feb 2012 Department of Mathematics, Massachusetts Institute of Technology, Cambridge, MA
Department of Statistics, Harvard University, Cambridge, MA
Department of Industrial Engineering & Operations Research, Columbia University, New York, NY
- Jan 2012 Department of Statistics and Biostatistics, Rutgers University, Piscataway Township, NJ
- Nov 2011 Marshall School of Business, University of Southern California, Los Angeles, CA
Department of Statistics, Columbia University, New York, NY