

Minh Tang

Applied Mathematics and Statistics
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Education

- 2010 **Ph.D in Computer Science**,
Indiana University Bloomington.
- 2004 **M.S. in Computer Science**,
University of Wisconsin Milwaukee.
- 2001 **B.S. in Computer Science**,
Assumption University, Thailand.

Work Experience

- 01/17 – now **Associate Research Professor**,
Department of Applied Mathematics and Statistics, Johns Hopkins University.
- 07/14 – 12/16 **Assistant Research Professor**,
Department of Applied Mathematics and Statistics, Johns Hopkins University.
- 10/10 – 06/14 **Postdoctoral Fellow**,
Department of Applied Mathematics and Statistics, Johns Hopkins University.

Research Interests

statistical pattern recognition, dimensionality reduction, statistical inference on graphs

Grants and Research Award

- 03/17 – 08/21 co-PI on DARPA Data-Driven Discovery of Models (PI: Carey Priebe)
- 08/18 – 08/19 PI on Microsoft Research Award: Efficiency and Optimality in Graph Inference

Journal Publications

- 2018+ J. Cape and **M. Tang** and C. E. Priebe. Signal-plus-noise matrix models: eigenvector deviations and fluctuations. *Biometrika*, accepted for publication. arXiv preprint at <http://arxiv.org/abs/1802.00381>
- 2018+ A. Athreya and **M. Tang** and Y. Park and C. E. Priebe. On estimation and inference in latent structure random graphs. *Statistical Science*, accepted for publication. arXiv preprint at <http://arxiv.org/abs/1806.01401>
- 2018+ J. Cape and **M. Tang** and C. E. Priebe. The two-to-infinity norm and singular subspace geometry with applications to high-dimensional statistics. *Annals of Statistics*, accepted for publication. arXiv preprint at <http://arxiv.org/abs/1705.08917>.
- 2018 **M. Tang** and C. E. Priebe. Limit theorems for eigenvectors of the normalized Laplacian for random graphs. *Annals of Statistics*, Vol. 46, pp. 2360–2415
- 2018 A. Athreya and D. E. Fishkind and K. Levin and V. Lyzinski and Y. Park and Y. Qin and D. L. Sussman and **M. Tang** and J. T. Vogelstein and C. E. Priebe, Statistical inference on random dot product graphs: a survey, *Journal of Machine Learning Research*, Vol. 18.
- 2017 J. Cape, **M. Tang** and C. E. Priebe. The Kato-Temple inequality and eigenvalue concentration. *Electronic Journal of Statistics*, Vol. 11, pp. 3954–3978.

- 2017 V. Lyzinski, **M. Tang**, A. Athreya, Y. Park and C. E. Priebe. Community detection and classification in hierarchical stochastic blockmodels. *IEEE Transactions on Network Science and Engineering*, Vol. 4, pp. 13–26.
- 2017 **M. Tang**, A. Athreya, D. L. Sussman, V. Lyzinski, Y. Park and C. E. Priebe. A semiparametric two-sample hypothesis testing problem for random graphs. *Journal of Computational and Graphical Statistics*, Vol. 26, pp. 344–354.
- 2017 **M. Tang**, A. Athreya, D. L. Sussman, V. Lyzinski, and C. E. Priebe. A nonparametric two-sample hypothesis testing problem for random dot product graphs. *Bernoulli*, Vol. 23, pp. 1599–1630.
- 2016 S. Suwan, D. S. Lee, R. Tang, D. L. Sussman, **M. Tang** and C. E. Priebe. Empirical Bayes estimation for the stochastic blockmodel. *Electronic Journal of Statistics*, Vol. 10, pp. 761–782.
- 2016 A. Athreya, V. Lyzinski, D. J. Marchette, C. E. Priebe, D. L. Sussman and **M. Tang**. A central limit theorem for scaled eigenvectors of random dot product graphs. *Sankhya Series A*, Vol. 78, pp. 1–18.
- 2015 C. E. Priebe, D. L. Sussman, **M. Tang** and J. T. Vogelstein. Statistical inference on errorfully observed graphs. *Journal of Computational and Graphical Statistics*, Vol. 24, pp. 930–953.
- 2014 V. Lyzinski, D. L. Sussman, **M. Tang**, A. Athreya and C. E. Priebe. Perfect clustering for stochastic blockmodel graphs via adjacency spectral embedding. *Electronic Journal of Statistics*, Vol. 8, pp. 2905–2922.
- 2014 C. Shen, M. Sun, **M. Tang** and C. E. Priebe. Generalized canonical correlation analysis for classification in high dimensions. *Journal of Multivariate Analysis*, Vol. 130, pp. 310–322.
- 2014 D. L. Sussman, **M. Tang** and C. E. Priebe. Consistent latent position estimation and vertex classification for random dot product graphs. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, Vol. 36, pp. 48–57.
- 2014 H. Wang, **M. Tang**, Y. Park, and C. E. Priebe. Locality statistics for anomaly detection in time-series of graphs. *IEEE Transactions on Signal Processing*, Vol. 62, pp. 703–717.
- 2013 D. E. Fishkind, D. L. Sussman, **M. Tang**, J. T. Vogelstein, and C. E. Priebe. Consistent adjacency-spectral partitioning for the stochastic block model when the model parameters are unknown. *SIAM Journal on Matrix Analysis and Applications*, Vol. 34, pp. 23–39.
- 2013 N. H. Lee, J. Yoder, **M. Tang** and C. E. Priebe. On latent position inference from doubly stochastic messaging activities. *Multiscale Modeling and Simulation*, Vol. 11, pp. 683–718.
- 2013 M. Sun, C. E. Priebe and **M. Tang**. Generalized canonical correlation analysis for disparate data fusion. *Pattern Recognition Letters*, Vol. 34, pp. 194–200.
- 2013 **M. Tang**, Y. Park, N. H. Lee and C. E. Priebe. Attribute fusion in a latent process model for time series of graphs. *IEEE Transactions on Signal Processing*, Vol. 61, pp. 1721–1732.
- 2013 **M. Tang** and D. L. Sussman and C. E. Priebe. Universally consistent vertex classification for latent positions graphs. *Annals of Statistics*, Vol. 41, pp. 1406–1430.
- 2012 D. L. Sussman, **M. Tang**, D. E. Fishkind and C. E. Priebe. A consistent adjacency spectral embedding for stochastic blockmodel graphs. *Journal of the American Statistical Association*, Vol. 107, pp. 1119–1128.

Preprints

- 2018 C. E. Priebe and Y. Park and J. T. Vogelstein and J. M. Conroy and V. Lyzinski and **M. Tang** and A. Athreya and J. Cape and E. Bridgford. On a 'two truths' phenomenon in spectral graph clustering. arXiv preprint at <http://arxiv.org/abs/1808.07801>
- 2018 G. Li and **M. Tang** and N. Charon and C. E. Priebe. A central limit theorem for classical multidimensional scaling. arXiv preprint at <http://arxiv.org/abs/1804.00631>.
- 2018 **M. Tang**. The eigenvalues of stochastic blockmodel graphs. arXiv preprint at <http://arxiv.org/abs/1803.11551>.

- 2018 P. Rubin-Delanchy and C. E. Priebe and **M. Tang** and J. Cape. A statistical interpretation of spectral embedding: the generalised random dot product graph. arXiv preprint at <http://arxiv.org/abs/1709.05506>.
- 2017 **M. Tang** and J. Cape and C. E. Priebe. Asymptotically efficient estimators for stochastic blockmodels: the naive MLE, the rank-constrained MLE, and the spectral. arXiv preprint at <http://arxiv.org/abs/1710.10936>.
- 2017 J. T. Vogelstein and **M. Tang** and E. Bridgeford and D. Zheng and R. Burns and M. Maggioni. Linear optimal low rank projection for high-dimensional multi-class data. arXiv preprint at <http://arxiv.org/abs/1709.01233>
- 2017 R. Tang and **M. Tang** and J. T. Vogelstein and C. E. Priebe. Robust estimation from multiple graphs under gross error contamination. arXiv preprint at <http://arxiv.org/abs/1707.03487>.
- 2017 K. Levin and A. Athreya and **M. Tang** and C. E. Priebe and V. Lyzinski. A central limit theorem for an omnibus embedding of random dot product graphs. arXiv preprint at <http://arxiv.org/abs/1705.08832>.
- 2017 P. Rubin-Delanchy and C. E. Priebe and **M. Tang**. Consistency of adjacency spectral embedding for the mixed membership stochastic blockmodel. arXiv preprint at <http://arxiv.org/abs/1705.04518>.
- 2017 C. E. Priebe and Y. Park and **M. Tang** and A. Athreya and V. Lyzinski and J. T. Vogelstein and Y. Qin and B. Cocanougher and K. Eichler and M. Zlatic and A. Cardona. arXiv preprint at <http://arxiv.org/abs/1704.03297>.
- 2016 A. Athreya, **M. Tang**, V. Lyzinski, Y. Park, B. Lewis, M. Kane, and C. E. Priebe. Numerical tolerance for spectral decompositions of random dot product graphs. arXiv preprint at <http://arxiv.org/abs/1608.00451>.
- 2013 **M. Tang**, Y. Park and C. E. Priebe. Out-of-sample extension for latent position graphs. arXiv preprint at <http://arxiv.org/abs/1305.4893>.

Invited Talks

- 09/2017 Department of Mathematics and Statistics, Boston University.
- 08/2017 Joint Statistical Meetings, Baltimore, MD, USA.
- 11/2015 Department of Statistics, Indiana University Bloomington.
- 02/2015 School of Industrial and Systems Engineering, Georgia Institute of Technology.
- 02/2015 Department of Statistics, Virginia Tech.
- 08/2014 Joint Statistical Meetings, Boston, MA, USA.
- 05/2012 Interface Symposia, Houston, TX, USA.

Teaching

- JHU Generalized linear mixed models & longitudinal data analysis (Spring 2017 & 2018)
- JHU Professor Joel Dean Award for Excellence in Teaching (Spring 2016)
- JHU Topics in statistical pattern recognition (Spring 2016)
- JHU Applied statistics and data analysis (Fall 2013 – Fall 2017)
- JHU Statistical learning and high-dimensional data analysis (Spring 2011)

Mentoring

- JHU PhD thesis advisor of Joshua Cape (2015 – present); co-advisor with Carey E. Priebe
- JHU MS thesis advisor of Fanwen Zhu (2017 – 2018).
- JHU PhD dissertation committee member for Cencheng Shen (2015; second reader), Heng Wang (2015), Jordan Yoder (2016), Runze Tang (2017; second reader), Shangsi Wang (2018).

Professional Services

Refereed papers for *Annals of Statistics*, *Annals of Applied Statistics*, *Statistical Science*, *Journal of Computational and Graphical Statistics*, *IEEE Transactions on Signal Processing*, *IEEE Transactions on Network Science*, *Electronic Journal of Statistics*, *Journal of Machine Learning Research*, *IEEE Transactions on Knowledge and Data Engineering*.

References

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