

# Vince Lyzinski

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## Academic Appointments

- 08/19–present **Assistant Professor**, *University of Maryland, College Park*, Department of Mathematics.
- Additional Affiliation in the Applied Mathematics and Scientific Computation Program (AMSC), University of Maryland, College Park, 12/19–present
- 09/17–08/19 **Assistant Professor**, *University of Massachusetts, Amherst*, Department of Mathematics and Statistics.
- 08/14–08/17 **Senior Research Scientist**, *Johns Hopkins University*, The Human Language Technology Center of Excellence.
- 08/14–08/20 **Assistant Research Professor**, *Johns Hopkins University*, Department of Applied Mathematics and Statistics.
- 01/13–08/14 **Postdoctoral Fellow**, *Johns Hopkins University*, Department of Applied Mathematics and Statistics (supervisor: Prof. Carey E. Priebe).

## Other Employment

- Summer 2012 **Graduate Advisor**, East Tennessee State University Research Experience for Undergraduates (REU) under Prof. Anant Godbole.

## Educational Background

- 05/13 **Ph.D.**, *Johns Hopkins University*, Applied Mathematics and Statistics.  
Advisor: Prof. James Allen Fill  
Dissertation title: Intertwinings, Interlacing Eigenvalues, and Strong Stationary Duality for Diffusions
- 12/11 **M.S.E.**, *Johns Hopkins University*, Applied Mathematics and Statistics.
- 05/07 **M.A.**, *Johns Hopkins University*, Mathematics.
- 05/06 **B.S.**, *University of Notre Dame*, Mathematics, Magna Cum Laude.  
Studied abroad via the Budapest Semesters in Mathematics, Spring 2005 semester.

## Professional Society Memberships

Member: ASA, IMS, Phi Beta Kappa

## Research Publications

Students advised or co-advised are underlined.

## Refereed Journal Publications

- [31] [H.G. Patsolic](#), Y. Park, **V. Lyzinski**, C.E. Priebe, "Vertex Nomination Via Seeded Graph Matching," *Statistical Analysis and Data Mining*, 1– 16. <https://doi.org/10.1002/sam.11454>, 2020.
- [30] J. Yoder, L. Chen, H. Pao, E. Bridgeford, K. Levin, D. E. Fishkind, C. E. Priebe, **V. Lyzinski**, "Vertex nomination: The canonical sampling and the extended spectral nomination schemes," *Computational Statistics & Data Analysis*, 145, 106916, 2020.
- [29] **V. Lyzinski** , D. L. Sussman, "Matchability of heterogeneous networks pairs," , *Information and Inference: A Journal of the IMA*, iaz031, <https://doi.org/10.1093/imaiai/iaz031>, 2020.
- [28] D. L. Sussman, Y. Park, C. E. Priebe, **V. Lyzinski**, "Matched filters for noisy induced subgraph detection," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, doi: 10.1109/TPAMI.2019.2914651, 2019..
- [27] D. E. Fishkind, L. Meng, A. Sun, C. E. Priebe, **V. Lyzinski**, "Alignment strength and correlation for graphs," *Pattern Recognition Letters*, 125, pp. 203–215, 2019.
- [26] C. E. Priebe, Y. Park, J. T. Vogelstein, J. M . Conroy, **V. Lyzinski**, M. Tang, A. Athreya, J. Cape, E. Bridgeford: "On a 'Two-Truths' Phenomenon in Spectral Graph Clustering," *Proceedings of the National Academy of Sciences*, 116.13, pp. 5995-6000, 2019.
- [25] **V. Lyzinski**, K. Levin, C.E. Priebe, "On Consistent Vertex Nomination Schemes," *Journal of Machine Learning Research*, no. 69, pp. 1-39, 2019.
- [24] P. Rastogi, A. Poliak, **V. Lyzinski**, and B. Van Durme, "Neural Variational Entity Set Expansion for Automatically Populated Knowledge Graphs," *Information Retrieval Journal*, 22.3-4, pp. 232-255, 2019.
- [23] D.E. Fishkind, S. Adali, [H.G. Patsolic](#), L. Meng, D. Singh, **V. Lyzinski**, C.E. Priebe, "Seeded Graph Matching," *Pattern Recognition*, Vol. 87, pp. 203-215, 2019.
- [22] **V. Lyzinski**, "Information Recovery in Shuffled Graphs via Graph Matching," *IEEE Transactions on Information Theory*, Vol. 64 no. 5, pp.3254-3273, 2018.
- [21] A. Athreya, D.E. Fishkind, K. Levin, **V. Lyzinski**, Y. Park, Y. Qin, D.L. Sussman, M. Tang, J.T. Vogelstein, C.E. Priebe, "Statistical inference on random dot product graphs: a survey," *Journal of Machine Learning Research*, Vol. 18, pp. 1-92, 2018.
- [20] A. Jansen, G. Sell, **V. Lyzinski**, "Scalable Out-of-Sample Extension of Graph Embeddings Using Deep Neural Networks," *Pattern Recognition Letters*, Vol. 94 no. 15, pp. 1-6, 2017.
- [19] **V. Lyzinski**, Y. Park, C. E. Priebe, Michael Trosset, "Fast Embedding for JOFC Using the Raw Stress Criterion," *Journal of Computational and Graphical Statistics*, 26.4, pp. 786-802, 2017.
- [18] M. Tang, A. Athreya, D. L. Sussman, **V. Lyzinski**, C. E. Priebe, "A Semiparametric Two-sample Hypothesis Testing Problem for Random Dot Product Graphs," *Journal of Computational and Graphical Statistics*, 26(2), 344-354, 2017.
- [17] M. Tang, A. Athreya, D. L. Sussman, **V. Lyzinski**, C. E. Priebe, "A Nonparametric Two-sample Hypothesis Testing Problem for Random Dot Product Graphs," *Bernoulli Journal*, Vol. 23 no. 3, 1599-1630, 2017.
- [16] [K. Levin](#) and **V. Lyzinski**, "Laplacian Eigenmaps from Sparse, Noisy Similarity Measurements," *IEEE Transactions on Signal Processing*, Vol. 65 no. 8, 2017.
- [15] D. Zheng, D. Mhembere, **V. Lyzinski**, J. Vogelstein, C. E. Priebe, R. Burns, "Semi-External Memory Sparse Matrix Multiplication on Billion-node Graphs in a Multicore Architecture," *IEEE Transactions in Parallel and Distributed Systems*, Vol. 28 no. 5, pp 1470-1483, 2017.

- [14] **V. Lyzinski**, M. Tang, A. Athreya, Y. Park, C. E. Priebe, "Community Detection and Classification in Hierarchical Stochastic Blockmodels," *IEEE Transactions on Network Science and Engineering*, 4(1), pp. 13-26, 2017.
- [13] **V. Lyzinski**, K. Levin, D. E. Fishkind, C. E. Priebe, "On the Consistency of the Likelihood Maximization Vertex Nomination Scheme: Bridging the Gap Between Maximum Likelihood Estimation and Graph Matching," *Journal of Machine Learning Research*, 17(179), pp.1-34, 2016.
- [12] L. Chen, J. T. Vogelstein, **V. Lyzinski**, C. E. Priebe, "A Joint Graph Inference Case Study: The *C.elegans* Chemical and Electrical Connectomes," *Worm*, Vol. 5 no. 2, 2016.
- [11] A. Athreya, **V. Lyzinski**, D. Marchette, C. E. Priebe, D. Sussman, M. Tang, "A Limit Theorem for Scaled Eigenvectors of Random Dot Product Graphs," *Sankhya A*, pp. 1–18, 2016.
- [10] J. A. Fill, **V. Lyzinski**, "Strong Stationary Duality for Diffusion Processes," *Journal of Theoretical Probability*, 29.4, pp. 1298–1338, 2016.
- [9] **V. Lyzinski**, D. Fishkind, M. Fiori, J. T. Vogelstein, C. E. Priebe, G. Sapiro, "Graph Matching: Relax at Your Own Risk," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 38.1: 60-73, 2016.
- [8] D. E. Fishkind, **V. Lyzinski**, H. Pao, L. Chen, C. E. Priebe, "Vertex Nomination Schemes for Membership Prediction," *Annals of Applied Statistics*, Vol. 9 no. 3, pp. 1510-1532, 2015.
- [7] J. T. Vogelstein, J. M. Conroy, **V. Lyzinski**, L. J. Podrazik, S. G. Kratzer, E. T. Harley, D. E. Fishkind, R. J. Vogelstein, C. E. Priebe, "Fast Approximate Quadratic Programming for Graph Matching," *PLOS One*, Vol. 10 no. 4, 2015.
- [6] **V. Lyzinski**, D. L. Sussman, D. E. Fishkind, H. Pao, C. E. Priebe, "Spectral Clustering for Divide-and-conquer Graph Matching," *Parallel Computing*, Vol. 47, pp. 70–87, 2015.
- [5] A. Godbole, S. Gutekunst, **V. Lyzinski**, Y. Zhuang, "Logarithmic Representability of Integers as k-sums," *Integers: The Electronic Journal of Combinatorial Number Theory*, Vol. 15A, 2015.
- [4] **V. Lyzinski**, D. L. Sussman, M. Tang, A. Athreya, C. E. Priebe, "Perfect Clustering for Stochastic Blockmodel Graphs via Adjacency Spectral Embedding," *Electronic Journal of Statistics*, Vol. 8, pp. 2905–2922, 2014.
- [3] **V. Lyzinski**, D. E. Fishkind, C. E. Priebe, "Seeded Graph Matching for Correlated Erdős-Rényi Graphs," *Journal of Machine Learning Research*, Vol. 15, no. 1, 2014.
- [2] J. A. Fill, **V. Lyzinski**, "Hitting Times and Interlacing Eigenvalues: A Stochastic Approach Using Intertwinings," *Journal of Theoretical Probability*, Vol. 27, no. 3, pp. 954–981, 2014.
- [1] A. Godbole, C. M. Lim, **V. Lyzinski**, N. Triantafillou, "Sharp Threshold Asymptotics for the Emergence of Additive Bases," *Integers: The Electronic Journal of Combinatorial Number Theory*, Vol. 13, 2013.

#### Refereed Conference Publications

- [1] **V. Lyzinski**, G. Sell, A. Jansen, "An Evaluation of Graph Clustering Methods for Unsupervised Term Discovery," *Proceedings of Interspeech*, Dresden, Germany, 2015.

#### Refereed Workshop Publications

- [4] K. Pantazis, D. L. Sussman, Y. Park, C. E. Priebe, **V. Lyzinski**, "Multiplex graph matching matched filters," *GTA<sup>3</sup> 3.0: The 3rd Workshop on Graph Techniques for Adversarial Activity Analytics*, in conjunction with In Conjunction with the 2019 IEEE Big Data Conference, Los Angeles, CA, 2019.

- [3] D. Sussman, **V. Lyzinski**, Y. Park, C. E. Priebe, "Matched Filters for Noisy Induced Subgraph Detection," *GTA<sup>3</sup> 2018: Workshop on Graph Techniques for Adversarial Activity Analytics*, in conjunction with 11th ACM International Conference on Web Search and Data Mining, Marina Del Rey, CA, 2018. **(won the best paper award)**
- [2] J. Douglas, B. Zimmerman, A. Kopylov, J. Xu, D. Sussman, **V. Lyzinski**, "Metrics for Evaluating Network Alignment," *GTA<sup>3</sup> 2018: Workshop on Graph Techniques for Adversarial Activity Analytics*, in conjunction with 11th ACM International Conference on Web Search and Data Mining, Marina Del Rey, CA, 2018.
- [1] K. Levin, A. Avanti, M. Tang, **V. Lyzinski**, C. E. Priebe, "A Central Limit Theorem for an Omnibus Embedding of Multiple Random Dot Product Graphs," In 2017 IEEE International Conference on Data Mining Workshops (ICDMW), pp. 964-967, 2017.

### Submitted Papers and Preprints

- [11] K. Levin, C. E. Priebe, **V. Lyzinski**, "On the role of features in vertex nomination: Content and context together are better (sometimes)," arxiv 2005.02151, 2020.
- [10] D. E. Fishkind, A. Athreya, L. Meng, **V. Lyzinski**, C. E. Priebe, "On a complete and sufficient statistic for the correlated Bernoulli random graph model," arXiv 2002.09976, 2020.
- [9] J. Arroyo, C. E. Priebe, **V. Lyzinski**, "Graph matching between bipartite and unipartite networks: to collapse, or not to collapse, that is the question," arXiv 2002.01648, 2020.
- [8] **K. Pantazis**, D. L. Sussman, Y. Park, C. E. Priebe, **V. Lyzinski**, "Multiplex graph matching matched filters," arXiv 1908.02572, 2019.
- [7] J. Agterberg, Y. Park, J. Larson, C. White, C. E. Priebe, **V. Lyzinski**, "Vertex Nomination, Consistent Estimation, and Adversarial Modification," arXiv 1905.01776, 2019.
- [6] J. Arroyo, D. L. Sussman, C. E. Priebe, **V. Lyzinski**, "Maximum Likelihood Estimation and Graph Matching in Errorfully Observed Networks," arXiv 1812.10519, 2018.
- [5] F. Fang, D. L. Sussman, **V. Lyzinski**, "Tractable Graph Matching via Soft Seeding," arXiv 1807.09299. 2018.
- [4] C.E. Priebe, Y. Park, M. Tang, A. Athreya, **V. Lyzinski**, J. T. Vogelstein, Y. Qin, B. Cocanougher, K. Eichler, M. Zlatic, A. Cardona, "Semiparametric spectral modeling of the *Drosophila* connectome," arXiv 1705.03297, 2017.
- [3] K. Levin, A. Athreya, M. Tang, **V. Lyzinski**, C.E. Priebe, "A central limit theorem for an omnibus embedding of random dot product graphs," arXiv:1705.09355, 2017.
- [2] A. Athreya, M. Kane, B. Lewis, Z. Lubberts, **V. Lyzinski**, Y. Park, C. E. Priebe, M. Tang, "Numerical tolerance for spectral decompositions of random matrices," arXiv 1608.00451, 2016 (2020). *(2020 is the date of the updated revision)*
- [1] H. Patsolic, S. Adali, J. Vogelstein, Y. Park, C. E. Priebe, G. Li, **V. Lyzinski** "Seeded Graph Matching via Joint Optimization of Fidelity and Commensurability," arXiv 1401.3813, 2014 (2019). *(2019 is the date of the updated revision)*

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## Conferences, Workshops, Seminars, and Invited Talks

### Matchability of Heterogeneous Networks Pairs

- Invited talk at NIST, January 8, 2020
- Invited talk in the UMD Statistics Seminar series. September, 2019
- Invited session on New Advances in Network Data Analysis at the 2019 New England Statistics Symposium. May, 2019

### Multiplex graph matching matched filters

- Workshop presentation at GTA<sup>3</sup> 3.0: The 3rd Workshop on Graph Techniques for Adversarial Activity Analytics, in conjunction with In Conjunction with the 2019 IEEE Big Data Conference. December, 2019

**Consistency in vertex nomination**

- Invited session on Exploiting Latent Structure for Network Inference at the 2019 Joint Statistics Meetings. July–August, 2019

**Vertex Nomination, Consistent Estimation, and Adversarial Modification**

- Invited talk at the UMD Norbert Weiner Center for Harmonic Analysis and Applications. October, 2019
- Invited talk at Deb Roy's lab meeting at MIT Media Lab/Cortico. April, 2019

**Graph matching in edge-independent networks**

- Invited speaker, University of North Carolina, Chapel Hill, STOR Colloquium. January 18, 2019
- Invited speaker, Boston University Department of Mathematics and Statistics, Statistics and Probability Seminar Series. October 11th, 2018.

**Consistent vertex nomination**

- Invited speaker, University of Maryland Department of Mathematics Colloquium. January 11, 2018

**Graph Matching and Graph Matchability in Edge-Independent Networks**

- Invited session on Graphs: Inference and Mining at the 56th Annual Allerton Conference on Communication, Control, and Computing. October, 2018.

**Graph matching and network inference in biological applications**

- Invited speaker, Yale University Department of Biostatistics Seminar. September, 2018.

**Graph Matching and Subsequent Inference in Errorfully Observed Network Data**

- Invited session on Recent Advances in Multiple Graph Inference at the 2018 Joint Statistics Meeting. July–August, 2018.

**On consistent vertex nomination schemes**

- Invited speaker, University of Massachusetts, Amherst, Department of Mathematics and Statistics, Applied Mathematics and Computation Seminar. April, 2018
- Invited speaker, Five College Statistics and Data Science Research Bytes. February, 2018
- Invited speaker, Boston University, Department of Mathematics and Statistics, Statistics and Probability Seminar Series. November, 2017

**Information Recovery in Errorfully Labeled Graphs via Graph Matching**

- Invited speaker, UConn/UMass Statistics Colloquium. April, 2018
- Invited speaker, Duke University, Department of Statistical Science Seminar. September, 2017
- Invited speaker, University of Florida, Department of Statistics Seminar. January, 2017

- Invited speaker, University of Maryland, Department of Mathematics Colloquium. January, 2017
- Invited speaker, University of Massachusetts, Amherst, Department of Mathematics and Statistics Colloquium. December, 2016
- Invited speaker, University of Houston, Department of Mathematics Seminar. December, 2016
- Invited seminar, Issac Newton Institute for Mathematical Sciences. November, 2016
- Invited Session on Advances and Novel Problems in Network Statistics at the 2016 Joint Statistics Meeting. July–August, 2016

#### **Network Matched Filters**

- Invited session on Scan Statistics in Networks and Graphs at the 2017 Joint Statistics Meeting. July–August, 2017

#### **Recent theoretic and algorithmic advances in graph matching**

- Invited speaker, JHU Department of Applied Mathematics and Statistics Seminar. February, 2016

#### **Community Detection and Classification in Hierarchical Stochastic Blockmodels**

- Invited speaker, Session on Statistical Inference for High-Dimensional Data, International Society for Nonparametric Statistics Meeting. July, 2015

#### **The Cortical Column Conjecture and Related Connectomic Problems**

- Invited guest lecture, Statistical Learning from Omics Data at SAMSI. April, 2015

#### **Spectral Clustering for Divide-and-Conquer Graph Matching**

- Invited speaker, Virginia Commonwealth University Special VCU Statistics and Discrete Mathematics Seminar Series. February, 2015

#### **(Robust) Seeded Graph Matching**

- Regular contributed paper, 2014 Joint Statistics Meetings. August, 2014

#### **Seeded Graph Matching**

- Contributing speaker, 14th Haifa Workshop on Graph Theory, Combinatorics, and Algorithms. June, 2014
- Invited speaker, Johns Hopkins HLTCOE Seminar Series. February, 2013
- Invited speaker, George Mason University Department of Statistics Seminar. January, 2013
- Johns Hopkins University Department of Applied Mathematics and Statistics Student Seminar Series. February, 2013

#### **Seeded Graph Matching and Applications**

- Invited speaker, George Mason University SPACS/CCDS/Statistics Colloquium Series. March, 2013

#### **Large Graph Matching with Applications to Brain Networks**

- Invited by Guillermo Sapiro to give seminar at the Information Initiative at Duke University. October, 2013

### **Strong Stationary Duality for Diffusion Processes**

- Invited speaker, Session on Markov Chains and Markov Decision Problems at INFORMS Applied Probability Society Conference. July, 2013
- Invited speaker, Session on Computational and Discrete Mathematics at the Canadian Applied and Industrial Mathematics Society Conference. June 2012

### **Sharp Threshold Asymptotics for the Emergence of Additive Bases**

- Regular contributed paper, AMS Session on Probability Theory, Stochastic Processes and Statistics at the Joint Mathematics Meeting. January, 2012
- Johns Hopkins University Department of Applied Mathematics and Statistics Student Seminar Series. October, 2011

### **Multivariate Records**

- Invited speaker, George Washington University Department of Statistics Student Seminar Series. October, 2010
- Johns Hopkins University Department of Applied Mathematics and Statistics Student Seminar Series. October, 2010

### **A Stochastic Interpretation of a Hitting Time Result of Mark Brown**

- Johns Hopkins University Department of Applied Mathematics and Statistics Student Seminar Series. April, 2010

### **The Comparison Method for the Relaxation Time of Ergodic Markov Chains**

- Contributed talk, Fields–MITACS Summer School in Applied Probability. May 2009
- Johns Hopkins University Department of Applied Mathematics and Statistics Student Seminar Series. March, 2009

### **Posters Presented**

#### **Core Detection: Sifting Through The Junk in Graph Matching**

- Poster presented at 2017 SIAM Workshop on Network Science, July 2017

#### **Recent theoretic and algorithmic advances in graph matching**

- Poster presentation and flash talk, The 2016 IMS New Researchers' Conference. July, 2016

#### **Seeded Graph Graph Matching**

- Poster presented at Duke Workshop on Sensing and Analysis of High Dimension Data, July 2013

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## **Sponsored Research and Programs**

### **Active awards**

#### **2020–2022 Algorithmic Primitives for Aligning and Merging Complex Networks.**

- Funding Source: Defense Advanced Research Projects Agency, I2O Open Office (for the Modeling Adversarial Activity program)
- Role: Principal Investigator
- Total award amount: \$999,146

- Subcontract PIs Carey E. Priebe and Youngser Park (JHU) and Daniel Sussman (Boston University)
- 2020–2021 **Center of Excellence in Human Language Technology (DO05).**
  - Funding Source: JHU HLTCOE sub-award to UMD
  - Role: Investigator
  - Total award amount: \$297,018
  - PI at UMD: Douglas Oard, UMIACS
- 2018–2021 **A 5-dimensional connectomic approach to the neural basis of behavior.**
  - Funding Source: NIH Brain Initiative: Exploratory Team-Research BRAIN Circuit Programs eTeamBCP
  - Role: co-PI
  - Total award amount: \$3,754,785
  - PI: Paul Katz at UMass; Subcontract PIs Jeff Lichtman (Harvard University), William Frost (Rosalind Franklin University), and Deirdre Lyons (University of California, San Diego)
- 2017–2021 **What Would Tukey Do? <enter>.**
  - Funding Source: Defense Advanced Research Projects Agency, Data-Driven Discovery of Models program
  - Role: co-PI (at JHU)
  - Total award amount: \$2.2M
  - PI: Carey Priebe at JHU; co-PIs Minh Tang, Avanti Athreya, Youngser Park and Joshua T. Vogelstein

#### Completed Awards

- 2017–2019 **Universally Useful Primitives for Aligning Networks Across Time and Space.**
  - Funding Source: Defense Advanced Research Projects Agency, I2O Open Office (for the Modeling Adversarial Activity program)
  - Role: Principal Investigator (at UMass)
  - Total award amount: \$1,004,433
  - Subcontract PIs Carey E. Priebe and Youngser Park (JHU) and Daniel Sussman (Boston University)
  - No cost extension awarded through January 2020

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#### Research Fellowships, Prizes and Awards

- 2012 Graduate Student Travel Grant to the Joint Mathematics Meetings, Boston MA, January 4–7
- 2009–2012 GAANN Fellowship, U.S. Department of Education awarded through the Department of Applied Mathematics and Statistics, The Johns Hopkins University
- 2008–2012 Counselman Endowed Fellowship, awarded by the Department of Applied Mathematics and Statistics, The Johns Hopkins University; Awarded in 2nd year of Ph.D. (2008) with continued award funding through AY 2011-12

- 2008 Naddor Teaching Fellowship, awarded by the Department of Applied Mathematics and Statistics, The Johns Hopkins University
- 2007 Naddor Teaching Fellowship, awarded by the Department of Applied Mathematics and Statistics, The Johns Hopkins University
- 2007 Rufus P. Isaacs Graduate Fellowship, awarded by the Department of Applied Mathematics and Statistics, The Johns Hopkins University
- 2006 The Haaser Scholarship in Mathematics (awarded for excellence in mathematics), awarded by the Department of Mathematics, University of Notre Dame
- 2006 Senior GE Prize for Mathematics Majors (awarded for excellence in mathematics), awarded by the Department of Mathematics, University of Notre Dame

## Teaching

### Courses Taught

- Spring 2020 **STAT426: Introduction to Data Science and Machine Learning.**  
University of Maryland, College Park; 26 students, pilot course (now permanent)
- Spring 2020 **STAT689: RIT in Statistical Network Inference.**  
University of Maryland, College Park; 8 students enrolled and numerous faculty sat in
- Fall 2019 **STAT426: Introduction to Data Science and Machine Learning.**  
University of Maryland, College Park; 23 students, pilot course (now permanent)
- Spring 2019 **STAT 516: Statistics II.**  
University of Massachusetts, Amherst; 41 students
- Spring 2019 **STAT 496: Independent Study.**  
University of Massachusetts, Amherst; undergraduate independent study with 1 student
- Fall 2018 **STAT 697S: ST Statistical Network Inference.**  
University of Massachusetts, Amherst; Graduate level topics course, 8 students
- Spring 2018 **STAT 516: Statistics II.**  
University of Massachusetts, Amherst; 2 sections with 22 and 35 students respectively
- Spring 2018 **Math 596: Independent Study.**  
University of Massachusetts, Amherst; undergraduate independent study with 1 student
- Fall 2016 **550.621: Probability Theory II.**  
Johns Hopkins University; graduate level, 7 students
- Fall 2015 **550.620: Probability Theory I.**  
Johns Hopkins University; graduate level, 22 students
- Spring 2014 **550.771: The Probabilistic Method.**  
Johns Hopkins University; graduate level topics course, 9 students
- Fall 2013 **550.310: Probability and Statistics for the Physical and Information Sciences and Engineering.**  
Johns Hopkins University; 76 students
- Summer 2013 **550.111: Statistical Analysis I.**  
Johns Hopkins University; 18 students
- Spring 2013 **550.111: Statistical Analysis I.**  
Johns Hopkins University; 152 students

- Fall 2012 **550.310: Probability and Statistics for the Physical and Information Sciences and Engineering.**  
Johns Hopkins University; 72 students
- Summer 2012 **550.230: Introduction to Biostatistics.**  
Johns Hopkins University; 6 students
- Fall 2011 **550.310: Probability and Statistics for the Physical and Information Sciences and Engineering.**  
Johns Hopkins University; 73 students
- Summer 2011 **550.230: Introduction to Biostatistics.**  
Johns Hopkins University; 8 students
- Spring 2011 **550.310: Probability and Statistics for the Physical and Information Sciences and Engineering.**  
Johns Hopkins University; 41 students
- Spring 2010 **550.310: Probability and Statistics for the Physical and Information Sciences and Engineering.**  
Johns Hopkins University; 85 students
- Summer 2009 **550.171: Discrete Mathematics.**  
Johns Hopkins University; 6 students
- Summer 2008 **550.111: Statistical Analysis I.**  
Johns Hopkins University; 20 students

## Mentoring and Advising

- UMD Ph.D. student advising
- Konstantinos Pantazis; Doctoral Candidate, Mathematics
  - Al-Fahad Al-Qadhi; pre-candidacy, AMSC
  - Sheyda Peyman; pre-candidacy, AMSC
  - Ayushi Saxena; pre-candidacy, Statistics
- Also working with Jesse Milzman (Mathematics; primary advisor Prof. Doron Levy)
- JHU Ph.D. thesis advisor for Heather Gaddy Patsolic (co-advised with Carey E. Priebe), Department of Applied Mathematics and Statistics, Johns Hopkins University
- Graduated with Ph.D. Spring 2020
  - Dissertation: Graph Matching and Vertex Nomination
  - Now with Accenture Federal Services
- JHU Ph.D. thesis advisor for Keith Levin (co-advised with Carey E. Priebe and Ben Van Durme), Department of Computer Science, Johns Hopkins University
- Graduated with Ph.D. Spring 2017
  - Dissertation: Graph Inference with Applications to Low-Resource Audio Search and Indexing
  - Currently a Postdoctoral Scholar at the University of Michigan, Department of Statistics

- Starting Tenure-Track Assistant Professor position at University of Wisconsin Madison, Department of Statistics in Fall 2020

## Service and Outreach

### Reviewing Activities

Reviewed papers for the following journals/conferences:

- Algorithms
- Annales de l'institut Henri Poincare (Prob. and Stat.)
- Annals of Applied Probability
- Annals of Probability
- Annals of Statistics
- Applied Network Science
- Combinatorics, Probability, and Computing
- Computational and Applied Mathematics
- Electronic Journal of Probability
- ESAIM: Probability and Statistics
- IEEE Transactions on Information Theory
- IEEE Transactions on Medical Imaging
- IEEE Transactions on Neural Networks and Learning Systems
- IEEE Transactions on Pattern Analysis and Machine Intelligence
- Involve, a Mathematics Journal
- Journal of the American Statistical Association
- Markov Processes and Related Fields
- NeurIPS 2019
- Parallel Computing
- Pattern Recognition Letters
- Probability in the Engineering and Informational Sciences
- Proceedings of the National Academy of Sciences
- Random Structures and Algorithms
- SIAM Journal on Mathematics of Data Science
- Theory of Computing System

### Committees, Professional & Campus Service

2019 – **University of Maryland, College Park.**

#### **Departmental Service.**

- Member, Mathematics Department committee set up to help with technical aspects of the transition to remote teaching, Spring 2020
- Organizer, Mathematics Department Statistics Seminar, AY 2019-20
- Member, AMSC graduate admissions committee, AY 2019-20
- Member, AMSC Scientific Computing track reform committee, Fall 2019

- Member of the Ph.D. Preliminary Oral Exam Committee for Andrew Lauziere, Konstantinos Pantazis, Chris Dock

2017–2019 **University of Massachusetts, Amherst.**

**Departmental Service.**

Departmental Service

- Member of the Tenure-Track Statistics Assistant Professor Search Committee, AY 2018-19
- Organizer, Probability and Statistics Seminar series AY 2017-18
- Member, VAP Postdoc Search Committee, AY 2017-18

**University-level Service.**

- UMass Amherst DataFest Local Organizer, DataFest 2019

2015–2020 **Johns Hopkins University.**

**Departmental Service.**

- Served on one Johns Hopkins University Ph.D. candidacy exam committee (Heather Pastolic)
- Served on six Johns Hopkins University dissertation defense committees (Li Chen, Henry Pao, Cencheng Shen, Jordan Yoder (served as Second Reader), Keith Levin, Heather Patsolic)

**College-level Service.**

- Served on three Johns Hopkins University Graduate Board Oral exam committees (Travis Wolfe, Pushpendre Rastogi and Jordan Yoder)

[Conference/Workshop Organization](#)

- 2019 Program Co-chair (organizer), 3rd workshop on Graph Techniques for Adversarial Activity Analytics (GTA<sup>3</sup> 3.0) in conjunction with the 2019 IEEE Big Data conference. December 2019
- 2018 Program Co-chair (organizer), 2nd workshop on Graph Techniques for Adversarial Activity Analytics (GTA<sup>3</sup> 2.0) in conjunction with the 2018 IEEE Big Data conference. December 10th, 2018
- 2018 Co-organized (with Daniel L. Sussman) an Invited Session at the 2018 Joint Statistics Meetings on Recent Advances in Multiple Graph Inference
- 2017 Co-organized (with Betsy Ogburn of JHU Biostats) the 2017 IMS New Researchers' Conference
  - Supported by grant N00014-17-1-2512 from the Office of Naval Research, \$15,000 (PI joint with Betsy Ogburn)
  - Supported by grant 1 R13 CA221378-01 from the National Institutes of Health, \$18,566 (PI joint with Betsy Ogburn (contact))
  - Also generously supported by NSF
- 2016 Served on program committee for 4th SIAM Workshop on Network Science, July 2016
- 2015 Co-organized (with Daniel L. Sussman) the Session on Statistical Inference for High-Dimensional Data at the International Society for Nonparametric Statistics Meeting, July 2015

## External Committee Membership

2016–2019 IMS Committee on New Researchers