

# Ruriko Yoshida

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EDUCATION    ♦ **University of California**, Davis, CA.  
Ph.D. in Mathematics, June 2004.

♦ **University of California**, Berkeley, CA.  
B.A. in Mathematics, May 2000.

RESEARCH    ♦ Computational Biology, Phylogeny, Discrete Optimization, Algebraic Statistics, and Defense and Homeland Security Applications of Optimization, Machine Learning, and Data Science.

♦ Publications (\* means Yoshida is the corresponding author):

**Book Published:**

- *Linear Algebra and its Applications with R*. CRC Press, Taylor and Francis. June 23rd, 2021. ISBN:978-0367486846
- *Integer Points in Polyhedra* (Matthias Beck, Christian Haase, Bruce Reznick, Michele Vergne, Volkmar Welker, Ruriko Yoshida). Contemporary Mathematics. Volume 452. American Mathematical Society (6 April 2008). ISBN:978-0821841730.

**Published:**

1. *Hit and Run Sampling from Tropically Convex Sets*, with K. Miura and D. Barnhill. Algebraic Statistics 14-1 (2023), 37–69. DOI 10.2140/astat.2023.14.37 Available at <https://arxiv.org/abs/2209.15045>.
2. *Advice from our Advisor: Jesús A. De Loera: Consejo de nuestra asesor: Jesús A. De Loera*, (with J. Haddock). Notice of American Mathematical Society. 2023. Article DOI: 10.1090/noti2754.
3. \* *Clustering Methods Over the Tropically Convex Sets*, with D. Barnhill. Mathematics 2023, 11, 3433. <https://doi.org/10.3390/math11153433>
4. \* *Imputing phylogenetic trees using tropical polytopes over the space of phylogenetic trees*. Mathematics. 2023; 11(15):3419. <https://doi.org/10.3390/math11153419>.
5. *Routing Against Uncertainty: U.S. Marine Corps Rapid Planning and Logistics Routing Against Uncertainty*, with C. Vogiatzis and K. Marler. Hybrid Fleet: The Path Forward for Human Machine Teaming (Special Issue). Naval Engineers Journal, March 2023, Volume 135, No. 1. Pages: 115–125.
6. \* *Plücker Coordinates of the best-fit Stiefel Tropical Linear Space to a Mixture of Gaussian Distributions*, with Keiji Miura. DOI: 10.1007/s41884-023-00098-w <https://link.springer.com/article/10.1007/s41884-023-00098-w> Information Geometry. Available at <https://arxiv.org/abs/2112.11893>

7. \* *Stochastic Safety Radius on UPGMA*, with Lillian Paul and Peter Nesbitt. To appear in Special Issue “Machine Learning Algorithms for Bioinformatics Problems”. Algorithms 2022, 15, 483. <https://doi.org/10.3390/a15120483>
8. *Tropical Support Vector Machines: Evaluations and Extension to Function Spaces*, (with M. Takamori, H. Matsumoto and K. Miura). Neural Networks. Volume 157, January 2023, Pages 77–89. DOI: <https://doi.org/10.1016/j.neunet.2022.10.002>. 2022. Available at <http://arxiv.org/abs/2101.11531>.
9. *Triceps Brachii Insertional Footprint: Under-estimated Complexity*, (with Srinath Kamineni, Joseph Pooley, Abdo Bachoura and Jason Cummings). Shoulder and Elbow. First published online November 10, 2022. <https://doi.org/10.1177/175857322211356>
10. *Tropical Geometric Variation of Phylogenetic Tree Shapes* (with A. Monod and B. Lin). Discrete and Computational Geometry. 68, pages 817–849. 2022. <https://doi.org/10.1007/s00454-022-00410-y>. Available at <https://arxiv.org/abs/2010.06158>.
11. *SARS-CoV-2 Dissemination using a Network of the United States Counties* (with Chrysafis Vogiatzis, David Wren, and Patrick Urrutia). Operations Research Forum. 3. 29. DOI: 10.1007/s43069-022-00139-7. 2022. Available at <https://arxiv.org/abs/2111.13723>.
12. \* *Solving reward-collecting problems with UAVs: a comparison of online optimization and Q-learning* (with Y. Liu, C. Vogiatzis, and E. Morman). Journal of Intelligent & Robotic Systems. 104. 35. DOI 10.1007/s10846-021-01548-2. 2022.
13. \* *Tree Topologies along a Tropical Line Segment*, (with S. Cox). The special issue of the Vietnam Journal of Mathematics dedicated to Bernd Sturmfels on the occasion of his 60th birthday. Vietnam Journal of Mathematics, 50:395–419 <https://doi.org/10.1007/s10013-021-00526-3>. 2022.
14. \* *Red Cell Analysis for Mobile Networked Control Systems*, (with L. Wington and D. Horner). Articles: Emerging Technology. <https://cimsec.org/emerging-technologies-week-kicks-off-on-cimsec/>. 2021.
15. \* *Network Classification with Missing Information* (with C. Vu). In: Arai K. (eds) Intelligent Systems and Applications. IntelliSys 2021. Lecture Notes in Networks and Systems, vol 295. Springer, Cham. 2022. [https://doi.org/10.1007/978-3-030-82196-8\\_13](https://doi.org/10.1007/978-3-030-82196-8_13).
16. \* *Tropical Data Science*. In: Arai K. (eds) Intelligent Systems and Applications. IntelliSys 2021. Lecture Notes in Networks and Systems, vol 295. Springer, Cham. 2022. [https://doi.org/10.1007/978-3-030-82196-8\\_26](https://doi.org/10.1007/978-3-030-82196-8_26). Available at <https://arxiv.org/abs/2005.06586>.
17. \* *Phylogenetic Analysis and Molecular Evolution (PAME)*, with Robert Page. PRIMUS. Volume 32 Issue 3, 386–415. 2021. <https://doi.org/10.1080/10511970.2021.1919257>
18. \* *Tropical Balls and its Applications to K Nearest Neighbor over the Space of Phylogenetic Trees*. Mathematics, 9(7), 2021, 779; <https://doi.org/10.3390/math9070779> (registering DOI).
19. \* *Tropical principal component analysis on the space of phylogenetic trees*, with Robert Page and Leon Zhang. Bioinformatics. Volume 36, Issue 17, 1 September 2020. Pages 4590–4598.
20. \* *imPhy: Imputing Phylogenetic Trees with Missing Information using Mathematical Programming* (with N. Yasui, C. Vogiatzis, and K. Fukumizu). IEEE/ACM Transactions on Computational Biology and Bioinformatics. Volume 17, Issue 4, 2020. p.1222–1230.
21. \* *CURatio: Genome-wide phylogenomic analysis method using ratios of total branch lengths* (with Q. Kang, C. Schardl, and N. Moore). IEEE/ACM Transactions on Computational Biology and Bioinformatics. Volume 17, Issue 3, 2020. p.981–989.

22. *Age and Gender-Related Collagen Alterations in the Transverse Carpal Ligament of Carpal Tunnel Syndrome (CTS)*, S. Kamineni, A. Satya, A. Hamza, and R. Yoshida. International Archives of Orthopedic Surgery. Volume 2, issue 1. 2019. <https://www.clinmedjournals.org/articles/iaos/international-archives-of-orthopaedic-surgery-iaos-2-005.pdf>
23. “Old Wine in New Bottles,” and Some More New Wine – Stephen Fienberg’s Influence on Algebraic Statistics, (with S. Petrović and A. Slavkovic). Journal of Algebraic Statistics, Issue in honor of Stephen E. Fienberg Volume 10, No. 1, 2019, pp. i–vi.
24. \* *Sequential Importance Sampling for Logistic Regression Model*, (with P. Saluke and H. Hara). A book chapter for *Computational Models for Biomedical Reasoning and Problem Solving* edited by Chung-Hao Chen and Sen-Ching Samson Cheung. DOI: 10.4018/978-1-5225-7467-5.ch009 2019.
25. Book review on a second edition manuscript titled “Discrete Mathematics” by Jean Gallier from Springer.
26. \* *Tropical Principal Component Analysis and its Application to Phylogenetics*, (with L. Zhang and X. Zhang). Bulletin of Mathematical Biology. 2019. 81(2), 568–597. <https://doi.org/10.1007/s11538-018-0493-4>.
27. \* *Estimating Tropical Principal Components using Metropolis Hasting Algorithm* with Qiwen Kang. ICMS 2018 proceedings. ICMS 2018: Mathematical Software – ICMS 2018 pp 272–279.
28. *Multi Loci Phylogenetic Analysis with Gene Tree Clustering* (with K. Fukumizu and C. Vogiatzis). <https://doi.org/10.1007/s10479-017-2456-9> Annals of Operations Research. 2019 Volume 276, Issue 1–2, pp 293–313.
29. *Network Similarity using Distribution of Distance Matrices* with R. Gara. DOI: 10.1109/ASONAM.2018.8508321. Conference: 2018 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM). 2018.
30. \* *Tropical Fermat-Weber points* (with B. Lin). 2018. SIAM J. Discrete Math. 32–2 (2018), pp. 1229–1245.
31. \* *Semigroups – A Computational Approach* (with F. Kohl, Y. Lin and J. Rauh). Advanced Studies in Pure Mathematics 77, 2018. The 50th Anniversary of Gröbner Bases page 155–170
32. *Principal Component Analysis and the Locus of the Fréchet Mean in the Space of Phylogenetic Trees* (with T. Nye, X. Tang, and G. Weyenberg). Volume 104, Issue 4, 1 December 2017, Pages 901–922, Biometrika.
33. \* *Convexity in Tree Spaces* (with B. Lin, B. Sturmfels, and X. Tang). SIAM J. Discrete Math. 31 (2017), no. 3, 2015–2038.
34. *Hybrid Schemes for Exact Conditional Inference in Discrete Exponential Families* (with D. Kahle and L. Garcia-Puente). Annals of Institute of Statistical Mathematics. DOI:10.1007/s10463-017-0615-z. 2017.
35. \* *Stochastic safety radius on Neighbor-Joining method and Balanced Minimal Evolution on small trees*, (with J. Xi, J. Xie, and S. Forcey). The proceedings of the 10th Workshop on Uncertainty Processing, pp217 – 230. 2016.
36. *Extremal Positive Semidefinite Matrices whose Sparsity Pattern is given by Graphs Without  $K_5$  Minors* (with L. Solus and C. Uhler). Linear algebra and its Applications. vol. 509, pp. 247–275. 2016.

37. \* *Normalizing kernels in the Billera-Holmes-Vogtmann treespace* (with G. Weyenberg and D. Howe). IEEE/ACM Transactions on Computational Biology and Bioinformatics. Volume 14 , Issue 6, PP 1359 – 1365, 2017. DOI:<http://doi.ieeecomputersociety.org/10.1109/TCBB.2016.2565475>
38. \* *Distributions of topological tree metrics between a species tree and a gene tree* (With J. Xi and J. Xie). Annals of Institute of Statistical Mathematics. Volume 69, Issue 3, pp 647–671. 2017. doi:10.1007/s10463-016-0557-x.
39. \* *Phylogenetic Tree Distances* (with G. Weyenberg). In: Kliman, R.M. (ed.), Encyclopedia of Evolutionary Biology. vol. 3, pp. 285–290. 2016. Oxford: Academic Press.
40. *Efficiencies of the NJp, maximum likelihood, and Bayesian methods of phylogenetic construction for compositional and non-compositional genes* (with M. Nei). Molecular Biology and Evolution. 33 (6): pp. 1618-1624. 2016. doi: 10.1093/molbev/msw042.
41. \* Reviewer for Mathematical Reviews (MathSciNet); 52 reviews all-time including a review for the book *Spectral clustering and biclustering*.
42. \* *Reconstructing the phylogeny: computational methods*. In “Algebraic and Discrete Mathematical Methods for Modern Biology,” edited by Robeva. Elsevier. 2015. 293–319.
43. *The characteristic imset polytope of Bayesian networks with ordered nodes* (With J. Xi). SIAM Discrete Math. 2015. 29(2), 697–715.
44. \* *kdetrees: Nonparametric Estimation of Phylogenetic Tree Distributions*, (with G. Weyenberg, P. Huggins, C. Schardl, and D. Howe). Bioinformatics. 2014, 30(16), pp2280–2287. doi: 10.1093/bioinformatics/btu258.
45. \* *Markov degree of of the three-state toric homogeneous Markov chain model*, (with D. Haws, A. Martin del Campo, and Takemura). Contributions to Algebra and Geometry. 2014, Volume 55, Issue 1, pp 161–188. DOI:10.1007/s13366-013-0178-y.
46. *Using HPC for teaching and learning bioinformatics software: Benefits and challenges* (Tyler Parke1, Mark Farman, Elizabeth Farnsworth, Derek Fox, Jerzy W Jaromczyk, Jolanta Jaromczyk, Neil Moore, Christopher L Schardl, Ruriko Yoshida and Pat Calie), BMC Bioinformatics, vol 14, Suppl 17:A18.
47. \* *Book review on “Stochastic Modeling for Systems Biology” by Wilkinson*. Journal of the American Statistical Association. 2013. Vol. 108, p. 1554.
48. *Approximate techniques in solving optimal camera placement problems* (Jian Zhao, Ruriko Yoshida, Sen-ching Samson Cheung, David Haws). International Journal of Distributed Sensor Networks, vol. 2013, Article ID 241913, 15 pages, 2013. doi:10.1155/2013/241913.
49. \* *Estimating the Number of Zero-One Multi-way Tables via Sequential Importance Sampling* (with J. Xi and D. Haws). Annals of Institute of Statistical Mathematics. Volume 65, Issue 4 (2013), Page 763-783. DOI: 10.1007/s10463-012-0392-7.
50. *Phylogenetic Tree Reconstruction: Geometric Approaches* (with T. Hodge and D. Haws) a book chapter in *Mathematical Concepts and Methods in Modern Biology* edited by T. Hodget and R. Robeva. Elsevier Press, 2013. page 307–340.
51. \* *Livestock Evacuation Planning for Natural and Man-made Emergencies* (with C. Vogiatzis, I. Aviles-Spadoni, P. Pardalos and S. Imamoto), International Journal of Mass Emergency and Disasters. Volume 31, number 1, 2013. p25–37.

52. *Plant-Symbiotic Fungi as Chemical Engineers: Multi-Genome Analysis of the Clavicipitaceae Reveals Dynamics of Alkaloid Loci*, (with Christopher Schardl, Jaromczyk, Neil Moore, David Haws, Thomas Bullock, et al.). PLOS Genetics. 2013. <http://www.plosgenetics.org/article/info:doi/10.1371/journal.pgen.1003323>.
53. \* *Algebraic methods for molecular phylogenetics*. Annals of Institute of Statistical Mathematics. Volume 60, number 2. 2012. p279–288.
54. *Prevalence of Anti-Brucella canis Antibodies in 1104 dogs at general animal hospital and 120 dogs at kennel*, (with Shigeki Imamoto, Takashi Iwasaki, Kikuo Miyoshi, Shuichiro Watanabe, Youhei Yamashita, Mitsuru Iba, Mikako Imamoto, Shinichi Namba, Takehisa Soma). Journal of Animal Clinical Medicine. 2012. vol.3 p96-102
55. \* *A support vector machine based test for incongruence between sets of trees in tree space*, (with David Haws, Peter Huggins, Eric M. O'Neill, David W. Weisrock). BMC Bioinformatics. Volume 13. Number 210. doi:10.1186/1471-2105-13-210.
56. *Chondrocyte response to Tensile and Compressive cyclic loading modalities* (with Srinath Kamineni, Zubair Wani, Kai-Nan An, Zong-Ping Luo), Journal of Musculoskeletal Research (JMR), 2012, Volume 0 Issue 2 1250006 (9 pages) DOI: 10.1142/S0218957712500066.
57. *Approximate techniques in solving optimal camera placement problems*, (with Jian Zhao, David Haws, and Sen-ching Samson Cheung) in the Eleventh IEEE International Workshop on Visual Surveillance, ICCV Workshops 2011, 1705–1712.
58. *Degree bounds for a minimal Markov basis for the three-state toric homogeneous Markov chain model* (with David Haws and Abraham Martin del Campo) in the Proceedings of the Second CREST–SBM International Conference “Harmony of Gröbner Bases and the Modern Industrial Society.” 2012. page 63–98. Available at <http://arxiv.org/abs/1108.0481>.
59. \* *First steps toward the geometry of cophylogeny*, (with P. Huggins and M. Owen) in the Proceedings of the Second CREST–SBM International Conference “Harmony of Gröbner Bases and the Modern Industrial Society.” 2012. page 99 – 116. Available at <http://arxiv.org/abs/0809.1908>.
60. *Late Removal of Titanium Hardware from the Elbow Is Problematic*, Abdo Bachoura, Ruriko Yoshida, Christian Lattermann, and Srinath Kamineni. ISRN Orthopedics. Volume 2012 (2012), Article ID 256239, 4 pages Available at <http://www.isrn.com/journals/orthopedics/contents/>.
61. *Optimality of the Neighbor Joining Algorithm and Faces of the Balanced Minimum Evolution Polytope* (with D. Haws and T. Hodge), 2011, Bulletin of Mathematical Biology. Volume 73, Number 11, 2627-2648. Published on-line DOI: 10.1007/s11538-011-9640-x Available at <http://arxiv.org/abs/1004.2073>.
62. \* *Bayes estimators for phylogenetic reconstruction* (with P. Huggins, W. Li, D. Haws, T. Friedrich, J. Liu), 2011, Volume 60, Issue 4, Systematic Biology. page 528–540. Available at <http://arxiv.org/abs/0911.0645>.
63. *Experiments with the site frequency spectrum*, (Raazesh Sainudiin, Kevin Thornton, Jennifer Harlow, James Booth, Michael Stillman, Ruriko Yoshida, Robert Griffiths, Gil McVean, and Peter Donnelly), 2011, 829-872, Volume 73, issue 4, Bulletin of Mathematical Biology. DOI: 10.1007/s11538-010-9605-5.
64. \* *Statistical analysis on detecting recombination sites in DNA- $\beta$  satellites associated with the old world geminiviruses*, (with K. Xu), Front. Psychiatry 2010. doi: 10.3389/fpsy.2010.00138. Available at <http://arxiv.org/abs/1006.4397>

65. \* *Open Problems on Connectivity of Fibers with Positive Margins in Multi-dimensional Contingency Tables*, Vol. 1, No. 1, 2010, 13-26 ISSN 1309-3452, J of Algebraic Statistics.
66. \* *Statistical Phylogenetic Tree Analysis Using Differences of Means*, (with Elissaveta Arnaudova, David Haws, Peter Huggins, Jerzy W. Jaromczyk, Neil Moore, Chris Schardl), Front. Psychiatry volume 1 number 47. 2010. doi:10.3389/fnins.2010.00047 Available at <http://arxiv.org/abs/1004.2101>.
67. *PhyloTree – a toolkit for computing experiments with distance-based methods for genome coevolution*, Elissaveta Arnaudova, Jerzy W Jaromczyk, Neil Moore, Christopher L Schardl, Ruriko Yoshida. BMC Bioinformatics 2010, 11(Suppl 4):P6 (23 July 2010)
68. \* *Markov bases and subbases for bounded contingency tables* (with F. Rapallo), Annals of Institute of Statistical Mathematics, 62(4), 2010, 785–805 (Available at <http://arxiv.org/abs/0905.4841> and <http://www.springerlink.com/openurl.asp?genre=article&id=doi:10.1007/s10463-010-0289-2>).
69. *On connectivity of fibers with positive marginals in multiple logistic regression* (with H. Hara and A. Takemura). J of Multivariate Analysis. 101(4), 2010, 909–925.
70. *Counting Tables using the Double Saddlepoint Approximation* (with J. Booth and V. Zipunikov), the Journal of Computational and Graphical Statistics, 18(4) December 1, 2009, 915–929.
71. \* *Computing holes in semi-groups and its applications to transportation problems* (with R. Hemmecke and A. Takemura), Contributions to Discrete Mathematics, Volume 4, Number 1, 2009, 81 – 91. Available at <http://cdm.ucalgary.ca/index.php/cdm/article/viewPDFInterstitial/149/95>
72. *A Generating Function for all Magic Squares and the Volume of the Birkhoff Polytope* (with J. De Loera and F. Liu), Journal of Algebraic Combinatorics, 30(1), 2009, 113 – 139. Available at <http://www.springerlink.com/content/m6627810x2013373/>
73. *Markov Bases for Two-way Subtable Sum Problems*, (with H. Hara and A. Takemura), J of Pure and Applied Algebra, 213(8) 2009, 1507 – 1521. Available at arXiv:0708.2312.
74. *A Markov Basis for Conditional Test of Common Diagonal Effect in Quasi-Independence Model for Two-Way Contingency Tables* (with H. Hara and A. Takemura), J of Computational Statistics and Data Analysis, 53, 2009, 1006 – 1014.
75. \* *Holes in semigroups and their applications to the two-way common diagonal effect model* (with A. Takemura and P. Thomas). In: Proceedings of the 2008 International Conference on Information Theory and Statistical Learning, ITSIL 2008, CSREA Press, ISBN: 1-60132-079-5, 67 – 72.
76. *Markov Chains, Quotient Ideals, and Connectivity with Positive Margins* (with Y. Chen and I. Dinwoodie), in “Algebraic and Geometric Methods in Statistics” dedicated to Professor Giovanni Pistone (P. Gibilisco, E. Riccomagno, M.-P. Rogantin, H. P. Wynn, eds.), 2008, 99 – 110.
77. \* *A novel test for host-symbiont codivergence indicates ancient origin of fungal endophytes in grasses* (with Chris L. Schardl, Kelly D. Craven, Adam Lindstrom, Skyler Speakman, and Arnold Stromberg), Systematic Biology Volume 57, 2008, 483 – 498.
78. \* *Geometry of Neighbor-Joining Algorithm for Small Trees* (with K. Eickmeyer), the refereed proceedings of the third international conference on Algebraic Biology, Springer LNC Series, 2008, 82 – 96.

79. *On the optimality of the neighbor-joining algorithm* (with K. Eickmeyer, P. Huggins, and L. Pachter), Algorithms for Molecular Biology, Volume 3, Issue 5, 2008, <http://www.almob.org/content/3/1/5>
80. *Indispensable Monomials of Toric Ideals and Markov Bases* (with Aoki and Takemura), the Journal of Symbolic Computation Volume 43, 2008, 490 – 509.
81. \* *Saturation Points on Faces of a Rational Polyhedral Cone* (with Takemura), in Proceedings of the Joint Summer Research Conference on Integer Points in Polyhedra-Geometry, Number Theory, Representation Theory, Algebra, Optimizations, Statistics. Contemporary Mathematics. Volume 452. American Mathematical Society, 2008, 147 – 162.
82. \* *A generalization of the integer linear infeasibility problem* (with Takemura), Discrete Optimization Volume 5, Issue 1, 2008, 36 – 52.
83. *On the enumeration of certain weighted graphs* (with Bóna and Ju), Discrete Applied Math Volume 155, Issue 11, 1 June 2007, 1481 – 1496.
84. *Beyond Pairwise Distances: Neighbor Joining with Phylogenetic Diversity Estimates* (with Levy and Pachter), the Molecular Biology and Evolution, 2006, 23(3) 491 – 498.
85. \* *Book review on Markov Processes and Applications*, J of the American Statistical Association, 10, June 2010, 3 – 4.
86. *Indispensable Monomials of Toric Ideals and Markov Bases* (with Aoki and Takemura), “the Asian Symposium on Computer Mathematics (ASCM) 2005”, edited by S. Pae, H. Park, 2005, 200 – 202, Korea Institute for Advanced Study.
87. *Fairground game computations* (with P. Huggins and J. B. Kadane), Significance, Letters, Volume. 2, Issue 2, June 2005, 92.
88. \* *Maximum Likelihood Estimation of Phylogenetic Tree and Substitution Rates via Generalized Neighbor-joining and the EM Algorithm* (with Hobolth), “Algebraic Biology 2005, Computer Algebra in Biology”, edited by H. Anai and K. Horimoto, vol. 1, 2005, 41 – 50, Universal Academy Press, INC..
89. *Applications of Interval Methods to Phylogenetic Trees* (with Sainudiin), a chapter contributing to a book “Algebraic Statistics for Computational Biology” edited by Lior Pachter and Bernd Sturmfels, (2005), Cambridge University Press, 359 – 374.
90. *A Computational Study of Integer Programming Algorithms Based on Barvinok’s Rational Functions* (with De Loera, Haws, Hemmecke, and Huggins), the Journal of Discrete Optimization, Vol 2, Issue 2, June 30 2005, 135 –144.
91. *Short Rational Functions and their Applications to Integer Programming* (with Woods), the newsletter of SIAM’s Activity Group on Optimization, vol. 16 no. 1–2, 2005, 15 – 19.
92. *Three Kinds of Integer Programming Algorithms based on Barvinok’s Rational Functions* (with De Loera, Haws, Hemmecke, and Huggins), Integer Programming and Combinatorial Optimization: 10th International IPCO Conference, Springer, (D. Bienstock and G. Nemhauser eds.), 2004, 244 – 255.
93. *Reconstructing trees from dissimilarity maps*, (with Levy and Su), RECOMB 2004 meeting abstracts, 2005, 19.
94. *Effective Lattice Point Counting in Rational Convex Polytopes* (with De Loera, Hemmecke, and Tauzer), the Journal of Symbolic Computation, vol. 38 no. 4, 2004, 1273 – 1302.
95. *Short Rational Functions for Toric Algebra and Applications* (with De Loera, Haws, Hemmecke, Huggins, and Sturmfels), the Journal of Symbolic Computation, vol. 38 no. 2, 2004, 959 – 973.

96. \* *Barvinok's Rational Functions: Algorithms and Applications to Optimization, Statistics, and Algebra*, Ph.D. Thesis, 2004, University of California, Davis.

**To Appear:**

1. \* *Connecting Tables with Allowing Negative Cell Counts* (with David Barnhill). To appear in Journal of Statistical Theory and Practice. Available at <https://arxiv.org/abs/2205.07167>.
2. *Tropical neural networks and its applications to classifying phylogenetic trees* (with Georgios Aliatimis and Keiji Miura). To appear in the proceedings of IJCNN 2024. Available at <https://arxiv.org/abs/2309.13410>.
3. *Tropical Linear Algebra and its Applications to Phylogenomics*, (with D. Barnhill). To appear in the book "Mathematical Concepts and Methods in Modern Biology" edited by T. Hodget and R. Robeva. Elsevier Press.
4. *Tropical Support Vector Machines and its Applications to Phylogenomics*, (With X. Tang and H. Wang). To appear in Algebraic Statistics.

**Submitted:**

1. *Tropical Fermat-Weber Polytopes*, (with D. Barnhill, J. Sabol, and K. Miura). Submitted to Mathematical Programming. Available at <https://arxiv.org/pdf/2402.14287.pdf>
2. *Tropical Decision Boundaries for Neural Networks Are Robust Against Adversarial Attacks* (with C. Teska, K. Pasque, K. Miura, J. Huang). Submitted.
3. *Tropical Geometric Tools for Machine Learning: the TML package* (with D. Barnhill, G. Aliatimis and K. Miura). Submitted to Journal of Software for Algebra and Geometry.
4. \* *Tropical Logistic Regression Model on Space of Phylogenetic Trees*, with Georgios Aliatimis, Burak Boyaci and James A. Grant. Submitted to Bulletin of Mathematical Biology. Available at <https://arxiv.org/abs/2306.08796>
5. *Maximum Inscribed and Minimum Enclosing Tropical Balls of Tropical Polytopes and Applications to Volume Estimation and Uniform Sampling* with D. Barnhill and K. Miura. Submitted to Mathematics of operations research. Available at <https://arxiv.org/abs/2303.02539>.
6. \* *Tropical Density Estimation of Phylogenetic Trees*, with Keiji Miura, David Barnhill and Daniel Howe, submitted to IEEE/ACM Transactions on Computational Biology and Bioinformatics. Available at <https://arxiv.org/abs/2206.04206>.
7. *Tropical Geometry of Phylogenetic Tree Space: A Statistical Perspective*, with A. Monod, B. Lin and Q. Kang. Submitted to SIAM Data Science.

**Preprint:**

1. *Tropical Foundations for Probability & Statistics on Phylogenetic Tree Space* (with A. Monod and B. Lin). Available at <https://arxiv.org/abs/1805.12400>.
2. *Nonparametric Estimation of Gene Tree Distributions*, (with Peter Huggins).
3. *Computing holes in semi-groups* (with Hemmecke and Takemura). Available at arXiv:math.CO/0607599.
4. *Combinatorial algorithms for reconstructing phylogenetic trees from dissimilarity maps*, (with D. Levy and F. Su), preprint.
5. *Partitioning the Sample Space on Five Taxa for the Neighbor Joining Algorithm* (with K. Eickmeyer). Preprint. Available at arXiv:math.CO/0703081.

◇ Thesis Advisor: Jesús De Loera, University of California, Davis, CA.



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- ◇ Postdoctoral Mentor: Lior Pachter, University of California, Berkeley, CA.
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- ◇ PhD Students:
  - Maj John Sabol (NPS)
  - Maj Chris Teska (NPS)
  - George Aliatimis (Lancaster University)
- ◇ MS Students:
  - Maj Matt MacDonald (NPS)
  - LT Seok Park (NPS)
  - Maj Kyle Kuhn (NPS)
  - LT David Lee (NPS)
  - Maj Karanja (NPS)
  - Maj JuHyung Kim (NPS)
  - Mr Bingyao Huang (NPS)
  - Capt Jackson Baker (NPS)
  - LT Charlotte Meyer (NPS)
  - LT Kurt Pasque (NPS)
  - Mr Xian Kai Chan (NPS)
  - Capt Austin McGahan (NPS)
  - Capt Hannah Crawford (NPS)
  - CPT Sam Fritz-Schreck (NPS)
  - LCDR Allison Hamel (NPS)
  - LT Ned Nicholson (NPS)
- ◇ Awarded Students:
  - LCDR John Waggener (NPS): CNO Award for Excellence in Operations Research
  - Capt Ryan Helm (NPS): the MORS Tisdale Thesis Award
  - LCDR Emmett Delateur (NPS): AY23Q2 Surface Navy Association Award for Academic Excellence
  - CDR Milton Mendieta (NPS): Outstanding Academic Achievement Award for International Students
  - CDR Milton Mendieta (NPS): Monterey Kiwanis Club Outstanding International Student Award
  - CDR Milton Mendieta: CNO Award for Excellence in Operations Research
  - ENS Ethan Boone: the MORS Tisdale Thesis Award
  - Capt Chad Minnick: Gaver Thesis Award Announcement (INFORMS MAS)
  - Capt Timothy Zebrowski: Chief of Naval Operations Award for Excellence in Operations Research
  - ENS Braedon Mead (NPS): CNO Award for Excellence in Operations Research

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- LT Jonathan Shepherd (NPS): the MORS Tisdale Thesis Award
- LT Jonathan Shepherd (NPS): The Surface Navy Association's Award for Excellence in Surface Warfare Research
- Maj David Wren (NPS): Association of the United States Army, General Joseph W. Stilwell Chapter, Award for Outstanding Army Student
- Maj Larry Wigington (NPS): Marine Corps Association Superior Service Award for Outstanding U.S. Marine Student
- Maj Nicholas Freeman (NPS): the MORS Tisdale Thesis Award
- LT Leonaridis-Mena (NPS): Navy League Award for Outstanding Academic Achievement
- ◇ Students as a Second Reader:
- ◇ Former PhD Students:
  - CDR David Barnhill (US Naval Academy)
  - Qiwen Kang (Medpace, Inc.)
  - Jing Xi (Mathematics department, NCSU, working with Dr. Seth Sullivan)
  - Grady Weyenberg (University of Hawaii, Hilo)
- ◇ Former Postdoc:
  - Peter Huggins (Carnegie Mellon University group affiliated with Google Pittsburgh).
  - David Haws (IBM)
- ◇ Former Masters student as Second Reader:
  - LT Justin Knisely (NPS)
  - ENS Jonathan Dollahite (NPS)
  - Capt Brent Niewoehner (NPS)
  - LCDR Nathaniel Marlow (NPS)
  - Maj Steven Warner (NPS)
  - LCDR Timothy Palic (NPS)
  - Squadron Leader Salman Aleem (NPS)
  - Capt Michael Blankenbeker (NPS)
  - Capt. Anthony Vanderzee (NPS)
- ◇ Former Masters student:
  - MS Yan-ru Lin (NPS)
  - LCDR Lucas Horan (NPS)
  - LT Thuan Chu (NPS)
  - LT Wonbin KO (NPS)
  - LCDR John Waggener (NPS)
  - LT Johnathan Thornton (NPS)
  - CPT Hokyung Kang (NPS)
  - Mr. Benjamin Polzin (NPS)

- Maj Jordan Thomas (NPS)
- Capt Ryan Helm (NPS)
- CAPT Herbert Jockheck (NPS)
- LT Aaron Chamberlain (NPS)
- LTC Robert Miske (NPS)
- LCDR Philip Lukanich (NPS)
- LT Kyle Plunkett (NPS)
- LCDR Emmett Delateur (NPS)
- LCDR Eduardo Castellanos (NPS)
- CDR Milton Mendieta (NPS)
- ENS Ethan Boone (NPS)
- ENS Richard Fetter (NPS)
- LCDR Stephen Cone (NPS)
- LT Young Hong (NPS)
- LT Marcus Garcia (NPS)
- LCDR Adam Alleman (NPS)
- LT Kenneth Marler (NPS)
- Capt Tyler Goble (NPS)
- Capt Chad Minnick (NPS)
- CPT Ryan Herrmann (NPS)
- Capt Timothy Zebrowski (NPS)
- ENS Braedon Mead (NPS)
- ESN Patrick Urrutia (NPS)
- CPT Mark Adams (NPS)
- LT Vannymae Angeles (NPS)
- LT Jonathan Shepherd (NPS)
- CPT David Wren (NPS)
- Maj Larry Wigington (NPS)
- Mr. Yi-chung Lin (NPS)
- ENS Liu Yixuan (NPS)
- ENS Logan Hughes (NPS)
- ENS Zachary Swenson (NPS)
- ENS Laurel Hornbuckle (NPS)
- LT Ross Spinelli (NPS)
- Capt Kelsey Hassin (NPS)
- LTJG Nickos Leondaridis-Mena (NPS)
- LT. Alejandro Gonzalez (NPS)

- Maj Robert Page (NPS)
- Capt Chris Teska (NPS)
- Maj Joseph Moeller (NPS)
- LT Carolyn Vu (NPS)
- LCDR Patrick Saluke (NPS)
- SN Xian Lin Penelope Chia (NPS)
- Capt Seungchan Lee (NPS)
- Capt Aaron Stone (NPS)
- Maj Nicholas Freeman (NPS)
- Skyler Speakman (H. John Heinz III School of Public Policy & Management, Carnegie Mellon University).
- Capt. Dor Kronzilber (NPS)

◇ Former Postdoc:

- LCDR Nathaniel Marlow (NPS)
- Maj Steven Warner (NPS)
- LCDR Timothy Palic (NPS)
- Squadron Leader Salman Aleem (NPS)
- Capt Michael Blankenbeker (NPS)
- Capt. Anthony Vanderzee (NPS)

- SOFTWARE ◇ **Shinrin** (with Levy and Pachter), software to reconstruct phylogenetic trees from DNA sequences via the Neighbor Joining method with subtree weights, available at URL:=<http://bio.math.berkeley.edu/mjoin>.
- ◇ **LattE** (with De Loera, Haws, Hemmecke, Huggins, and Tauzer), software to count the number of lattice points inside a rational convex polytope via Barvinok's cone decomposition, available at URL:=<http://www.math.ucdavis.edu/~latte>.

GRANT DEVELOPMENT ◇ Current/past funded

- **Source (period)**: Consortium for Robotics and Unmanned Systems Education and Research (CRUSER) (January 1st, 2024 to December 31st 2024).  
**Principal Investigator**: R. Yoshida  
**Role**: Principal Investigator  
**Amount**: \$75,000 in total  
**Title**: Generative AI for Temporal Policy Planning for Robotic Collaborative Control
- **Source (period)**: Naval Research Program (October 1st, 2023 to Feb 25th 2025).  
**Principal Investigator**: R. Yoshida  
**Role**: Principal Investigator  
**Amount**: \$155,000 in total  
**Title**: Building Supervised ML Models with Geospatial & Time Series Analyses to Predict Adversary's Action

- **Source (period):** Naval Information Warfare Systems Command. (July 15th, 2023 to December 31st 2023).  
**Principal Investigator:** R. Yoshida  
**Role:** Principal Investigator  
**Amount:** \$245,000 in total  
**Title:** Enabling Real-Time Spectrum Operations: An Analysis of Feasible Alternatives
- **Source (period):** Consortium for Robotics and Unmanned Systems Education and Research (CRUSER). (January 1st, 2023 to December 31st 2023).  
**Principal Investigator:** D. Horner  
**Role:** Co-Principal Investigator  
**Amount:** \$150,000 in total  
**Title:** Multirobot Temporal Logic Optimal Control
- **Source (period):** Naval Research Program (NRP). (October 15th, 2022 to October 14th 2023).  
**Principal Investigator:** J. Huang  
**Role:** Co-Principal Investigator  
**Amount:** \$125,000 in total  
**Title:** Application of Generative Adversarial Networks (GANs) to Predicting and Manipulating Adversary's Behaviors for Mobile Networked Control Systems
- **Source (period):** Consortium for Robotics and Unmanned Systems Education and Research (CRUSER). (January 1st, 2022 to December 31st 2022).  
**Principal Investigator:** D. Horner  
**Role:** Co-Principal Investigator  
**Amount:** TBA about \$150,000 in total  
**Title:** BION: Behavior Integration and Optimization for NCS
- **Source (period):** Consortium for Robotics and Unmanned Systems Education and Research (CRUSER). (January 1st, 2021 to December 31st 2021).  
**Principal Investigator:** D. Horner  
**Role:** Co-Principal Investigator  
**Amount:** TBA about \$150,000 in total  
**Title:** Automating Behaviors into a UxV Networked Control System
- **Source (period):** Naval Research Program (NRP). (October 15th, 2020 to October 14th 2021).  
**Principal Investigator:** R. Yoshida  
**Role:** Principal Investigator  
**Amount:** \$75,000 in total  
**Title:** Social Network Analysis on Connectedness, Destructive Behaviors, and Effects on Stress
- **Source (period):** Consortium for Robotics and Unmanned Systems Education and Research (CRUSER). Tier 1 (January 1st, 2020 to December 31st 2020).  
**Principal Investigator:** D. Horner

*Ruriko Yoshida*

**Role:** Co-Principal Investigator

**Amount:** TBA about \$150,000 in total

**Title:** Advanced Topics in Mixed-Initiative, UxV Networked Control Systems

- **Source (period):** Consortium for Robotics and Unmanned Systems Education and Research (CRUSER). Tier 2 (January 1st, 2020 to December 31st 2020).

**Principal Investigator:** D. Horner

**Role:** Co-Principal Investigator

**Amount:** TBA about \$200,000 in total

**Title:** Advanced Topics in Mixed-Initiative, UxV Networked Control Systems

- **Source (period):** NSF DMS Grant number: 1916037. (October 1st, 2019 to September 30th 2022).

**Principal Investigator:** R. Yoshida

**Role:** Principal Investigator

**Amount:** \$129,915 in total

**Title:** Collaborative Research: Principal Component Analysis over tree spaces and its applications to phylogenomics

- **Source (period):** Naval Research Program. (October 15th, 2019 to October 14th, 2020).

**Principal Investigator:** R. Yoshida

**Role:** Principal Investigator

**Amount:** \$75,000 in total

**Title:** Inference on Missing Information on a Social Network

- **Source (period):** NSF Grant number: 1622369. (April 1st, 2017 to March 31st, 2020).

**Principal Investigator:** R. Yoshida

**Role:** Principal Investigator

**Amount:** \$100,404 in total

**Title:** Collaborative Research: CDS&E: Applied Algebraic Statistics through R

- **Source (period):** Naval Research Program. (March 1st, 2019 to March 31st, 2020).

**Principal Investigator:** R. Yoshida

**Role:** Principal Investigator

**Amount:** \$75,000 in total

**Title:** Classification of networks with missing information

- **Source (period):** Naval Air Systems Command (NAVAIR) (January 1st, 2019 to September 30th, 2019).

**Principal Investigator:** R. Yoshida

**Role:** Principal Investigator

**Amount:** \$70,677.24 in total

**Title:** Navy Oil Analysis and Lubricants Programs, Statistics and Data Analytics Studies

- **Source (period):** US Air Force (January 1st, 2019 to September 30th, 2019).

**Principal Investigator:** R. Yoshida

**Role:** Principal Investigator  
**Amount:** \$26,495.36 in total  
**Title:** Dueling network and its application to UAV

- **Source (period):** Naval Research Program: (October 1st, 2017 to September 30th, 2018).  
**Principal Investigator:** R. Szechtman  
**Role:** Co-Principal Investigator  
**Amount:** \$100,000 in total  
**Title:** Sensor Fusion for Undersea Operations
- **Source (period):** NAVAIR: (February 1st, 2018 to September 30th, 2018).  
**Principal Investigator:** M. Stefanou  
**Role:** Co-Principal Investigator  
**Amount:** \$24,000 in total  
**Title:** NAVAIR Data Science Education Program Introduction
- **Source (period):** NSF Grant number: 1360777. (September 16th, 2013 to February 3rd 2014).  
**Principal Investigator:** S. Petrovic  
**Role:** Co-Principal Investigator  
**Amount:** \$10,000 in total  
**Title:** Algebraic Statistics 2014: Conference at IIT
- **Source (period):** Japan Society for the Promotion of Science (JSPS) (April 1st, 2014 to March 31st, 2017).  
**Principal Investigator:** K. Fukumizu  
**Role:** Oversea Collaborator  
**Amount:** 4,900,000 yen for direct cost  
**Title:** Applications of algebraic geometry to statistical data analysis  
**Efforts:** one trip to Japan a year.
- **Source (period):** NIH Research Project Grant Program (R01) from the Joint DMS/BIO/NIGMS Math/Bio Program. Grant number: R01GM086888. Award Document Number: RGM086888A. (July 1st, 2008 to June 30th, 2014).  
**Principal Investigator:** R. Yoshida  
**Role:** Principal Investigator  
**Amount:** \$1,000,000 for direct cost (\$400,000 for indirect cost)  
**Title:** Geometry of gene cophylogenies as relates to genome evolution and speciation  
**Efforts:** one summer and one academic month.
- **Source (period):** NSF Grant number: 0949532. (March 1st, 2010 to February 28th, 2013).  
**Principal Investigator:** D. Weisrock  
**Role:** Co-Principal Investigator  
**Amount:** \$450,000 in total  
**Title:** Genome-level resolution of species boundaries and phylogeny of the North American tiger salamander radiation

**Efforts:** one summer.

· **Source (period):** NIMBioS (Fall, 2010 to Summer, 2012).

**Principal Investigator:** D. Weisrock and R. Yoshida

**Role:** Principal Investigator

**Amount:** Supporting a whole week of the workshop as well as supporting travels for all participants.

**Title:** Working Group on Species Delimitation

◇ Fellowship

· 2007 Summer Faculty Research Fellowship from University of Kentucky, KY.

· 2001 and 2003 Summer Research Fellowship from Graduate Studies at University of California, Davis.

SELECTED  
TALKS

- ◇ \* means as a plenary speaker or selected as a speaker for high impact conferences/meetings.
- ◇ \* Discrete Mathematics and Biology: the legacy of Andreas Dress at Max Planck Institute, September 26 and 27, 2024.
- ◇ \* From Phylogenetics to Phylogenomics: Mathematical and Statistical Challenges in the era of Big Data, in ICERM Brown University, Boston. October 21, 2024 – October 25, 2024.
- ◇ \* Workshop for Women in Algebraic Statistics in Oxford from July 8th to July 18th 2024.
- ◇ \* Special session on “Algebraic Approaches to Mathematical Biology” at the upcoming Joint Mathematics Meetings (JMM) in San Francisco, CA from January 3rd to 6th, 2024.
- ◇ \* Phylonomania, November 22nd to 24th, 2023 at University of Tasmania.
- ◇ \* Special Session on Tropical Geometry at American Women in Mathematics (AWM) at Clark Atlanta University. September 30th to October 2nd, 2023.
- ◇ \* Mini-symposium on phylogenetics at the 10th International Congress on Industrial and Applied Mathematics, ICIAM 2023 in Tokyo, Japan on 20-25 August 2023.
- ◇ \* Casa Matemática Oaxaca (CMO) Workshop: Computations and Data in Algebraic Statistics (23w5130), May 14th to May 19th 2023.
- ◇ \* The 8th Mexican Workshop on Applied Geometry and Topology. November 9th to 16th, 2022. Virtually (via gather.town) sponsored by CIMAT Guanajuato.
- ◇ \* International Conference on Information Geometry for Data Science. September 19th to 23rd, 2022. Hamberg Germany. <https://www.dsf.tuHH.de/index.php/ig4ds/>
- ◇ \* The Hawai‘i Algebraic Statistics conference at the University of Hawai‘i at Manoa, May 16 - May 20, 2022.
- ◇ \* Seminar at Division of Biostatistics of Weill Cornell Medicine, Cornell University, Feb 8th 2022.
- ◇ \* Emerging Techniques Forum, Military Operations Research Society, 7–9 December 2021, Hilton Mark Center, Alexandria, VA.
- ◇ \* Phylonomania 2021, 22 – 26 November 2021 via Zoom.
- ◇ \* Geometry & Learning from Data (Online) at Banff International Research Station, from October 24 to October 29, 2021.
- ◇ Intelligent Systems Conference (IntelliSys) 2021 2–3 September 2021.



- ◇ Warfare Innovation Continuum, September 20th to 23rd, 2021.
- ◇ \* Workshop on Machine Learning, August 25th and 26th 2021.
- ◇ \* London Geometry and Machine Learning Summer School (LOGML), July 12th to 16th 2021.
- ◇ \* Presenting my research to N3N5 VADM Sawyer on April 29th 2021.
- ◇ \* Presenting my research to Vice Chief of Naval Operations Adm. Bill Lescher on April 28th 2021.
- ◇ \* The fifth annual workshop on Naval Applications of Machine Learning, March 23rd to 25th, 2021.
- ◇ Minisymposium on "Data Structures in Tropical Geometry" at the SIAM Conference on Applied Algebraic Geometry at Texas A&M University in College Station, Texas, to take place during August 16–20, 2021.
- ◇ "Computations and Data in Algebraic Statistics" at Banff International Research Station for Mathematical Innovation and Discovery in Oaxaca, Mexico. September 19 to September 24, 2021.
- ◇ Phylomania 2020, Twelfth Theoretical Phylogenetics Meeting at the University of Tasmania, November 25th - 27th, 2020.
- ◇ Session on "Polyhedral methods in geometry and optimization" at "International Congress on Mathematical Software" at the University of Braunschweig, 13-16 July 2020.
- ◇ \* Algebraic Statistics 2020, via Zoon from June 22th to 26th, 2020.
- ◇ Conference on Mathematics of Data Science, via Zoon, June 15th, 2020.
- ◇ POSTPHONED by the hosting organization due to precaution against COVID 19: Conference on Mathematics of Data Science, Cincinnati Ohio, May 5–7, 2020.
- ◇ CANCELED by the hosting organization due to precaution against COVID 19: "Algebraic geometry in statistics and machine learning" at the AMS Spring Western Sectional Meeting at California State University, Fresno, Fresno, CA. May 2nd and 3rd, 2020.
- ◇ Nonlinear Algebra Seminar, University of California, Berkeley. February 25th, 2020.
- ◇ Colloquium talk at Mathematics department at West Michigan University, November 14th 2019.
- ◇ Math/Stat Colloquium talk at Mathematics department at CSUMB, November 4th 2019.
- ◇ Colloquium talk at Mathematics department at California Polytechnic State University, San Luis Obispo, October 11th 2019.
- ◇ Colloquium talk at Statistics department at University of Goettingen, September 9th 2019.
- ◇ ICIAM 2019 minisymposium "discrete biological data", Valencia, Spain from July 15th to 19, 2019.
- ◇ Mini-symposium on "fitness landscapes and epistasis" SIAM Activity Group on Algebraic Geometry 2019, July 15-19, 2019, Bern Switzerland.
- ◇ "Bridging Network Science and Graph Theory" in MAA Math Fest 2018 in Denver Colorado, Aug 1–4, 2018
- ◇ Session "Polyhedral methods in geometry and optimization" at the International Congress on Mathematical Software (ICMS) 2018, the University of Notre Dame, 24-27 July 2018.
- ◇ "Algebraic Statistics: Data Analysis" at the SIAM Annual meeting on July 9th to 14th 2018 at Portland, Oregon.
- ◇ The 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications on July 5th - 9th, 2018 in Taipei, Taiwan.

- ◇ “Core computational methods” workshop at the Institute for Computational and Experimental Research in Mathematics (ICERM) at Brown University, September 17 – 21, 2018.
- ◇ The 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications on July 5th – 9th, 2018 in Taipei, Taiwan.
- ◇ The Oberwolfach Workshop “Statistics for Data with Geometric Structure” 21 January – 27 January 2018 at Oberwolfach Germany.
- ◇ \* International Symposium on Molecular Evolution and Medicine at Temple University, September 16th and 17th, 2017.
- ◇ \* Algebraic and Symplectic Geometry, Arakelov Theory and Applications. GEOMAP “Mediterranean month in Phylogenetics” June 12th to July 10th 2017 in Barcelona and Porquerolles.
- ◇ The Oberwolfach Workshop “Algebraic Statistics” 16 April – 22 April 2017 at Oberwolfach Germany.
- ◇ “AMS Special Session - Algebraic Statistics” The AMS Joint Mathematics Meeting in Atlanta, January 4-7, 2017.
- ◇ “Discrete Math Biology” minisymposium at SIAM discrete math meeting in Atlanta, June 6th – 10th, 2016.
- ◇ “Applications of Algebraic Methods to Statistics” at Research Institute of Mathematical Science (RIMS) of Kyoto University from 20 June – 24 June, 2016.
- ◇ “Algebraic and Combinatorial Methods in Mathematical Biology” for the AMS Spring Southeastern Sectional Meeting at University of Georgia, Athens, GA March 5-6, 2016.
- ◇ Special session on “Applications of CAT(0) Cube Complexes” at Fall Eastern Sectional AMS Meeting Rutgers University, New Brunswick, NJ November 14-15, 2015.
- ◇ Combinatorics seminar at Texas A&M, November 6th, 2015.
- ◇ Colloquium series at Department of of Biostatistics at Columbia University, Oct 29th, 2015.
- ◇ Applied Math seminar at University of Notre Dame, October 15th 2015.
- ◇ “Algebraic and Discrete Methods in Mathematical Biology” at the 15th International Symposium on Biomathematics and Ecology Education and Research (BEER), Oct. 9-11, 2015 at Illinois State University in Normal, IL.
- ◇ “Algebraic statistics and its interactions with combinatorics, computation, and network science” at the Fall 2015 AMS Central Section meeting at Loyola University, Chicago, October 3-4, 2015.
- ◇ The 8th MSJ SI 2015 Mathematical Society of Japan, Seasonal Institute Current Trends on Gröbner Bases July 1st to 10th 2015, Osaka Japan.
- ◇ \* Algebraic Statistics 2015 June 8–11, 2015, Department of Mathematics University of Genoa.
- ◇ \* Normaliz workshop, May 15th and 16th, 2015. Institute of Mathematics, Albrechtstr. 28a, Osnabrück.
- ◇ The 7th International Conference of the ERCIM WG on Computational and Methodological Statistics (ERCIM 2014) in Pisa, Italy from December 6th to 8th 2014.
- ◇ Special Session “Algebraic Statistics” at the AMS Fall Western Sectional Meeting in San Francisco on October 25-26, 2014.
- ◇ \* Computational Algebraic Statistics, Theories and Applications (CASTA 2014), January 21st to 24th, 2014. Kyoto, Japan.
- ◇ Clemson University Algebra and Discrete Math (ADM) Seminar, Sept 26th, 2013.

- ◇ Minisymposium on applications of algebraic geometry to phylogenetics at SIAM on Algebraic Geometry at Colorado State University from August 1st to 4th 2013.
- ◇ \* Teaching Discrete and Algebraic Mathematical Biology to Undergraduates July 28th - August 2nd, 2013 at MBI, Ohio.
- ◇ East African School on Applicable Algebraic Geometry 6th to 28th July 2013 Bandari College, Mombasa, Kenya.
- ◇ 19th Conference on Applications of Computer Algebra, July 2nd – 6th, 2013, at AC Hotel Málaga Palacio.
- ◇ Seminar at Institute of Statistical Mathematics on Feb 27th 2013.
- ◇ Seminar at Universität Salzburg on November 28th 2012.
- ◇ Symposium on "Mathematical Models of Complex Biological Systems" at Biomathematics and Ecology: Education and Research (BEER) 2012, November 9th to 11th 2012 at St. Louis, MO.
- ◇ INFORMS Annual meeting 2012, Phoenix, AZ October 14th to 17th.
- ◇ \* The 9th workshop on Uncertainty Processing 2012 in the Czech Republic on September 12th to 15th.
- ◇ \* Workshop on Convex Polytopes, Kyoto, July 23–27, 2012, Kyoto, Japan.
- ◇ \* The 2nd Institute of Mathematical Statistics Asia Pacific Rim Meeting, July 1st to 4th, 2012, Tokyo, Japan.
- ◇ \* Algebraic Statistics in the Alleghenies at Penn State, June 8-15, 2012
- ◇ \* Workshop on Graphical Models: Mathematics, Statistics and Computer Science, April 16-18, 2012 at the Field Institute, Toronto.
- ◇ \* The Annual New Zealand Phylogenetics Meeting, Sunday 29th January – Friday 3rd February, 2012, University of Canterbury, New Zealand.
- ◇ Minisymposium on Categorical Data: Contingency Tables and Network Structures at the 2011 SIAM Conference on Applied Algebraic Geometry, October 6th to 9th, 2011 at North Carolina State University.
- ◇ Minisymposium on Infinite-dimensional systems of polynomial equations with symmetry at the 2011 SIAM Conference on Applied Algebraic Geometry, October 6th to 9th, 2011 at North Carolina State University.
- ◇ Workshop at Tsukuba, Japan, July 8th and 9th, 2011.
- ◇ \* Workshop on Combinatorial Optimization, Statistics, and Applications (COSA), March 14th to 15th, 2011, TU Munich, Germany.
- ◇ The 1st Joint North American Meeting on Industrial and Applied Mathematics (NAMIAM) on 8th to 10th December, 2010 at the Universidad del Mar, Huatulco, Oaxaca, Mexico.
- ◇ Statistics Seminar at Mathematics, Statistics, and Computer Science department, University of Illinois at Chicago on November 10th, 2010.
- ◇ Mathematical and Computational Biology Seminar, UC Berkeley, CA on September 8th, 2010.
- ◇ Bioinformatics Seminar at North Carolina State University on May 18, 2010.
- ◇ \* The Second CREST–SBM International Conference "Harmony of Groebner bases and the modern industrial society" Osaka, Japan, June 28th to July 2nd, 2010.

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- ◇ Minisymposium on Discrete Mathematical Biology, SIAM Conference on Discrete Mathematics, June 14th to 17th, 2010 at the Hyatt Regency Austin, Austin, Texas.
- ◇ UT-ORNL-KBRIN Bioinformatics Summit 2010, March 19th to 21st, 2010 Lake Barkley State Resort Park Cadiz, KY.
- ◇ The colloquium at mathematics department in Western Michigan University, January 29th, 2010.
- ◇ Special session on “Applicable Algebraic Geometry” in the 2009 AMS Fall Central Section meeting October 16th through 18th, 2009 at Baylor University in Waco, TX.
- ◇ Seminar talk on July 30th, 2009 at POSTECH, South Korea.
- ◇ Lectures on July 28th to 29th, 2009 at KAIST, South Korea.
- ◇ Special session on “Algebra and Number Theory with Polyhedra” in the 2009 Spring Western Section Meeting of the American Mathematical Society, at the San Francisco State University on April 25 and 26, 2009, San Francisco, CA.
- ◇ Special session on “Advances in the Theory of Integer Linear Optimization and its Extensions” in the 2009 Spring Western Section Meeting of the American Mathematical Society, at the San Francisco State University on April 25 and 26, 2009, San Francisco, CA.
- ◇ Special session on “Applications of Algebraic and Geometric Combinatorics” at the Spring 2009 AMS Southeastern Sectional Meeting in Raleigh, NC, April 4th and 5th, 2009.
- ◇ A midprogram workshop of SAMSI program year on “Algebraic Methods in Systems Biology and Statistics” entitled ”Algebraic Statistical Models” organized by Mathias Drton, Eva Riccomagno, and Seth Sullivant, on January 17-19, 2009, at SAMSI, NC.
- ◇ Workshop on “Algebraic Statistics” at MSRI, Berkeley, CA, on December 15th to 18th, 2008.
- ◇ \* Computational Algebraic Statistics, Theories and Applications (CASTA2008) in Kyoto, Japan, December 10th to 11th, 2008.
- ◇ The AMS sectional meeting “Applications of Algebraic Geometry” at the University of British Columbia in Vancouver, October 4th to 5th, 2008.
- ◇ Mixed integer programming (MIP 2008) at Columbia University, in New York City, NY on August 4th to 7th, 2008.
- ◇ Mathematical explorations in contemporary Statistics at Grande Albergo, Sestri Levante (GE) - Italy on May 19th to 20th, 2008.
- ◇ A special session on Toric Varieties at the SIAM-SEAS (Society for Applied and Industrial Mathematics-Southeastern Atlantic Section) 2008 Meeting at University of Central Florida in Orlando on March 14th and 15th, 2008.
- ◇ Future Directions in Phylogenetic Methods and Models at Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, December 17th to 21st 2007.
- ◇ AMS 2007 Fall Southeastern Meeting: Special Session on Combinatorial Enumeration, Optimization, Geometry, and Statistic. Middle Tennessee State University, Murfreesboro, TN, November 3rd to 4th, 2007.
- ◇ University of Tokyo, Kagaku kenkyuhi, Kenkyu shukai at Toyohashi, Japan, October 25th to 27th, 2007.
- ◇ A colloquium talk in the Department of Mathematics in University of Louisville, Oct 12th, 2007.
- ◇ Current Challenges and Problems in Phylogenetics at Isaac Newton Institute for Mathematical Sciences, Cambridge, UK on September 3rd to 7th 2007.

- ◇ The Joint Statistical Meetings in UT on July 28th to August 2nd, 2007.
- ◇ Atlantic Coast Conference on Mathematics in the Life and Biological Sciences at Virginia Tech on May 3rd to 5th, 2007 (co-sponsored by VT and SAMSI/NC State).
- ◇ Institute for Mathematics and its Applications Annual Program Year Workshop, Applications in Biology, Dynamics, and Statistics at Institute for Mathematics and its Applications, Minnesota on March 5th to 9th, 2007
- ◇ Research Institute for Mathematical Sciences International Conference on Theoretical Effectivity and Practical Effectivity of Gröbner Bases at Research Institute of Mathematical Sciences Kyoto University on January 22nd to 26th, 2007.
- ◇ Statistics Seminar at Oxford University, Oxford, UK on November 28th, 2006.
- ◇ Research Institute for Mathematical Sciences WORKSHOP on Development of Computational Algebraic Statistics at Research Institute of Mathematical Sciences Kyoto University on November 6th to 10th, 2006.
- ◇ Statistics Seminar, Statistics Department, Carnegie Mellon University, PA on October 11th, 2006.
- ◇ Statistics Seminar, Statistics Department, Cornell University, Ithaca, NY, on October 4th, 2006.
- ◇ Freie Universität Berlin, Germany, on July 6th, 2006.
- ◇ Otto-von-Guericke University Magdeburg, Germany, on June 29th, 2006.
- ◇ Institute of Statistical Mathematics, Tokyo, Japan on May 29th, 2006.
- ◇ Special Session on Enumerative Aspects of Polytopes American Mathematics Society 2006 Spring Western Section Meeting, in San Francisco State University, CA, on April 29th to April 30th, 2006.
- ◇ Optimization seminar, University of California Davis, CA, April 28, 2006.
- ◇ The Mathematical Colloquium at Colorado State University, CO on February 1st, 2006.
- ◇ The Computational Biology seminar at Duke University, NC on January 30th, 2006.
- ◇ Symbolic Computation Seminar at North Carolina State University, NC on January 26th, 2006.
- ◇ The Operations Research colloquium at University of North Carolina, NC, on January 25th, 2006.
- ◇ The Seminar Series at the department of statistics, University of Kentucky, Kentucky on January 20th, 2006.
- ◇ American Mathematics Society Special Session on Algebraic Statistics in San Antonio, Texas, on January 12th to 13th, 2006.
- ◇ The First International Conference Algebraic Biology (AB2005), Computer Algebra in Biology in Tokyo, Japan, on November 28th to 30th, 2005.
- ◇ Statistical and Applied Mathematical Sciences Institute Workshop on Random Graphs and Stochastic Computation on June 13th to 14th, 2005.
- ◇ Super-robust Computation Project, Tokyo University, Tokyo, Japan on May 25th, 2005.
- ◇ Morning Coffee Talks at Statistical Genetics and Bioinformatics, North Carolina State University on December 7th, 2004.
- ◇ Geometry, Algebra, and Phylogenetic trees at Harvey Mudd College Claremont, California on October 23rd, 2004.
- ◇ Symbolic Computation Seminar at North Carolina State University on September 1st, 2004.

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- ◇ Computational Algebraic Statistics, December 14th to 18th, 2003 at American Institution of Mathematics, Palo Alto, CA.
- ◇ Convex Polytopes Workshop, September 15th 2003 at Mathematical Sciences Research Institution, Berkeley, CA.
- ◇ Integer points in polyhedra, Geometry, Number Theory, Algebra, Optimization. Joint summer research conferences American Mathematical Society, Institute of Mathematical Statistics, and Society for Industrial and Applied Mathematics, July 13th 2003 to July 17th 2003 at Snowbird, Utah.
- ◇ Stochastic Computation Final Workshop, June 26th 2003 to June 28th 2003, at Statistical and Applied Mathematical Sciences Institution, NC.
- ◇ Workshop on Gröbner bases and Statistics VI and the First International School on Algebraic Statistics, February 17th 2003 to February 20th 2003, at Statistique et Traitement Informatique des Données in Menton, France.
- ◇ Stochastic Computation, January 23rd 2003, at Statistical and Applied Mathematical Sciences Institution, NC.
- ◇ Workshop on Algebraic Statistics, January 14th 2003 to January 15th 2003, at University of California, Berkeley, CA.

SERVICE

- ◇ Committee member for Operational Warfare Analysis (OWA) – Curriculum 355.
- ◇ Hiring Committee for AY 22 and AY 23.
- ◇ Nomination committee, faculty council member at Naval Postgraduate School from January 2023 to December 2025.
- ◇ Faculty Council Executive Board at Naval Postgraduate School from December 2017 to 2019.
- ◇ Scholarship committee, faculty council member at Naval Postgraduate School from January 2023 to December 2025.
- ◇ Nomination committee, faculty council member at Naval Postgraduate School from November 2016 to December 2019.
- ◇ Organizer of a session on "Mathematics in Data Science" at AMS at Fresno State University, May 6th to 7th, 2023.
- ◇ Instructor for Data Science Short Course Summer 2017 at Marine Corps July 11th to 14th, 2017
- ◇ Program Committee Member for the SIAM Conference on Applied Algebraic Geometry (AG17) in Atlanta, Georgia during July 31 – August 4, 2017.
- ◇ National Science Foundation Division of Mathematical Sciences; panelist for grant proposal review on mathbio, 2011.
- ◇ National Science Foundation Division of Mathematical Sciences; panelist for CAREER grant proposal review on mathbio, November 2010.
- ◇ Search committee member for the department chair position, Statistics Department University of Kentucky, Spring 2011.
- ◇ Conferences Organized
  - A session on "Mathematics in Data Science" at AMS at Fresno State University, May 6th to 7th, 2023.
  - Mini-symposium on "algebraic methods in phylogenetics" in 10th International Workshop on Simulation and Statistics at University of Salzburg, Austria 2nd – 6th of September 2019.

- Mini-symposium on “Tropical Statistics” SIAM Activity Group on Algebraic Geometry 2019, July 15-19, 2019, Bern Switzerland.
- Program Committee Member for the SIAM Conference on Applied Algebraic Geometry (AG17) Atlanta, Georgia during July 31 – August 4, 2017.
- Mini-symposium “Geometric Phylogenetics” at the 2016 SIAM Conference on the Life Sciences, Boston MA, July 11–15, 2016.
- Special Session on “Mathematics of Evolutionary Biology”, the AMS meeting in Chicago at Loyola University October 3-4 2015.
- Local Organizer for SIAM Conference on Applied Algebraic Geometry from August 3rd to 7th 2014 at NIMS Daejeon South Korea.
- Scientific Committee, NSF/CBMS conference on Mathematical Phylogenetics from June 28th through July 2nd 2014 at Winthrop University.
- Organizer, Workshop on algebraic statistics from July 14th to 17th, 2014, at NIMS Daejeon, Korea.
- Organizing committee, Conference on algebraic statistics May 19-22, 2014, Illinois Institute of Technology Chicago, IL.
- Session on Phylogenetics at the 2012 WNAR meeting Colorado State University, Ft Collins Colorado, Sunday June 17- Wed June 20, 2012.
- MBI workshop “Algebraic Methods in Evolutionary and Systems Biology” on May 7th to 11th, 2012 at Mathematical Biology Institution, OH.
- NIMBioS Working Group on Species Delimitation, at National Institute for Mathematical Biological Synthesis at U of Tennessee, Fall 2010 to Summer 2012.
- Mini-symposium MS26 and MS39 on “Algebraic Statistics” at 2010 SIAM Annual Meeting (AN10), July 12-16, 2010, Pittsburgh, Pennsylvania. The David L. Lawrence Convention Center.
- Program Committee, the International Conference on Algebraic and Numeric Biology, organized by RISC (Research Institute for Symbolic Computation), Johannes Kepler University of Linz, at the Castle of Hagenberg, Austria, in July 31st to August 2nd, 2010.
- Special Session on “Advances in Algebraic Statistics” at the 2010 Spring Southeastern Sectional Meeting Lexington, KY, March 27th-28th, 2010.
- The Transition Workshop for Algebraic Methods in Systems Biology and Statistics at Research Triangle Park, North Carolina, June 18-20, 2009.
- Mid-program workshop on Molecular Evolution and Phylogenetics at SAMSI, NC on April 2nd and 3rd, 2009.
- Program Committee, the international conference on Algebraic Biology (AB’08) at RISC, Castle of Hagenberg, Austria on July 31st to August 2nd, 2008.
- SAMSI Special Year on Algebraic Methods in Systems Biology and Statistics at SAMSI, NC.
- Tutorials and Opening Workshop at SAMSI, NC.
- Co-organizer, SAMSI Special Year on Algebraic Methods in Systems Biology and Statistics at SAMSI, NC, September, 2008 to August, 2009.
- Organizing committee, AMS 2007 Fall Southeastern Meeting: Special Session on Combinatorial Enumeration, Optimization, Geometry, and Statistic. Middle Tennessee State University, Murfreesboro, TN, November 3rd to 4th, 2007.

- Program Committee, the 2nd International Conference on Algebraic Biology, organized by RISC (Research Institute for Symbolic Computation), Johannes Kepler University of Linz, at the Castle of Hagenberg, Austria, in July 2nd to 4th, 2007.
- Organizing committee, Integer Points In Polyhedra Geometry, Number Theory, Representation Theory Algebra, Optimization, Statistics on Snowbird, Utah, on June 11th to 15th, 2006.
- Organizing and program committee, the First International Conference Algebraic Biology (AB2005), “Computer Algebra in Biology”, in Tokyo, Japan, November 28th to 30th, 2005.
- ◇ Editorial Board, Geometry.
- ◇ Specialty Chief Editor for the Evolutionary Systems Biology.
- ◇ Associate Editor for PLoS ONE  
<https://journals.plos.org/plosone/static/editorial-board>.
- ◇ Editor for “Algebra and Geometry” in Mathematics. [https://www.mdpi.com/journal/mathematics/sectioneditors/algebraic\\_geometry](https://www.mdpi.com/journal/mathematics/sectioneditors/algebraic_geometry)
- ◇ Editor in chief for Research Topic “Algebraic and Geometric Phylogenetics” in Frontiers in Genetics. <https://www.frontiersin.org/research-topics/10993/algebraic-and-geometric-phylogenetics>
- ◇ Associate Editor for Algebraic Statistics (since November 2009). <https://ef.msp.org/ed.php?jpath=astat>
- ◇ Associate Editor for Frontiers in Systems Biology <http://www.frontiersin.org/systemsbiology/>
- ◇ Thesis Committee
- ◇ PhD Thesis Committee for former students
  - Shu Shen, Statistics Department. (U of Kentucky)
  - Woodrow Burchett, Statistics Department. (U of Kentucky)
  - Zhiheng Xie, Statistics Department. (U of Kentucky)
  - Victoria G. Pook, Entomology Department. (U of Kentucky)
  - Tefjol Pllaha, Mathematics Department. (U of Kentucky)
  - Theodoros Kyriopoulos, Mathematics Department. (U of Kentucky)
  - Neville Fogarty, Mathematics Department. (U of Kentucky)
  - Sema Gunturkun, Mathematics Department. (U of Kentucky)
  - Furuzan Ozbek, Mathematics Department. (U of Kentucky)
  - Stephen Sturgeon, Mathematics Department. (U of Kentucky)
  - Carolyn Troha, Mathematics Department. (U of Kentucky)
  - Sarah Nelson, Mathematics Department. (U of Kentucky)
  - Qian Sun, Entomology Department. (U of Kentucky)
  - Liam Solus, Mathematics Department. (U of Kentucky)
  - Robert Davis, Mathematics Department. (U of Kentucky)
  - Edward Roualdes, Statistics Department. (U of Kentucky)
  - Shaoceng Wei, Statistics Department. (U of Kentucky)
  - Qian Fan, Statistics Department. (U of Kentucky)



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- Sema Gunturkun, Mathematics Department. (U of Kentucky)
- Elissaveta Arnaoudova, Computer Science Department. (U of Kentucky)
- Josh Williams, Biology Department. (U of Kentucky)
- Daniel Wells, Mathematics Department. (U of Kentucky)
- Tricia Muldoon, Mathematics Department. (U of Kentucky)
- Jian Zhao, Electrical and Computer Engineering Department. (U of Kentucky)

COLLABORATORS ◇ Keiji Miura (Kansei University, Japan), Satoshi Aoki (University of Kagoshima, Japan), Matthias Beck (San Francisco State University, CA), Miklós Bóna (University of Florida, FL), Yuguo Chen (University of Illinois, Chicago), Jesús De Loera (UC Davis, CA), Ian Dinwoodie (Duke University, NC), Joseph B. Kadane (Carnegie Mellon University, PA), Hyeon-Kwan Ju (Chonnam National University, Republic of Korea), David Haws (UC Davis, CA), Peter Huggins (Carnegie Mellon University, PA), Raymond Hemmecke (Fakultät für Mathematik, Germany), Lior Pachter (UC Berkeley, CA), Raazesh Sainudiin (University of Canterbury, NZ), Carla D Savage (NC State University, NC), Bernd Sturmfels (UC Berkeley, CA), Seth Sullivant (NC State University, NC), Akimichi Takemura (University of Tokyo, Japan), Kevin Woods (Oberlin College Oberlin, OH).

SKILLS ◇ Computing

- Unix, Linux, and Windows.
- Programming, C, C++, Cplex, Mathematica, Maple, Matlab. Extensive HTML, Javascript, Web design experience with Adobe Photoshop, Illustrator. Experience with Microsoft Office.

◇ Languages

- Native speaker of Japanese. Fluent in English.

WORK EXPERIENCE ◇ **Professor** (Summer 2023 – Present)  
Department of Operations Research, Naval Postgraduate School, Monterey, CA.

◇ **Associate professor** (Fall 2016 – Summer 2023)  
Department of Operations Research, Naval Postgraduate School, Monterey, CA.

◇ **Visiting associate professor** (Summer 2016 – Summer 2016)  
Institute of Statistical Mathematics, Tokyo Japan.

◇ **Associate professor on leave** (Summer 2016 – Summer 2017)  
Department of Statistics, University of Kentucky, Lexington, KY.

◇ **Associate professor** (Summer 2012 – Summer 2016)  
Department of Statistics, University of Kentucky, Lexington, KY.

◇ **Assistant Professor** (Fall 2006 – Spring 2012)  
Department of Statistics, University of Kentucky, Lexington, KY.

◇ **Assistant Research Professor** (Fall 2004 – Spring 2006)  
Department of Mathematics, Duke University, Durham, NC.  
Mentor: Mark Huber.

◇ **Postdoctoral Researcher** (Summer 2004)  
The Center for Pure and Applied Mathematics,  
University of California, Berkeley, CA.  
Mentor: Lior Pachter.

*Ruriko Yoshida*

- ◇ **Graduate Program in Mathematics** (Fall 2000 – June 2004)  
Department of Mathematics, University of California, Davis, CA.
- ◇ **Associate Instructor** (Winter 2004)  
Department of Mathematics, University of California, Davis, CA.
- ◇ **Associate Instructor** (Summer 2002)  
Department of Mathematics, University of California, Davis, CA.
- ◇ **Research Assistant** (Fall 2001 – Winter 2002)  
Department of Mathematics, University of California, Davis, CA.  
Assisted in the stochastic network interdiction problems on graphs.
- ◇ **Research Assistant Award from Graduate Studies** (Summer 2001)  
University of California, Davis, CA.
- ◇ **Research Summer Internship** (Summer 1999)  
Haas Business School, Berkeley, CA.  
Supported by a National Science Foundation program called  
“Research Experience for Undergraduates.”
- ◇ **Teaching Assistant** (January 1999 – June 1999)  
Department of Mathematics, University of California, Berkeley, CA.

COURSES I TAUGHT ◇ **Advanced Data analysis, Nonparametric Statistics, Statistical Inference, Algebraic Statistics for Computational Biology, Combinatorics, Linear Algebra, Integral Calculus, Differential Calculus, Phylogenetic Analysis and Molecular Evolution, Multi-Variable Calculus, Vector Calculus, Set Theory, Euclidean Geometry, Abstract Algebra, Number Theory, Numerical Analysis, Linear Programming, Stochastic Processes, Probability, Statistical Methods.**

MEMBERSHIP ◇ **American Statistical Association, Institution of Mathematical Statistics, and Mathematical Association of America, Society of Industrial and Applied Mathematics.**

Updated: April 12, 2024