Curriculum Vitae

Dr. Nezamoddin N. Kachouie
Associate Professor (2018 – Present)
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Positions

Associate Professor 2018 – Present
Department of Mathematical Sciences
Florida Institute of Technology

Assistant Professor, Aug 2012 – Apr 2018
Department of Mathematical Sciences
Florida Institute of Technology

Research Fellowship, 2010 - 2012
Department of Biostatistics and Computational Biology
Dana-Farber Cancer Institute
Harvard School of Public Health

Postdoctoral Fellowship, 2008 - 2010
Harvard-MIT Division of Health Sciences and Technology
Department of Medicine
Brigham and Women's Hospital
Harvard Medical School

PhD, University of Waterloo, 2004 – 2008
Research and Teaching Assistant
Systems Design Engineering
Waterloo, Ontario, Canada

Curriculum Vitae

Research

Publications

Journal Articles in Review

1. Kachouie et. al, Potential Impact of Climate Change on Ciguatera Fish Poisoning Cases in Florida, *Springer Nature: Scientific Reports*

2. Kachouie et. al, Spatiotemporal Bayesian Machine Learning for Estimation of an Empirical Lower Bound for Probability of Detection with Applications to Stationary Wildlife Photography: *Computers*

3. Kachouie et. al, Segmentation of Glacier Area using U-net through Landsat Satellite Imagery for Quantification of Glacier Recession and its Impact on Marine Systems: *Journal of Marine Science and Engineering*

4. Kachouie et. al, Survival Times of Transplanted Kidneys among Different Donor-Recipient Cohorts: The United States Registry Analysis from 1987 to 2018, Part 1: Gender and Ethnicity, *Statistics*

5. Kachouie et. al, Survival Times of Transplanted Kidneys among Different Donor-Recipient Cohorts: The United States Registry Analysis from 1987 to 2018, Part 2: Blood Type and Interaction of Donor-Recipient Factors: *Axioms*

6. Kachouie et. al, Density Estimation of Unmarked Feral Hogs in Florida: *Springer Nature: Discover Applied Sciences*

7. Kachouie et. al, Denoising the Stitch Line to Alleviate the Impact of Patchification on the Performance of Deep Learning Segmentation with Applications to Satellite Imagery: *Algorithms*

8. Kachouie et. al, Deep Learning Natural Hazards Damage Assessment using Multimodal Data Assimilation: *Remote Sensing*

Journal Articles in Prepration

9. Optimized U-net for Spatiotemporal Land Cover Classification by Assimilation of Landsat and Sentinel Satellite Imageries (in preparation for submission)

10. A Deep Learning Approach to Identify the Donor-Recipient Match for Optimizing the Survival Time of Solid Organ Transplants (in preparation for submission)

11. Estimating Gompertz Baseline Parameters in a Full Parametric Survival Model (in preparation for submission)

12. A Review of Linear and Nonlinear Correlation Coefficients for Association Detection (in preparation for submission)

13. Ensemble Bandwidth Optimization in Nonparametric Regression Analysis (in preparation for submission)

14. Bootstrap Weights for Combining Correlation Coefficients (in preparation for submission)

15. Pointwise Silhouette Index: A Criterion for the Performance of Machine Algorithms with Applications to Clustering Analysis (in preparation for submission)

16. Ensemble of Machine Learning Techniques for Creating Synthetic Ground Truth (in preparation for submission)

Published Journal Articles

17. **Kachouie N.N.**, Deebani W., Shutaywi M., Christiani D.C., Lung cancer clustering by identification of similarities and discrepancies of DNA copy numbers using maximal information coefficient. ***Plos one***. 2024 May 13;19(5): e0301131.

18. Jaber, M., Hamad, F., Breininger, R.D., **Kachouie, N.N.** An Enhanced Spatial Capture Model for Population Analysis Using Unidentified Counts through Camera Encounters. ***Axioms*** 2023, 12, 1094. https://doi.org/10.3390/axioms12121094

19. Vaidya, H.N., Breininger, R.D., Madrid, M., Lazarus, S., **Kachouie, N.N.** Generalized Additive Models for Predicting Sea Level Rise in Coastal Florida. ***Geosciences*** 2023, 13, 310. https://doi.org/10.3390/geosciences13100310

20. Robbins, E., Hlaing, T.T., Webb, J., **Kachouie, N.N.** Supervised Methods for Modeling Spatiotemporal Glacier Variations by Quantification of the Area and Terminus of Mountain Glaciers Using Remote Sensing. ***Algorithms*** 2023, 16, 486. https://doi.org/10.3390/a16100486

21. Despeignes A, Sharma A, Beltran R, Rech S, Hunsucker K, White RT, Weaver RJ, **Kachouie NN**. The Impact of Benthic Organisms to Improve Water Quality in the Indian River Lagoon, Florida. ***Springer Water, Air, & Soil Pollution*** 234(8):546, 2023.

22. Deebani, W. and **Nezamoddini-Kachouie, N.,** Monte Carlo Ensemble Correlation Coefficient for Association Detection, ***Communications in Statistics-Simulation and Computation*** 51(12):7095-109, 2022. https://doi.org/10.1080/03610918.

23. Ahmad Fahmi bin Anwar Fadzil, Yunong Yuan, Lingxin Wang, Jaspreet S. Kochhar, **Nezamoddin N. Kachouie**, and Lifeng Kang, Recent Progress in Three-Dimensional-Printed Dosage Forms from a Pharmacist Perspective, ***Wiley: Journal of Pharmacy and Pharmacology,*** 2022. https://doi.org/10.1093/jpp/rgab168

24. M Shutaywi, **Nezamoddin N. Kachouie**, Silhouette Analysis for Performance Evaluation in Machine Learning with Applications to Clustering, ***Entropy*** 23(6):759, 2021.

25. LA Provost, R Weaver, **Nezamoddin N. Kachouie**, Statistical Modeling of Fine Sediments Dredged Using a Variable Area Dredging Suction Head to Improve Water Quality, ***Hydrology***, 8(3), 2021.

26. **Nezamoddini-Kachouie, N.,** and Deebani, W., Association Factor for Identifying Linear and Nonlinear Correlations in Noisy Conditions, ***Entropy,*** 22(4): 440, 2020.

27. **Nezamoddini-Kachouie, N.** and Hamad, F., Potential Impact of Standing OPTN Committee Plan on Survival Times of Transplanted Kidneys Based on Donors' Factors, ***Transplantation Reports***, 5 (2), 100042, 2020.

28. **Nezamoddini-Kachouie, N.,** and Shutaywi, M., Weighted Mutual Information for Aggregated Kernel Clustering, ***Entropy,*** 22(3):351, 2020.

29. ***Nezamoddin-Kachouie, N.,*** M. Shutaywi, DC Christiani, Discriminant Analysis of Lung Cancer Using Nonlinear Clustering of Copy Numbers, ***Cancer Investigation,*** 38 (2), 102-112, 2020.

30. **Nezamoddini-Kachouie, N.,** Osita E. Onyejekwe, Climate Change Study via the Centennial Trend of Climate Factors, ***Hydrology***, 7 (2), 2020.

31. Lim, S. H., Tiew, W. J., Zhang, J., Ho, P., **Nezamoddini-Kachouie, N.**, Kang, L., Geometrical Optimization of a Personalized Microneedle Eye Patch for Transdermal Delivery of Anti-Wrinkle Small Peptide, to appear in: ***Biofabrication***, 12(3), 035003, 2020.

32. Folcik, A.M., Haire, T.C., Cutshaw, K., Riddle, M., Shola, C., Nassani, S., Rice, P., Richardson, B., **Nazamoddini-Kachouie, N.** and Palmer, A.G., Computer assisted tracking of Chlamydomonas species. ***Frontiers in Plant Science***, 2019, 10, p.1616.

33. Hamad, F. and **Nezamoddini-Kachouie, N.,** Potential Impact of Donors' Factors on Survival Times of Transplanted Hearts and Lungs. ***Elsevier: Transplantation Reports***. 2019, 4:(4):100035. DOI: https://doi.org/10.1016/j.tpr.2019.100035

34. **Nezamoddini-Kachouie, N.,** Deebani W, Christiani D.C. Identifying Similarities and Disparities Between DNA Copy Number Changes in Cancer and Matched Blood Samples. ***Taylor and Francis: Cancer Investigation***. 2019; 37(10):535-545. DOI: https://doi.org/10.1080/07357907.2019.1667368

35. Hamad, F. and **Nezamoddini-Kachouie, N.,** A hybrid method to estimate the full parametric hazard model, ***Taylor and Francis: Communications in Statistics-Theory and Methods***, 2019, 48(22): 5477-5491. DOI: 10.1080/03610926.2018.1513149

36. Onyejekwe, O., Holman, B., and **Nezamoddini-Kachouie, N.,** Multivariate Models for Predicting Glacier Termini, ***Springer: Environmental Earth Sciences*****,** 2017, 76(23): 807. https://doi.org/10.1007/s12665-017-7135-2

37. Beaubrun, A. and **Nezamoddini-Kachouie, N.,** Analysis of Wage-Gender Discrimination in Connection with Higher Education in The Bahamas, ***Omics Journal: Industrial Engineering & Management***, 2017, 6(3): 222. DOI: 10.4172/2169-0316.1000222.

38. Qin, L., Schwartzman, A., McCall, K., **Nezamoddini-Kachouie, N.,** and Yap, J. **"**Method for detecting voxelwise changes in fluorodeoxyglucose-positron emission tomography brain images via background adjustment in cancer clinical trials**"**, ***Journal of Medical Imaging,*** 2017, 4(2), 024006.

39. **Nezamoddini-Kachouie, N.,** Transforming Region-Detection, a One-Dimensional (1D) Problem to Point Detection, a Zero-Dimensional (0D) Problem, ***Journal of Electrical and Electronic Systems***, 2017, 6: 217.

40. **Nezamoddini-Kachouie, N.,** Lin, X., Schwartzman, A., "FDR Control of Detected Regions by Multi-Scale Matched Filtering", ***Communications in Statistics - Simulation and Computation***, 2017, 46(1), pp.127-144.

41. **Nezamoddini-Kachouie, N.,** Christiani, D., "DNA Copy Number Gain in Lung Cancer and Non-Involved Tissue", ***Journal of Bioanalysis and Biostatistics***, 2016: 1(1).

42. **Nezamoddini-Kachouie, N.,** Lin, X., Christiani, D., Schwartzman, A., "Detection of Local DNA Copy Number Changes in Lung Cancer Population Analyses Using A Multi-Scale Approach", ***Communications in Statistics: Case Studies, Data Analysis and Applications***, 2015, 1(4):206-16.

43. **Nezamoddini-Kachouie, N.**, Gerke, T., Huybers, P., Schwartzman, A., "Nonparametric Regression for Estimation of Spatiotemporal Mountain Glacier Retreat from Satellite Images", ***IEEE Transactions on Geoscience and Remote Sensing***, 2014, 53(3), pp.1135-1149.

44. **Nezamoddini-Kachouie, N.,** Schwartzman, "Non-Parametric Estimation of a Single Inflection Point in Noisy Observed Signal", ***Journal of Electrical and Electronic Systems***, 2013, 2(2).

45. **Nezamoddini-Kachouie, N.,** Huybers, P., Schwartzman, A., "Localization of Mountain Glacier Termini in Landsat Multi-Spectral Images, ***Pattern Recognition Letters***, 2013, 34(1), pp.94-106.

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47. Coutinho†, D.F., Ahari†, A.H., **Nezamoddini-Kachouie†**, Gomes, M.E., Neves, N.M., Reis, R.L., and Khademhosseini, A., "An automated two-phase system for biodegradable gel micro-bead production", ***Biofabrication***, 2012, 4(3), pp.035003 († Equal Contribution).

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49. Kwon, C.H., Wheeldon, I., **Nezamoddini-Kachouie, N.,** Lee, S., Bae, H., Sant, S., Fukuda, J., Kang, J.W., Khademhosseini, A., "Drug-eluting microarrays for cell-based screening of chemical-induced apoptosis", ***Analytical Chemistry***, 2011, 83(11), pp.4118-4125.
50. **Nezamoddini-Kachouie, N.,** Fieguth, P., and Eric Jervis, "A Probabilistic Cell Model in Background Corrected Image Sequences for Single Cell Analysis", ***Biomedical Engineering Online*****,** 2010, 9(1), p.57.

51. **Nezamoddini-Kachouie, N.,** Du, Y., Bae, H., Khabiry, M., Ahari, A., Zamanian, B., Fukuda, J., Khademhosseini, A., "Directed Assembly of Cell-Laden Hydrogels for Engineering Functional Tissues", ***Organogenesis: special issue in Engineering towards functional tissues and organs,*** 2010, 6(4), pp.234-244.

52. **Nezamoddini-Kachouie, N.,** Fieguth, P., Gamble, D., Jervis, E., Ezziane, Z., and Khademhosseini, A., "Constrained Watershed to Infer Morphology of Mammalian Cells in Microscopic Images", ***Wiley: Cytometry-Part A,*** 2010, 77(12), pp.1148-1159.

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56. **Nezamoddini-Kachouie, N.,** "Anisotropic Diffusion for Medical Image Enhancement", ***International Journal of Image Processing,*** 2008, 4(4):436.

57. **Nezamoddini-Kachouie, N.,** and Fieguth, P., "Extended-Hungarian-JPDA: Exact Single-Frame Stem Cell Tracking", ***IEEE Transactions on Biomedical Engineering*** *(IEEE-TBME),* 2007, 54(11), pp. 2011-2019.

58. **Nezamoddini-Kachouie, N.,** Fieguth, P., Ramunas, J., and Jervis E., Sep. 2006, "Probabilistic Model-Based Cell Tracking", ***International Journal of Biomedical Imaging,*** *Special Edition on Recent Advances in Mathematical Methods for the Analysis of Biomedical Images,* 2006, 2006, pp.1-10.

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60. **Nezamoddini-Kachouie, N.** and Alirezaie, J., "Optimized Multi-channel Filter Bank with Flat Frequency Response for Texture Segmentation", ***EURASIP*** *(European Association for Signal,Speech and Image Processing) - Applied Signal Processing*. 2005, 2005(12), pp.1834-1844.

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63. **Nezamoddini-Kachouie, N.**, Fieguth, P. and Jernigan, E., "BayesShrink Ridgelets for Image Denoising", ***LNCS-Springer Verlag*** *(Lecture Notes in Computer Science- Image Analysis and Recognition)*, 2004, 3211, pp.163-170.

Peer Reviewed and International Conference Presentations

64. Edmund Robbins, **Nezamoddin N. Kachouie**, Hazard Model Validation using Geospatial Data Fusion and Integration, Joint Statistical Meeting (JSM), Aug 2024

65. Robert Breininger, Edmund Robbins, **Nezamoddin N. Kachouie**, Quantification of Glacier Surface Area Variations using Deep Learning through Satellite Imagery, Joint Statistical Meeting (JSM), Aug 2024

66. Daniel Breininger, Alexis Cole, Steven Lazarus, Michael Splitt, **Nezamoddin N. Kachouie**, A Probabilistic Model for Sandstorms using Climate Factors, Joint Statistical Meeting (JSM), Aug 2024

67. **Nezamoddin N. Kachouie**, Edmund Robbins, Multi-Source Data Assimilation, and Integration with Applications to Severe Events, Joint Statistical Meeting (JSM), Aug 2024

68. Michelle Madera, Maxwell Jiang, Edmund Robbins, Ryan White, **Nezamoddin N. Kachouie**, Quantification of Glacier Area using U-net through Satellite Imagery, National Conference on Undergraduate Research (NCUR), Apr 2024

69. Erica Gregg, Aubrey Rutz, Robbie Breininger, Cadianne Chambers, Toufiq Reza, **Nezamoddin N. Kachouie**, Sargassum-Derived Hydrochar for Controlling Harmful Algal Bloom, National Conference on Undergraduate Research (NCUR), Apr 2024

70. Zarindokht Helforoush, Daniel Breininger, Alexis Cole, Steven Lazarus, Michael Splitt, **Nezamoddin N. Kachouie**, Modeling Sandstorms in Phoenix Arizona, National Conference on Undergraduate Research (NCUR), Apr 2024

71. **Nezamoddin N. Kachouie**, Thu Thu Hlaing, Dominic Scarpign, A Machine Learning Approach to Identify Impactful Research Areas in Near Future, Accepted Mentor-Led Narratives and Storytelling Presentation, National Conference on Undergraduate Research (NCUR), Apr 2024

72. Edmund Robbins, **Nezamoddin N. Kachouie**, Jean-Paul Pinelli, Multi-Source Data Fusion and Integration for Hazard Model Validation Using Geospatial Information Systems (GIS), 104th AMS Annual Meeting, 12th AMS Symposium on the Joint Center for Satellite Data Assimilation, Feb 2024

73. **Nezamoddin N. Kachouie**, Edmund Robbins, Deep Learning Methods for Damage Estimation using Integration of Building Data and Satellite Imagery, 104th AMS Annual Meeting, 12th AMS Symposium on the Joint Center for Satellite Data Assimilation, Feb 2024

74. Maxwell Jiang, Michelle Madera, Edmund Robbins, Ryan White, **Nezamoddin N. Kachouie**, Deep Learning Methods for Segmentation of Glacier Surface Area through Landsat Satellite Imagery, Emerging Researchers National (ERN) Conference in STEM Sponsored by NSF, Mar 2024

75. Aubrey Rutz, Erica Gregg, Robbie Breininger, Cadianne Chambers, Toufiq Reza, **Nezamoddin N. Kachouie**, Sargassum-Derived Hydrochar for Controlling Harmful Algal Bloom, Emerging Researchers National (ERN) Conference in STEM Sponsored by NSF, Mar 2024

76. Dianeliz Ortiz Martes, Justin Fleming, Crishawn Gayle, Daniel Brininger, Zarindokht Helforoush, Steven Lazarus, **Nezamoddin N. Kachouie**, Modeling and Prediction of Sandstorms in Africa using Climate Factors, Emerging Researchers National (ERN) Conference in STEM Sponsored by NSF, Mar 2024

77. Robert Breininger, Aubrey Rutz, Erica Gregg, **Nezamoddin N. Kachouie**, Modeling Algal Blooms using Climate Factors, Emerging Researchers National (ERN) Conference in STEM Sponsored by NSF, Mar 2024

78. Daniel Breininger, Alexis Cole, Steven Lazarus, Michael Splitt, **Nezamoddin N. Kachouie**, Relating Environmental and Climate Predictors to Sandstorms in Phoenix Arizona, Emerging Researchers National (ERN) Conference in STEM Sponsored by NSF, Mar 2024

79. Edmund Robbins, **Nezamoddin N. Kachouie**, Multi-Sensor Remote Sensing, Geospatial Data Fusion and Big Data with Applications to Global Glacier Recession, Emerging Researchers National (ERN) Conference in STEM Sponsored by NSF, Mar 2024

80. Daniel Breininger, Christopher Ryzowicz, Motti Goldberger, Michael Splitt, Robert van Woesik, **Nezamoddin N. Kachouie**, Modeling the Number of Ciguatera Fish Poisoning Cases in Florida using Environmental and Climate Factors, *Emerging Researchers National (ERN) Conference in STEM,* 2023

81. Robbie Breininger, Hanna Vaidya, Marisela Madrid, Steven Lazarus, **Nezamoddin N. Kachouie,** Modeling Sea Level Rise in Coastal Florida, *Emerging Researchers National (ERN) Conference in STEM,* 2023

82. Alain Despeignes, Rebecca Beltran, Alyssa Sharma, Sandra Rech, Kelli Hunsucker, Ryan White, **Nezamoddin N. Kachouie,** Impact of Benthic Organisms to Mitigate Water Pollution in the Indian River Lagoon, *Emerging Researchers National (ERN) Conference in STEM,* 2023

83. Edmund Robbins, Jonathan Webb, Thu Thu Hlaing, **Nezamoddin N. Kachouie,** Impacts of Climate Change on Mountain Glaciers, *Emerging Researchers National (ERN) Conference in STEM,* 2023

84. Merrill Storch, Grace Stroh, Edmund Robbins, **Nezamoddin N. Kachouie**, Segmentation and Quantification of Mountain Glaciers' Area using Landsat Satellite Imagery for Climate Change Applications, *Emerging Researchers National (ERN) Conference in STEM,* 2023

85. Michael Ward, Ryan Lynch, Steven Lazarus, Mike Splitt, **Nezamoddin N. Kachouie,** Flight Rules Category Prediction Using CPC 6-10 Day Forecasts, *Emerging Researchers National (ERN) Conference in STEM,* 2023

86. Thu Thu Hlaing, Jonathan Webb, Edmund Robbins, **Nezamoddin N. Kachouie,** Generalized Additive Models for Modeling the Mountain Glacier Terminus Variations in Response to the Climate Factors*, National Conference on Undergraduate Research (NCUR),* 2023

87. Maya Jacob, Michelle Weathersby, Daniel Breininger, Julian. D. B. Pedraza, Ryan White, Mark Bush, **Nezamoddin N. Kachouie**, Comparing Pollen Size Distributions in Northern Brazil to Discover Significant Temporal Changes, *National Conference on Undergraduate Research (NCUR),* 2023

88. Grace Stroh, Merrill Storch, Edmund Robbins, **Nezamoddin N. Kachouie**, Mountain Glacier Segmentation Method Using Landsat Satellite Imagery and L*a*b* Color Space, *National Conference on Undergraduate Research (NCUR),* 2023
89. Beltran, R., A. Sharma, S. Rech, K. Hunsucker, R. White, and **N. Nezamoddini-Kachouie**. The Impact of Benthic Organisms on Water Filtration in the Indian River Lagoon. *In JSM 2022 Proceedings, Statistics and the Environment Section. Washington DC: American Statistical Association*, p: 1232-1340, 2022.

90. Ryzowicz, C., M. Goldberger, D. Breininger, M. Splitt, R. van Woesik, and **N. Nezamoddini-Kachouie**. Modeling Ciguatera Fish Poisoning Cases Using Climate and Environmental Factors in Florida. *In JSM 2022 Proceedings, Statistics and the Environment Section. Washington DC: American Statistical Association*, p: 1310-1321, 2022.

91. Vaidya, H., M. Madrid, R. Breininger, S. Lazarus, and **N. Nezamoddini-Kachouie**. Modeling Sea Level Rise in Florida: An Exploratory Study. *In JSM 2022 Proceedings, Statistics and the Environment Section. Washington DC: American Statistical Association*, p-1322-1331, 2022.

92. Webb, J., T. Hlaing, E. Robbins, R. White, and **N. Nezamoddini-Kachouie**. Impacts of Climate Change on Mountain Glaciers. *In JSM Proceedings, Statistics and the Environment Section. Washington DC: American Statistical Association*, p: 1296-1309, 2022.

93. Christopher Ryzowicz, Motti Goldberger, Daniel Breininger, Michael Splitt, Robert van Woesik, **Nezamoddin Nezamoddini-Kachouie,** Study Ciguatera Fish Poisoning in Florida, *Council on Undergraduate Research - Research Experiences for Undergraduates (REU) Symposium,* 2021.

94. Marisela Madrid, Hanna Vaidya, Robbie Breininger, Steven Lazarus, **Nezamoddin Nezamoddini-Kachouie**, An Exploratory Study of Sea Level Rise in Florida, *Council on Undergraduate Research - Research Experiences for Undergraduates (REU) Symposium,* 2021.

95. Thu Thu Hlaing, Jonathan Webb, Edmund Robbins, Ryan White, **Nezamoddin Nezamoddini-Kachouie**, Statistical Modeling for Estimating Mountain Glacier Variations through Landsat Satellite Imagery, *Council on Undergraduate Research - Research Experiences for Undergraduates (REU) Symposium,* 2021.

96. Alyssa Sharma, Rebecca Beltran, Sandra Rech, Kelli Hunsucker, Ryan T. White, Nezamoddin Nezamoddini-Kachouie, Modeling Abundance of Benthic Organisms in the Indian River Lagoon, *Council on Undergraduate Research - Research Experiences for Undergraduates (REU) Symposium,* 2021.

97. Jaber, M. and **Nezamoddini-Kachouie, N.,** Probabilistic Detection Model for Population Estimation, International Conference on Mathematics of Data Science, Old Dominion University, Virginia, USA, 2018.

98. Hamad, H. and **Nezamoddini-Kachouie, N.,** Estimating Gompertz Baseline Parameters in a Full Parametric Survival Model, International Conference on Mathematics of Data Science, Old Dominion University, Virginia, USA, 2018.

99. Deebani, W. and **Nezamoddini-Kachouie, N.,** Bootstrap Weights for Combining Correlation Coefficients, International Conference on Mathematics of Data Science, Old Dominion University, Virginia, USA, 2018.

100. Shutaywi, M. and **Nezamoddini-Kachouie, N.,** Evaluating Silhouette Index for Linearly and non-Linearly Separable Groups, International Conference on Mathematics of Data Science, Old Dominion University, Virginia, USA, 2018.

101. Kapralek, J. and **Nezamoddini-Kachouie, N.,** Applications of Machine Learning to Virtual Reality, 31st Florida Conference on Recent Advances in Robotics, University of Central Florida, Florida, USA, 2018.

102. Person, M., Jensen, M., Smith, A.O., **Nezamoddini-Kachouie, N.,** and Silaghi, M., Real Time Road Lane Segmentation and Tracking System, 31st Florida Conference on Recent Advances in Robotics, University of Central Florida, Florida, USA, 2018.

103. Deebani, W. and **Nezamoddini-Kachouie, N.,** Ensemble Correlation Coefficient, International Symposium on Artificial Intelligence and Mathematics, 2018.

104. Shutaywi, M. and **Nezamoddini-Kachouie, N.,** A Weighted Majority Voting for Cluster Analysis, International Symposium on Artificial Intelligence and Mathematics, 2018.

105. Silva, D., Hamad, F., Cadeiras, M., Menezes, R., and **Nezamoddini-Kachouie, N.**, "A Data Science Approach for Quantifying Spatio-Temporal Effects to Graft Failures in Organ Transplantation", IEEE EMBC proceeding, DOI: 10.1109/EMBC.2016.7591466, 2016.

106. **Nezamoddini-Kachouie, N.,** Gerke, T., Huybers, P., Schwartzman, A., Spatiotemporal Estimation of Mountain Glacier Retreat, Statistical Practice, Florida, USA, 2014.

107. Schott, R., **Nezamoddini-Kachouie, N.,** Three-Dimensional Segmentation and Reconstruction of Brain Tumors from MRI Images using a Hybrid Method of Gaussian Mixture Models and Region Growing, to appear in 28th National Conference on Undergraduate Research (NCUR), Kentucky, USA, 2014.

108. **Nezamoddini-Kachouie, N.,** Lin, X., Christiani, D., Schwartzman, A., Multi-Scale Multiple Testing for Region Detection with Application to Genomic Copy Number Change in Population Analyses, Joint Statistical Meeting, Montreal, Canada, 2013.

109. Johnson, J., **Nezamoddini-Kachouie, N.,** Multispectral Image Fusion to Improve Glacier Terminus Detection through Satellite Imagery, 27th National Conference on Undergraduate Research (NCUR), Wisconsin, USA, 2013.

110. **Nezamoddini-Kachouie, N.,** Lin, X., Christiani, D., Schwartzman, A., "Detection of Regional Copy Number Changes in DNA Analysis, Annual Program in Quantitative Genomics (PQG) Conference, Harvard School of Public Health, 2011.

111. **Nezamoddini-Kachouie, N.,** Ghosh, K., Chung, B.G., Foudeh, A., Ingber, D., Khademhosseini, A., "Micro-Engineered Islets by Microwell Templated Co-Culture of β cells and Endothelial Cells", SysCODE 2009.

112. Wheeldon, I., Bick, A., Foudeh, A., **Nezamoddini-Kachouie, N.,** and Khademhosseini, A., "Combinatorial biomaterials screening for epithelial-to-mesenchymal transformation", ACS 2009.

113. **Nezamoddini-Kachouie, N.**, Fieguth, P., and Jervis, E., 2008, "Watershed Deconvolution for Cell Segmentation", *Proc. IEEE-EMBS (Annual International Conference of the IEEE Engineering in Medicine and Biology Society)*, Vol. 2008, pp. 375-378.

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Book Chapters

131. Hacking, A, **Nezamoddini-Kachouie, N.**, Lee, W., Khademhosseini, A.,"Future approaches to organ regeneration: Microscale environments, stem cell engineering, and self-assembly of living tissues", *Studies in health technology and informatics*, 149:214-35, 2009.

132. Zamanian, B., **Nezamoddini-Kachouie, N.,** Masaeli, M., Nichol, J., Khademhosseini, A. "Self-assembly of Cell-laden Hydrogels on the Liquid-Air Interface", *3-D Tissue Engineering,* edited by F. Berthiaume, J. Morgan. Artech House, 2009.

133. Nichol, J., **Nezamoddini-Kachouie, N.,** Bae, H., Zamanian, B., Masaeli, M., and Khademhosseini, A., "Microscale technologies for tissue engineering and stem cell differentiation", edited by Song Li, University of California, Berkeley, World Scientific Publishing, 2009.

Funded Research

Florida Department of Health-Cancer Innovation Fund: A Shared Geospatial Artificial Intelligence Cancer Treatment Recommender System for Optimal Outcome
Role: PI
$344,000
05/01/2024 – 04/30/2025

Building an AI for Data Assimilation-Phase 3: Distributed Query System
Role: PI
Pending: $45,000
08/01/2024 – 07/31/2025

Building an AI for Data Assimilation-Phase 2: Prompt Engineering
Role: PI
Pending: $48,000
08/01/2024 – 12/31/2024

Building an AI for Data Assimilation-Phase 1: Content Creation for Project Compliance Evaluation
Role: PI
$37,000
08/01/2023 – 07/31/2024

NSF: Research Experiences for Undergraduates (REU) summer program: Statistical Models with Applications to Geoscience
Role: PI
$305,000
09/01/2020 – 08/31/2024

Travel Award for Student Research Presentation
$18,000
Six student advisees working on research projects received travel awards to present their research in: Emerging Researchers National (ERN) Conference in STEM, 2024

NSF-WHIPC (Wind Hazard and Infrastructure Performance Center)
Industry/University Cooperative Research Center Program
Research Project: Phase 2-Assimilation of reconnaissance, hazard, and exposure data for potential AI based risk models
Role: PI
$41,000
05/01/2022 – 11/30/2023

NSF-WHIPC (Wind Hazard and Infrastructure Performance Center)
Industry/University Cooperative Research Center Program
Research Project: Phase 1-Exploratory phase: Resourcing of field damage, hazard, and exposure data for potential data assimilation
Role: Co-PI
$71,000
05/01/2021 – 08/30/2022

Travel Award for Student Research Presentation
$18,000
Six student advisees working on research projects received travel awards to present their research in: Emerging Researchers National (ERN) Conference in STEM, 2023

Florida Tech
Virtual Lab for Student Practice
03/2019-02/2020
Role: PI

Wildlife Population Analysis
Optimizing monitoring of feral hog population size associated with management actions to reduce facility and ecological damage and risks to human safety.
Role: PI
$40,000
03/2018-02/2019

NSF Research Experiences for Undergraduates (REU)
Research at the Intersection of Biology and Mathematics
10/2015 – 9/2018
Role: Senior Personnel

Florida Tech
Virtual Reality for Online Learning
03/2015-02/2016
Role: PI

Community Foundation Brevard (CFB)
Lung Cancer Survival Analysis
9/1/2013 – 7/31/2014
Role: PI

Dana Farber Cancer Institute
GUI development for Brain PET Imaging
10/1/2012-9/30/2013
Role: PI

National Institute of Health: NIH P01-CA134294-03
NIH Statistical Informatics in Cancer Research,
PI: Xihong Lin – Department of Biostatistics, Harvard School of Public Health
Role: Research Fellow (2010-2012)

Ongoing Research Projects

- AI Based Data Assimilation for Prediction and Mitigation of Climate Change Impacts
- ML Based Data Integration for Damage Estimation Due to Sever Meteorological Events
- Nonparametric Statistical Methods for Denoising with Applications to Climate Change
- Kernel Methods for Clustering with Applications to Cancer Research
- AI System to Discover Linear and Non-Linear Correlation Methods with Applications to Genomic Data Analysis
- AI Data Assimilation for Parametric and Nonparametric Survival Analysis with Applications to Organ Transplantation
- Bayesian Survival Modeling for Climate Change Induced Problems
- Multidimensional Nonparametric Models for Detection and Tracking with Applications to Satellite Imagery
- Bayesian Posterior Modeling with Applications to Stock Market

Graduated Ph.D. Advisees

1. Osita Onyejekwe,
   Ph.D. Operations Research
   Dissertation: Parametric and Non-Parametric Regression Models with Applications to Climate Change
   Date of Graduation: Dec 2017.
   Current Position: Assistant Professor, University of Colorado, Boulder

2. Wejdan Deebani
   Ph.D. Operations Research
   Dissertation: Ensemble Correlation Coefficient for Variable Association Detection
   Date of Graduation: May 2019.
   Current Position: Assistant Professor, King Abdulaziz University, Saudi Arabia

3. Meshal Shutaywi
   Ph.D. Operations Research
   Dissertation: Weighted Aggregation Methods for Linear and Nonlinear Cluster Analysis
   Date of Graduation: May 2019.
   Current Position: Assistant Professor, King Abdulaziz University, Saudi Arabia

4. Farag Hamad
   Ph.D. Operations Research
   Dissertation: Modeling Survival and Hazard Function for Some Solid Organs Transplantation
   Date of Graduation: May 2019.
   Current Position: Department Chair, Statistics, Benghazi University, Libya

5. Mohammad Jaber
   Ph.D. Candidate, Operations Research
   Dissertation: Bayesian Model for Spatiotemporal Analysis of Population Density
   Date of Graduation: Spring 2022
   Current Position: Lecturer, Florida Institute of Technology

Current Ph.D. Dissertation Advisees

6. Robert Breininger
   Dissertation: Machine Learning (ML) Based Hierarchical Data Assimilation for Estimation and Mitigation of Sea Level Rise
   Expected Date of Graduation: 2024

7. Alain Despeignes
   Dissertation: Artificial Intelligence (AI) System for Donor-Recipient Match in Organ Transplantation
   Expected Date of Graduation: 2024

8. Edmund Robbins
   Dissertation: Artificial Intelligence (AI) System for Prediction of Mountain Glacier Variation to Mitigate the its Impact on Water Resources
   Expected Date of Graduation: 2024

9. Emese Sziklay
   Dissertation: Machine Learning (ML) Based Hierarchical Data Assimilation for Damage Estimation and Risk Analysis of Sever Climatological Events

10. Daniel Breininger
    Dissertation: An AI Driven Geospatial System for Probabilistic Mapping of Wildfire Prediction in California
    Expected Date of Graduation: 2025

11. Dianeliz Ortiz Martes
    Dissertation: A Joined SQL-AI Driven Recommender System for Industrial Standards
    Expected Date of Graduation: 2026

12. Zarindokht Helforoush
    Dissertation: Lung Cancer Staging Using Comprehensive Patients' Data
    Expected Date of Graduation: 2026

13. Thu Thu Hlaing
    Dissertation: A Shared Platform for Lung Cancer Outcome Prediction
    Expected Date of Graduation: 2026

14. Kristina Zogovic
    Dissertation: TBA
    Expected Date of Graduation: 2027

Teaching Experience

Graduate Level

1. Regression Analysis for Machine Learning, MTH 5415
2. Statistical Modeling, MTH 5324
3. Statistical Analysis for Climate Change, ORP 5090 (Special Topics)
4. Satellite Image Segmentation, MTH 6050 (Research in Applied Math)
5. Applied Statistical Analysis, MTH 5401
6. Change Detection and Quantification in Functional Imaging, ORP 5091 (Special Topics)
7. Mathematical Statistics 1, MTH 5411,
8. Mathematical Statistics 2, MTH 5412**,**
9. Stochastic Models, MTH 5009
10. Stochastic Signals, MTH 5425,
11. Multivariate Models for Anomaly Detection in Medical Images, ORP 5090 (Special Topics)
12. Distribution of Local Maxima, MTH 6050 (Research in Applied Math)
13. Mixture Models, MTH 6050 (Research in Applied Math)
14. Signal and Image Denoising, MTH 6050 (Research in Applied Math)
15. Statistical Multiple Testing, MTH 6050 (Research in Applied Math)

Undergraduate Level

1. Probability and Statistics, MTH 2401,
2. Methods for Biomath, MTH 3663,
3. Primer for Biomath, MTH 2332,
4. Special Topics in Applied Math, MTH 4920
5. Undergraduate Research, MTH 4990.