Vasileios Maroulas

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Research Interests

- Foundations of Data Science related to Biology, Defense, Material Science, and Medicine
- Bayesian Nonlinear Filtering and Estimation for Spatiotemporal Processes
- Computational Statistics, Topological and Geometric Methods for Data Analysis
- Dynamic Data Learning for Big Data and Applications
- Rare event simulations and Large Deviations with Applications to Image Analysis
- Sequential Analysis and applications to detection and estimation

Professional Appointments

- Full Professor (with tenure), Department of Mathematics, Department of Business Analytics & Statistics, and Bredesen Center in Data Science & Engineering, University of Tennessee, August 2019-.
- Associate Professor (with tenure), Department of Mathematics, Department of Business Analytics & Statistics, and Bredesen Center in Data Science & Engineering, University of Tennessee, August 2016-July 2019.
- Data Science Advisory Board Member, Prognos AI, March 2017-.
- Assistant Professor, Department of Mathematics, University of Tennessee, August 2010-July 2016.
- Assistant Professor, Department of Business Analytics and Statistics, University of Tennessee, February 2015-July 2016.
- Assistant Professor (courtesy appointment), Center for Intelligent Systems and Machine Learning, University of Tennessee, January 2015-July 2016.
- Leverhulme Trust Visiting Fellow, Mathematical Sciences Dept., University of Bath, UK, 10/2013-7/2014.
- Industrial Postdoctoral Fellow, joint appointment with the Institute for Mathematics and its Applications (IMA), University of Minnesota and Lockheed Martin. September, 2008-July, 2010.

Education

- PhD (2008), Department of Statistics and Operations Research, University of North Carolina at Chapel Hill, NC.
- MSc (2006), Department of Statistics and Operations Research, University of North Carolina at Chapel Hill, NC.
- BSc (2003), Department of Mathematics, University of Athens, Greece. Major in Applied Mathematics.

Awards and Honors

- *Elected Member* of the International Statistical Institute, 2018.
- *Interdepartmental Collaborative Research and Scholarship Award*, College of Arts & Sciences, University of Tennessee, 2018.
- *Faculty Research and Creative Achievement Award* (Early-Career), College of Arts & Sciences, University of Tennessee, 2014.
- *Leverhulme Trust Fellow*, University of Bath, UK, 2012.
- *Professional Development Award*, University of Tennessee. 2011
- *IMA Postdoctoral Fellowship,* 2008-2010.
- *Industrial Postdoctoral Fellowship*. Lockheed Martin. 2008-2010.
- *Eleneio Doctoral Thesis Award*. Greek Statistical Society, April 2009.
- *Travel Award* for the 33rd Conference on Stochastic Processes and their applications. Berlin, Germany, Summer 2009.

- *Travel Award* for the 32nd Conference on Stochastic Processes and their applications. Summer 2007, Department of Mathematics, University of Illinois at Urbana-Champaign, USA.
- *UNC Travel Award.* Graduate School, UNC. Summer 2007.
- *A. Bem Prize* for the best project in mathematical programming. Spring 2002. Department of Mathematics, University of Athens, Greece.
- *National Award* for the best performance as an undergraduate student. Fall 2001. Department of Mathematics, University of Athens, Greece.

Funding Awards (Total: ~$1,570,000)*

- ***UTK Office of Research* ($50,000):** Force-energy Atomic Landscapes through Computationally Optimized Numerics (FALCON) (**Role: co-PI;** TOTAL: $100K): 5/1/2019-4/30/2021.
- ***ARO* ($7,500):** HSAP/URAP Likelihood Ratio Classification for Random Persistence Diagrams. **(Role: PI);** 5/15-8/15/2019.
- ***NSF* ($100,000):** Online spatiotemporal filtering and Bayesian topology for Tracking in dynamically designed sensor networks**, (Role: PI**); 8/15/2018-8/14/2021.
- ***Army Research Lab/Thor Industries* ($200,000):** Statistical Topological Learning of EEG data **(Role: Academic PI**); 10/1/2017-8/31/2019.
- ***Army Research Office* ($449,965):** Construction of distributions on complex topological spaces of signals and their application to machine learning and state estimation, **(Role: PI**); 7/1/2017-6/30/2020.
- ***NSF* ($267,131):** Mechanisms of Cytoplasmic Streaming, (**Role: co-PI**; PI: A. Nebenfuhr (UTK), co-PI: S. Abel (UTK); TOTAL: $857,914); 8/1/2017-7/31/2020.
- ***IMA* ($5,000)**: 2017 John H. Barrett Memorial Lectures, Mathematical Foundations of Data Science*,* (**Role: PI**; co-PI: J. Rosinski, C. Webster, and S. Wise); 4/1/2017-3/31/2018.
- ***NSF* ($16,000):** 2017 John H. Barrett Memorial Lectures, Mathematical Foundations of Data Science*,* (**Role: PI**; co-PI: J. Rosinski, C. Webster, and S. Wise); 4/1/2017-3/31/2018.
- ***Air Force Office of Scientific Research* ($100,637):** A distributed dynamic data driven framework for multi-threat tracking. (**Role: co-PI**; PI: I. D. Schizas of UT, Arlington; TOTAL: $225K); 2/15/2015-4/15/2018.
- ***Simons Foundation (*$35,000):** Collaboration grants for mathematicians-Large deviations for stochastic systems and applications, 9/2013-8/2018 (**Role: PI**).
- ***DOE/UT-Battelle* ($159,676):** Analyzing Data-Specific Model-Selection Criteria, 1/8/2015-5/31/2017 (**Role: PI**).
- ***DOE/UT-Battelle* ($120,300):** Bioenergy sustainability assessment, 8/1/2014-7/31/2016 (**Role: PI**).
- ***NSF* ($10,000):** John H. Barrett Memorial Lectures, Stochastic Filtering, Computations and their Applications*,* (**Role: PI**; co-PI: J. Rosinski and J. Xiong); 3/1/2015-2/28/2016
- ***IMA* ($5,000):** John H. Barrett Memorial Lectures, Stochastic Filtering, Computations and their Applications (**Role: PI**; co-PI: J. Xiong); 3/1/2015-2/28/2016.
- ***Leverhulme Trust Visiting Grant* (£29,190):** Collaborative Work in Statistics at the University of Bath, 10/1/2013-7/31/2014 (**Role: PI**).
- ***Summer Teaching Institute Award* ($2,000):** Transforming Online the Probability and Statistics for Teachers Course, Math 507, Summer 2013 (**Role: PI**).
- ***UTK Professional Development Award* ($4,000):** Mathematical Modeling of Intracellular Movements, 5/2010-6/2010 (**Role: PI**).

*** Bold numbers in parentheses indicate total funding to Vasileios Maroulas.**

Publications

A. Journal Papers

1. A. Budhiraja, P. Dupuis and **V. Maroulas**. Large deviations for infinite dimensional stochastic dynamical systems, *Annals of Probability*, 36, no 4, 1390-1420, 2008.
2. A. Budhiraja, P. Dupuis and **V. Maroulas**. Large deviations for stochastic flows of diffeomorphisms. *Bernoulli,* 16(1), 234-256, 2010.

3. K. Dinh and **V. Maroulas.** Statistical modeling of mortality risk for congenital heart defects. *Journal of Applied Quantitative methods*, 5(4), pp. 670-678, 2010.
4. A. Budhiraja, P. Dupuis and **V. Maroulas**. Variational representations for continuous time processes. *Annales de l' Institut de Henri Poincare,* 47(3), pp. 725-747, 2011.
5. **V. Maroulas**. Large deviations for infinite dimensional stochastic systems with jumps. *London Mathematical Society: Mathematika,* 57(1), pp. 175-192, 2011.
6. **V. Maroulas** and P. Stinis. Improved particle filters for multi-target tracking. *Journal of Computational Physics,* 231(2), pp.602-611, 2012.
7. **V. Maroulas**. Error analysis of stochastic flight trajectory prediction models. *Journal of Applied Statistics, 39(8),* pp. 1825-1841, 2012.
8. **V. Maroulas** and J. Xiong. Large deviations for optimal filtering with fractional Brownian motion. *Stochastic Processes and their Applications,* 123(6), pp. 2340-2352, 2013.
9. R. Mahler and **V. Maroulas**. Tracking spawning objects. *IET Radar, Sonar & Navigation,* 7(3), pp. 321-331, 2013.
10. D.-C. Jhwueng and **V. Maroulas**. Phylogenetic Ornstein-Uhlenbeck regression curves. *Statistics & Probability Letters,* 89: 110-117, 2014.
11. Y. Cai, J. Huang and **V. Maroulas**. Large deviations for mean-field stochastic differential equations with jumps. *Statistics & Probability Letters,* 96, 1-9, 2015.
12. **V. Maroulas** and A. Nebenführ. Tracking intracellular rapid movements: a Bayesian random set approach. *Annals of Applied Statistics,* 9(2), pp. 926-949, 2015.
13. G. Ren, **V. Maroulas** and I.D. Schizas. Distributed Sensors-Targets Spatiotemporal Association and Tracking. *IEEE TAES*, 51(4)*,* pp. 2570-2589*,* 2015.
14. G. Ren, **V. Maroulas** and I. D. Schizas. Decentralized Sparsity-Based Multi-Source Association and State Tracking, *Signal Processing,* 120, pp. 627-643, 2016.
15. D.-C. Jhwueng and **V. Maroulas**. Adaptive Trait Evolution in Random Environment, *Journal of Applied Statistics,* 43(12), pp. 2310-2324 2016.
16. J. Mike, C. D. Sumrall, **V. Maroulas**, and F. Schwartz. Non-Landmark Classification in Paleobiology: Computational Geometry as a tool for Species Discrimination. *Paleobiology*, pp. 1-11, 2016.
17. I. Sgouralis, **V. Maroulas** and A. Layton. Transfer function analysis of dynamic blood flow control in the rat kidney, *Bulletin of Mathematical Biology,* 78(5): 923-60, 2016.
18. G. Ren, **V. Maroulas,** I.D. Schizas. Exploiting sensor mobility and covariance sparsity for distributed tracking of multiple targets. *Journal of Advances in Signal Processing,* 2016:53, 2016.
19. N. McNutt, O. Rios, **V. Maroulas** and D. Keffer. Interfacial Li-ion in Hierarchical Carbon Anodes. *Carbon,* 111, pp. 828-834, 2017.
20. S. Djouadi, **V. Maroulas**, X. Pan and J. Xiong. Consistency and asymptotics of least squares estimator for partially observed jump diffusion processes. *Statistics & Probability Letters,* 123, pp. 8-16, 2017.
21. I. Sgouralis, A. Nebenfuhr, and **V. Maroulas.** A Bayesian topological framework for the identification and reconstruction of subcellular motion. *SIAM Journal on Imaging Sciences,* 10(2), pp. 871–899, 2017.
22. E. Evangelou and **V. Maroulas**. Sequential Empirical Bayes method for filtering dynamic spatiotemporal processes. *Spatial Statistics,* 21(Part A), pp. 114-129, 2017.
23. F. Bao and **V. Maroulas**. Adaptive Meshfree Backward SDE Filter. *SIAM Scientific Computing*. 39 (6), A2664-2683, 2017.
24. K. Kang, **V. Maroulas**, I. Schizas and F. Bao. Improved distributed particle filters for tracking in wireless sensor network. *Computational Statistics and Data Analysis*, (117), pp. 90-108, 2018.
25. A. Marchese and **V. Maroulas**. Signal classification with a point process distance on the space of persistence diagrams. *Advances in Data Analysis and Classification,* 12 (3), 657-682, 2018.
26. **V. Maroulas**, X. Pan, and J. Xiong. Statistical inference for the intensity in a partially observed jump diffusion. *Journal of Mathematical Analysis and Applications*, 472(1), pp. 1-10, 2019.
27. I. Schizas, **V. Maroulas** and G. Ren. Regularized Kernel Matrix Decomposition in Thermal Video Multi-Object Detection and Tracking. *Big Data and Information Analytics*, 3(2), pp.1-23,

2018.

28. P. Luszczek, J. Kurzak, I. Yamazaki, D. Keffer, **V. Maroulas** and J. Dongarra. Autotuning Techniques for Performance-Portable Point Set Registration in 3D. *Supercomputing Frontiers and Innovations* 5 (4), 42-61, 2018.
29. J. Mike and **V. Maroulas.** Combinatorial Hodge Theory for Equitable Kidney Paired Donation. *Foundations of Data Science*, 1(1), pp. 87-101, 2019.
30. **V. Maroulas**, X. Pan, and J. Xiong. Large deviations of the optimal filter for nonlinear dynamical systems with Levy noise. *Stochastic Processes and their Applications*. Accepted, 2019.
31. **V. Maroulas**, J. Mike and C. Oballe. Nonparametric Estimation of Probability Density Functions of Random Persistence Diagrams. *Journal of Machine Learning Research*, Accepted, 2019.

B. Conference Papers (peer-reviewed)

32. E. Grossi, M. Lops and **V. Maroulas**. A sequential procedure for simultaneous detection and state estimation of Markov signals. *The Proc. of IEEE Int. Symp. Info. Th,* 654-658, 2009.
33. A. Aduroja, I.D. Schizas and **V. Maroulas**. Distributed principal component analysis in sensor networks. *IEEE Proceedings of ICASSP*, pp. 5850-5854, 2013.
34. K. Kang and **V. Maroulas**. Drift homotopy methods for a non-Gaussian filter. *The Proceedings of Data Fusion*, pp. 1088-1094, 2013.
35. G. Ren, I.D. Schizas and **V. Maroulas**. Joint sensors-sources association and tracking. *Sensor Array and Multichannel Signal Processing Workshop (SAM), 2014 IEEE 8th*, pp.205-208, 22-25 June 2014.
36. K. Kang, **V. Maroulas** and I.D. Schizas. Drift homotopy particle filter for non-Gaussian multi-target tracking. *The Proceedings of Data Fusion,* pp. 1-7*,* 2014.
37. A. Malikopoulos, **V. Maroulas** and J. Xiong. A multi-objective optimization analysis for stochastic control of complex systems. *Proceedings of IEEE American Control Conference,* pp. 4263-4268, 2015.
38. G. Ren, I.D. Schizas and **V. Maroulas**. Distributed spatio-temporal multi-target association and tracking, *IEEE Proceedings of ICASSP*, pp. 4010-4014, 2015.
39. **V. Maroulas**, K. Kang, I. D. Schizas and M. W. Berry. A Learning Drift Homotopy Particle Filter, *The Proceedings of Data Fusion*, pp.1930-1937, 2015.
40. I. Schizas and **V. Maroulas.** Dynamic Data Driven Sensor Network Selection and Tracking. *Procedia Computer Science*, 51, pp. 2583-2592, 2015.
41. G. Ren, I.D. Schizas and **V. Maroulas**. Sparsity based multi-target tracking using mobile sensors, *IEEE Proceedings of ICASSP*, pp. 4578-4582, 2016.
42. S. Djouadi, **V. Maroulas**, X. Pan and J. Xiong. On Least-Squares Estimation for Partially Observed Jump-Diffusion Processes. *IEEE Proceedings of American Control Conf*., pp. 2717-2722, 2016.
43. K. Kang **,V. Maroulas**, I. D. Schizas and E. Blasch. A multilevel homotopy MCMC sequential Monte Carlo filter for multi-target tracking. *The Proceedings of Data Fusion*, pp. 2015-2021, 2016.
44. A. Marchese, and **V. Maroulas.** Topological learning for acoustic signal identification. *The Proceedings of Data Fusion*, pp. 1377-1381*,* 2016.
45. A. Marchese, **V. Maroulas,** and J. Mike. $K-$Means Clustering on the Space of Persistence Diagrams. *Wavelets and Sparsity XVII, SPIE Conference Proceedings,* 2017.
46. A. Spannaus, **V. Maroulas,** D. J. Keffer and K. J. H. Law. Bayesian Point Set Registration. *Proceedings of MATRIX Conference on Computational Inverse Problems,* To Appear, 2018.

C. Other Contributions (peer-reviewed)

47. L. Kochilas, **V. Maroulas**, K. Rood, V. Larson, J. Moller, In-hospital mortality for surgical repair of congenital heart defects is inversely related to hospital surgical volume, *Am. Heart Assoc., Circulation* 120 (18), S568, 2009.

48. **V. Maroulas**, Probability Matrices. *Encyclopedia of Social Network Analysis and Mining,* pp. 1416-1418, Springer NY, 2014.

D. Submitted Papers

49. **V. Maroulas**, C. Putman Micucci, and A. Spannaus. A stable cardinality distance for topological classification.
50. **V. Maroulas,** N. Farzana and C. Oballe. Bayesian inference for persistence homology.

Invited Talks

- **Plenary Talk**, EPFL, Lausanne, May 2020.
- Materials Meeting, San Diego, February 2020.
- Joint Mathematics Meeting, Denver, January 2020.
- SMU, Dallas TX, Statistics Colloquium, April 12, 2019.
- Topology, Statistics, and Applications Session at Southeast AMS meeting, March 15-17, 2019.
- Mathematics Colloquium, Tufts University, March 8, 2019.
- Probability and Statistics Seminar, Boston University, November 15, 2018.
- Special Session on Topological Data Analysis at the International Conference on Advances in Interdisciplinary Statistics and Combinatorics, UNC Greensboro, October 5-7, 2018.
- **Plenary Talk** at Bayesian Computations and High Dimensional Statistical Models-IMS at National University of Singapore, 8/27-31, 2018.
- Stochastic filtering, Optimal Control and their applications Mini-symposium at the 12th AIMS Conference, Taipei, July 5-9, 2018
- Monte Carlo Methods Mini-symposium at the 12th AIMS Conference, Taipei, July 5-9, 2018
- 1st Congress of Greek Mathematicians, Athens, June 25-30, 2018.
- Data and UQ: Bayesian Learning Mini-symposium at SIAM UQ, Garden Grove, 4/16-19, 2018.
- SIAM Southeast Conference, Statistical Topological Data Analysis Mini-symposium, 3/9-11, 2018.
- CIMAT, Mexico, Math Colloquium, March 2018
- Tulane University, Math and Stats Colloquium, February 2018.
- Army Research Lab, Science Colloquium, January 2018.
- Universite de Montreal, Statistics Colloquium, December 2017.
- Tulane University, Statistics and Probability Seminar, November 2017.
- University of Tennessee, Industrial Engineering Colloquium, November 2017.
- University of Tennessee, Chattanooga, Math Colloquium, September 2017.
- Conference on Wavelets and Sparsity, SPIE, San Diego, August 2017.
- University of Ioannina, Greece, Math Colloquium, May 2017.
- National Technical University of Athens, Greece, Math Colloquium, May 2017.
- Yale University, Statistics Colloquium, April 2017.
- SIAM Conference on Computational Science and Engineering, Atlanta, 2/27-3/3/17.
- **Plenary Talk**, Hot Topic Workshop: "Small-Sample-Size Statistics in Agriculture; How to maximize Business Value", November 3rd, 2016.
- Air Force Institute of Technology, Colloquium Seminar, October, 2016
- University of Delaware, Probability Seminar, October, 2016
- MBI Workshop on CTW: Modeling and Inference from Single Molecule to Cells, Ohio State Univ., 2/8-12, 2016.
- AFOSR PI Meeting, January 2016.
- Data Sciences Seminar, Oak Ridge National Lab, November 2015.
- **Plenary Talk**, 2015 BSEC Conference in "Data Sciences for Actionable Health Insights," ORNL, 8/25-27, 2015.
- Army Research Lab, Acoustic Signal Processing Seminar, Maryland, July 2015.
- 18th International Conference on Information Fusion, Washington, DC, 7/6-10/2015.
- 2015 International Conference in Computer Sciences, Reykjavik, Iceland, 6/1-3/2015. (Invited talk, however given by my collaborator in the project I. D. Schizas)

- 2015 IMS-China International Conference on Statistics and Probability, Kunming China, 7/1-4/2015. (Invited talk, however given by my grad student Kai Kang)
- AMS Southeastern Sectional Meeting, University of Alabama, Huntsville, March 27-29, 2015.
- University of Tennessee, Machine Learning Seminar, University of Tennessee, February 2015.
- University of Tennessee, Colloquium at the Business Analytics and Statistics Department, Knoxville, November 2014.
- Spatial Statistics and Uncertainty Quantification on Supercomputers, Bath, May 2014. (Invited Poster).
- 17th International Conference on Information Fusion, Salamanca, July 2014 (invited talk, however given by my grad student Kai Kang).
- IEEE SAM 2014 Special session on "Data-Driven Distributed Estimation and Tracking" (Invited Poster), June 2014.
- National Technical University of Athens, Greece, Mathematics Colloquium Seminar, June 2014.
- University of Bath, UK, Mathematical Landscape Talk, May 2014.
- University of Bristol, UK, Probability & Statistics Seminar, March 2014.
- University of Manchester, UK, Probability & Statistics Seminar, March 2014.
- Lancaster University, UK, Probability & Statistics Seminar, February 2014.
- University of Bath, UK, Math Biology Seminar, February 2014.
- University of Warwick, UK, Statistics Seminar, February 2014.
- Imperial University, UK, Probability & Statistics Seminar, February 2014.
- University of Bath, UK, Statistics Seminar, November 2013.
- Penn State University, Statistics Colloquium Seminar, September 2013.
- 16th International Conference on Information Fusion, Istanbul, July 2013 (Invited paper).
- Stochastic modeling of Biological processes. IMA, University of Minnesota. May 2013 (Invited Poster)
- Joint 2013 MBI-NIMBioS-CAMBAM Summer Graduate Workshop. "Connecting Biological Data with Mathematical Models". June 2013.
- University of Texas, Arlington, Electrical Engineering Colloquium Seminar, September 2012.
- Shandong University, Jinan, China, Mathematics Colloquium Seminar, May 2012.
- Peking University, Beijing, China, Mathematics Colloquium Seminar, May 2012.
- Normal Beijing University, Beijing, China, Mathematics Colloquium Seminar, May 2012.
- Oak Ridge National Labs, Colloquium Seminar, May 2012.
- Polytechnic University of Hong Kong, Applied Mathematics Colloquium, December 2011.
- University of Tennessee, Knoxville, TN, Mathematics Colloquium Seminar, February 2010.
- Illinois Institute of Technology, Chicago, IL, Applied Math Colloquium Seminar, February 2010.
- Duke University, Durham, NC, Statistics Colloquium Seminar, January 2010.
- Carleton University, Ottawa, CAN, Mathematics & Statistics Colloquium Seminar, January 2010.
- *Honorarium Eleneio Lecture*, Greek Statistical Meeting, Chania, Greece, April 2009.
- University of Minnesota, Applied Mathematics Seminar, December 2009.
- University of Louisville, Louisville, KY, Mathematics Colloquium Seminar, December 2009.
- University of Minnesota, Minneapolis, MN, Statistics Colloquium Seminar, April 2009.
- National Technical University of Athens, Greece, Mathematics Colloquium Seminar, July 2008.
- University of Athens, Greece, Statistics Seminar, June 2008.
- Columbia University, New York, NY, Probability Seminar, March 2008.
- Wayne State University, Detroit, MI, Colloquium Seminar February 2008.
- State University of New York, Binghamton, NY, Mathematics Colloquium Seminar, February 2008.
- University of Virginia, Charleston, VA, Mathematics Colloquium Seminar, February 2008.
- Brown University, Providence, RI, Applied Mathematics Seminar, January 2008.

Contributed Talks

- Stochastic Modeling and Data Analysis, Chania, Greece, June 2012.
- Quantitative Methods in Defense and National Security, George Mason, Fairfax, VA, May 2012.
- Applied Stochastic Models and Data Analysis, Rome, Italy, June 2011.

- SIAM Student Chapter. University of Tennessee. Knoxville, December 2010.
- University of Tennessee, Probability Seminar, September 2010, March 2012.
- University of Minnesota, IMA Postdoctoral Seminar, December 2009.
- University of Minnesota, Applied Mathematics Seminar, November 2009.
- 33rd Conference on Stochastic Processes and their applications, Berlin, Germany, July 2009.
- IMA, University of Minnesota, Postdoctoral Seminar, April 2009.
- University of Minnesota, Probability Seminar, Minneapolis, MN, September 2008.
- IMA, University of Minnesota, Postdoctoral Seminar, September 2008.
- 32nd Conference on Stochastic Processes and their applications, Urbana, IL, August 2007.

Advising/Mentoring Postdoctoral Fellows, Graduate & Undergraduate Students

- Postdoctoral Fellows:

  - Current:

    1. Nasrin Farzana (funded by ARO), 8/2018-

  - Past:

    2. Ioannis Sgouralis (funded by NIMBioS), 9/2014-7/2016
       a. *Research Topic:* Stochastic modeling in physiology and intracellular movements
       b. *Placement:* Postdoc at Arizona State University.

    3. Jake Feguson, (funded by NIMBioS), 10/2014-12/2015.
       a. *Research Topic:* Topics on statistical ecology
       b. *Placement:* Postdoc at Univ. of Idaho
       c. *Now:* Postdoc at University of Minnesota

    4. Dwueng-Chwuan Jhwueng (funded by NIMBioS), 9/2010-1/2012
       a. *Research Topic:* Phylogenetic comparative methods for comparative analysis under non-tree-like evolution
       b. *Placement:* Assistant Professor in Statistics, Feng-Chia University, Taiwan.
       c. *Now:* Associate Professor and Department Head in Statistics at Feng-Chia University, Taiwan.

- Graduate:

  A. PhD Students:

  A1. Current:

  1. Le Yin (funded by AFOSR/NSF), Fall 2016-.
  2. Adam Spannaus (partially funded by ARO/NSF), Fall 2016-.
  3. Cassie Micucci (funded by ARO/ARL/Thor Ind.), Fall 2017-
  4. Chris Oballe (funded by ARO/ARL/Thor Ind), Fall 2017-
  5. Alan Cherne (funded by ARL/Thor Ind), Fall 2018-
  6. Ephy Love (funded by NSF), Spring 2019-

  A2. Past:

  7. Kai Kang (partially funded by AFOSR), 8/2012-2016.
     a. PhD Thesis: Advanced sequential Monte Carlo methods and their application to sparse sensor network for detection and estimation
     b. *Placement:* NIH Postdoc

  8. Andrew Marchese (funded by DOE), 8/2014-2017.

a. *PhD Thesis:* Data Analysis Methods using Persistence Diagrams
b. *Placement:* Data Scientist at New York Times.

9. Joshua Mike (partially funded by AFOSR), 8/2015-2017.
    a. *PhD Thesis:* Statistical computational topology and geometry for understanding data.
    b. *Placement:* Postdoc at the Dept. of Computational Mathematics Science and Engineering at Michigan State University.

10. Xiaoyang Pan, 8/2014-2018.
    a. *PhD Thesis:* Asymptotics for dynamical systems driven by jump noise.
    b. *Placement:* Quant at BB&T.

B. Master Students:

1. Yang Shen, Fall 2011-Fall 2012. *Placement:* BB&T (now with Fannie&Mae).
2. Daniel Rose, Fall 2012-Spring 2013. *Placement:* TN Dept. of Transportation
3. John Collins, Summer 2013. *Placement:* ORNL (now with PYA Analytics)
4. Toumy Haya, Fall 2014-Spring 2015. *Placement:* Texas Military Institute (TMI).

- Undergraduate:

1. Alana Gary, Vera Liu and Zhimin (Penny) Wu. Research Experience for Undergraduates (REU), NIMBioS, University of Tennessee, "Statistical filters for intracellular motility," Summer 2016.
2. Mariel Bedell, Yilin Lin, Emmie Melendez, Research Experience for Undergraduates (REU), NIMBioS, University of Tennessee, "*Modeling the distribution of fluid pressure in the kidney*," Summer 2015.
3. Tiffany Blankenship, Carter Tisdale, Yang Yang, Research Experience for Undergraduates (REU), NIMBioS, University of Tennessee, "*Tracking of fast movements inside cells*", Summer 2011.
4. Khoa Dinh, Senior in Statistics and Biomedical engineering, *"Medical statistics problems associated with congenital heart diseases."* IMA, University of Minnesota. October 2009- May 2010.
5. Kathryn Meehan, Junior in Statistics. *"Medical statistics problems associated with congenital heart diseases."* IMA, University of Minnesota. October 2009- May 2010.

- Member in PhD Committees (not advisor):
    1. Justin Kirkland, PhD in Chemistry, Advisor: Konstantinos Vogiatzis, Ongoing.
    2. Mustafa Elmas, PhD in Mathematics, Advisor: Vasilios Alexiades, 2018.
    3. Andrew Starnes, PhD in Mathematics, Advisor: Joan Lind, 2018.
    4. Whitney Forbes, PhD in Industrial Engineering, Advisor: Mingzhou Jin, 2018.
    5. Ouassim Barra, PhD in Electrical Engineering, Advisor: Seddik Djouadi, 2017.
    6. Dan Walker, PhD in Forestry, Wildlife and Fisheries, Advisor: Brian Alford, 2017.
    7. Darrin Weber, PhD in Mathematics, Advisor: David Anderson, 2017.
    8. Mohsen Judy, PhD in Computer Science, Advisor: Jeremy Holleman, 2017.
    9. Eddie Tu, PhD in Mathematics, Advisor: Jan Rosinski, 2017.
    10. Margaret Kurtts, PhD in Nuclear Engineering, Advisor: Steven Skutnik, 2017.
    11. Tyler Massaro, PhD in Mathematics, Advisor: Ham Bozdogan, 2016.
    12. Nathan Pollesch, PhD in Mathematics, Advisor: Lou Gross, 2016.
    13. Ernest Jum, PhD in Mathematics, Advisor: Jan Rosinski, 2015.
    14. Yukun Li, PhD in Mathematics, Advisor: Xiaobing Feng, 2015.
    15. Fei Xing, PhD in Mathematics, Advisor: Xia Chen, 2013.
    16. Reza Farahani, PhD in Civil Engineering, Advisor: Dayakar Penumadu, 2013.

17. Xiao Ma, PhD in Electrical Engineering, Advisor: Seddik Djouadi, 2012

Teaching Experience

- *University of Tennessee, Department of Mathematics:*
  - Fall 2010: Calculus II, Probability Theory.
  - Spring 2011, 2012&2015: Matrix Algebra, Statistics.
  - Fall 2011&2014&2017: Statistics I (Graduate level Bayesian Theory)
  - Spring 2012&2015&2018: Statistics II (Graduate level Bayesian Computations), Matrix Algebra
  - Fall 2012&2015: Advanced Probability I (Graduate course)
  - Spring 2013: Advanced Probability II (Graduate course), Calculus II
  - Fall 2013: Statistics and Probability (Graduate course for professionals-ONLINE)
  - Fall 2016: Special Course in Probability and Statistics (Math 623)
  - Fall 2017: Differential Equations (Math 231)
  - Fall 2018: Statistics, Topology and Geometry for Data Analysis (Math 623)
- *University of North Carolina, Department of Statistics:*
  - *Instructor (with full responsibility):* Spring & Summer Semesters 2005, Summer & Fall Semesters 2007, Spring Semester 2008 (100 students). Introduction to Statistics. Department of Statistics and Operations Research.
  - *Teaching Assistant:* Fall 2003-Fall 2004. Introduction to Statistics, Basic Statistics, Mathematical Statistics, Statistical Methods I (SAS programming responsible). Department of Statistics and Operations Research.

Professional Service

1. **Department of Mathematics**
   - Organizer of Math Data Science Seminar, 2017-.
   - Data Science Cluster Hire Committee (with C. Plaut, and C. Webster). 2017-8.
   - Advisory Committee, Mathematics Department, August, 2016-July 2018.
   - Chair and Organizer (with J. Rosinski, C. Webster and S. Wise), 2017 Barrett Lectures: "Mathematical Foundations of Data Sciences"
   - Chair and Organizer (with J. Rosinski and J. Xiong), 2015 Barrett Lectures: "Stochastic Filtering and its Applications", May 13-16, 2015.
   - Organizer (with F. Schwartz), Computational Methods in Data Sciences Seminar, Spring 2015.
   - Hiring Committee for TT Assistant Professor in Stochastics, 8/2015-4/2016.
   - Development Committee, 2014-2015
   - Undergraduate Advisor, 2014-2015.
   - Organizer of Stochastics Seminar, 2014-2015 and 2018-2019.
   - Chair for the Stochastics Prelim Exam, 8/2013, 1/2014, 8/2016 and 1/2017.
   - Chair of Colloquium Committee, Fall 2012-Spring 2013
   - Advisory Committee, Mathematics Department, May 1st, 2012-April 30th, 2014.
   - Member in Hiring Committee for a Postdoc in Probability, 2012-2013.
   - Graduate Committee, Fall 2010-Spring 2012.
   - Member of Colloquium Committee Fall 2011-Spring 2012
   - Examiner for FERMAT I (Fall 2010), Grader for FERMAT II (Fall 2010, 2011, 2013, 2015).

2. **College of Arts & Sciences/University of Tennessee**
   - Dean's Advisory Council, Member, Fall 2017-.

- Contact Point of Mathematics Department at the Intercollegiate Graduate Statistics Program (IGSP), University of Tennessee, 8/2012-. (Member since 2010).
- Co-Organizer of the Data Science Seminar at Bredesen Center, 8/2017-7/2018.
- Member of the Hiring Committee in the Business Analytics and Statistics Department, 2016-2017.
- Member of the Task Force for the new Bredesen Center PhD in Data Sciences and Engineering Initiative (Invited by UT's Chancellor Jimmy Cheek). Fall 2015-Spring 2016.
- Organizer (with A. Nebefuhr), NIMBioS REU: "*Tracking of fast movements inside cells*", University of Tennessee*,* Summer 2016.
- Organizer (with I. Sgouralis), NIMBioS REU: "*Modeling the distribution of fluid pressure in the kidney*", University of Tennessee*,* Summer 2015.
- Judge at the *Cynthia B. Peterson Poster Competition,* March 2015.
- Panelist of the session "Professional Development for NIMBioS Fellows", Spring 2015.
- Judge at the *Exhibition of Undergraduate Research and Creative Achievement* (EURECA), Spring 2013.
- Organizer (with A. Nebenfuhr, R. Dixit, P. Stinis, A. Geitmann), NIMBioS Investigative Workshop: *"Mathematical modeling of intracellular movements",* University of Tennessee*,* October 24-26, 2011.
- Organizer (with A. Nebefuhr), NIMBioS REU: "*Tracking of fast movements inside cells*", University of Tennessee*,* Summer 2011.

3. Profession (in general)

- Organizer (with Yu-Min Chung of UNCG) of the Special Session, *Topological Data Analysis, Statistics and Applications* at the AMS Southeast Meeting, March 15-17, 2019.
- Organizer (with Yen-Chi Chen of UW) of the Minisymposium, *Statistical Topological Data Analysis* at the 42nd SIAM-SEAS conference, March 9-11, 2018.
- Member of the Scientific Committee of the International Conference on Information Complexity and Statistical Modeling in High Dimensions with Applications, Turkey 2016.
- Organizer of the Minisymposium *Data Assimilation, nonlinear filtering and machine learning* at the 40th SIAM-SEAS conference, 2016.
- Member of the Technical Program Committee of the *Annual BSEC Conference at the ORNL Collaborative Biomedical Innovations (*Theme: Data Sciences for Actionable Health Insights*)*, Oak Ridge, TN, August 2015.
- Member of the Technical Program Committee of the *18th International Conference of Information Fusion*, Washington DC, July 2015.
- Organizer of the Special Session "Dynamic Data Driven Application Systems for Sensor Data Problems" *18th International Conference of Information Fusion*, Washington DC, July 2015.
- External reviewer for evaluation and promotion (related to statistics/probability) at the Medical School of the University of Athens, Greece, 1/2015-.
- External reviewer for evaluation and promotion at the University of the Aegean, Samos, Greece, 8/2014-.
- External reviewer for evaluation and promotion at the Statistics and Finance Department, University of Piraeus, Greece, 11/2016-.

Editorial Roles

1. Editor-In-Chief, Foundations of Data Science, January 2019-.

2. Associate Editor of Mathematical Biosciences and Engineering, 9/2018-.

3. Reviewer for:

   - AFOSR Proposals Reviewer, 2015, 2016, 2017.
   - NSF Panel 2018, 2019.
   - Journal of Theoretical Probability**,** Statistica Sinica, Stochastics, Acta Applicanda Mathematicae, IEEE Information Theory, IEEE Signal Processing, IET Computer Vision, Journal of Applied Statistics, Systems & Control Letters, Computational Statistics and Data Analysis (2 times), Applied Numerical Analysis, SIAM Applied Mathematics, IEEE Conference Proceedings, Circuits-Systems and Signal Processing, Signal Processing, IEEE on Knowledge and Data Engineering, Journal of Computational Physics (3 times), Inverse Problems, SIAM Numerical Analysis (SINUM), SIAM/ASA Uncertainty Quantification, Journal of Mathematical Analysis and Applications (4 times), Book Chapters of Wiley & Sons and Springer, SIAM Control and Optimization (SICON), Applied Mathematics and Optimization, Statistics and Probability Letters, Symposium of Computational Geometry, International Journal of Uncertainty Quantification (3 times), Communications of Computational Physics, Journal of Machine Learning Research.

Professional Affiliations

- Member, American Statistical Association
- Member, Institute of Mathematical Statistics
- Elected Member, International Statistical Institute
- Member, SIAM
- Invited Member, Greek Statistical Society
- Invited Member, Information Fusion Society

Industrial and Governmental Research Experience

- Postdoctoral Researcher, *Lockheed Martin*, Eagan, MN. September 2008-July 2010.
- Research Assistant, *SAS Institute,* Economics applications of Time Series Analysis (Model Selection and Forecasting). Summer 2006. SAS Institute, Cary, NC.
- Research Assistant (with George Psacharopoulos) on Applied Economics. Spring 2003. *Parliament of Greece*, Greece.

Statistical Consulting Experience

- Consultant with Knoxville Police Department, Spring 2017-.
- Consultant (with Dr. Deborah Fleming) on Statistical Analysis about "Menopause and Associated Oral Manifestations." Spring 2006. Department of Statistics and Operations Research, UNC-CH.
- Consultant (with Dr. Jerrid Freedman, Prof. J.S. Marron) on Statistical Analysis about "Reasons for a student to abandon Post-Secondary Education". Spring 2005. Department of Statistics and Operations Research, UNC-CH.
- Consultant (with Dr. Molly Losh, Prof. J.S. Marron) on Statistical Analysis about "Autistic children and effects of autism on their siblings". Fall 2004. Department of Statistics and Operations Research, UNC-CH.

Computer Skills/ Languages

- Python, R, SAS, Splus, Matlab, Fortran 77, LaTex
- English**,** French**,** Greek