

Kris Sankaran

Department of Statistics

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Madison, WI
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Homepage: <http://krisrs1128.github.io/LSLab/>
Code: <http://github.com/krisrs1128/>

Education

Stanford University

PhD Statistics, 2013 - 2018

Thesis: *Discovery and Visualization of Latent Structure with Applications to the Microbiome*

MS Statistics, 2012 - 2013

BS Mathematics, 2009 - 2013

Professional Experience

Department Affiliate

04/2023 - Present

Department of Biomedical Engineering
University of Wisconsin - Madison

Discovery Fellow

07/2022 - Present

Wisconsin Institute for Discovery
University of Wisconsin - Madison

Assistant Professor

08/2020 - Present

Department of Statistics
University of Wisconsin - Madison

Postdoctoral Fellow

08/2018 - 04/2020

Département d'Informatique et de Recherche Opérationnelle
Université de Montréal

Senior Machine Learning Researcher

04/2018 - 08/2018

Obsidian Security

Data Science for Social Good Fellow

Summer 2016

Center for Data Science and Public Policy
University of Chicago

Quantitative Research Intern

Summer 2012

The Climate Corporation

Areas of Expertise

Statistical methods for multi-omics
 Interactive computing and data visualization
 Simulation and generative modeling
 Analysis of earth systems imagery

Book Chapters

Anthony Ortiz, Kris Sankaran, Finu Shrestha, Tenzing Choygal Sherpa, and Mir Matin. “Chapter 12: Mapping Glacier Lakes” in *AI for Good: Applications in Sustainability, Humanitarian Action, and Health*, edited by Juan Lavista Ferres and William Weeks. Wiley, 2024. 113-123.

Peer-Reviewed Publications

Lab members are underlined.

Semisynthetic Simulation for Microbiome Data Analysis. Kris Sankaran, Saritha Kodikara, Jingyi Jessica Li, and Kim-Anh Lê Cao. Briefings in Bioinformatics (2024).

Multimedia: Multimodal Mediation Analysis of Microbiome Data. Hanying Jiang, Xinran Miao, Margaret W. Thairu, Mara Beebe, Dan W. Grupe, Richard J. Davidson, Jo Handelsman, and Kris Sankaran. Microbiology Spectrum 13, no. 2 (2025). American Society for Microbiology.

Data Science Principles for Interpretable and Explainable AI. Kris Sankaran. Journal of Data Science, no. 1387 (2024). School of Statistics, Renmin University of China.

mbtransfer: Microbiome Intervention Analysis Using Transfer Functions and Mirror Statistics. Kris Sankaran and Pratheepa Jeganathan. PLOS Computational Biology 20, no. 6 (2024). Public Library of Science (PLOS).

Bootstrap Confidence Regions for Learned Feature Embeddings. Kris Sankaran. Journal of Computational and Graphical Statistics 32, no. 4 (2023).

Generative Models: An Interdisciplinary Perspective. Kris Sankaran and Susan P. Holmes. Annual Review of Statistics and its Application 10, no. 1 (2023).

Estimating Glacial Lake Trends using Historically Guided Segmentation Models. Weiyushi Tian, Anthony Ortiz, Tenzing C. Sherpa, Finu Shrestha, Mir Matin, Rahul Dodhia, Juan M. Lavista Ferres, Kris Sankaran. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing 15 (2023).

Microbiome composition modulates secondary metabolism in a multispecies bacterial community. Marc Chevrete, Chris Thomas, Amanda Hurley, Natalia Rosario-Meléndez, Kris Sankaran, Yixing Tu, Austin Hall, Shruti Magesh, and Jo Handelsman. Proceedings of the National Academy of Sciences 119, no. 42 (2022).

Interactive Visualization and Representation Analysis Applied to Glacier Segmentation. Minxing Zheng, Xinran Miao, and Kris Sankaran. ISPRS International Journal of Geo-Information 11, no. 8 (2022): 415.

Student satisfaction with R vs. Excel in Data Mining and Business Analytics: A Herzberg’s motivation-hygiene theory perspective. Siva Sankaran, Kris Sankaran, and Tung X. Bui. Decision Sciences Journal of Innovative Education (2023). Runner-Up for [DSJIE Best Research Paper](#) of 2023.

Societal Impacts. Kris Sankaran. In *Tackling Climate Change with Machine Learning*, with David Rolnick, Priya Donti, Lynn Kaack, Kelly Kochanski, Alexandre Lacoste, Andrew Slavin Ross, Nikola Milojevic-Dupont, Natasha Jaques, Anna Waldman-Brown, Alexandra Sasha Luccioni, Tegan Maharaj, Evan D. Sherwin, S. Karthik Muckavilli, Konrad P. Kording, Carla P. Gomes, Andrew Y. Ng, Demis Hassabis, John C. Platt, Felix Creutzig, Jennifer Chayes, Yoshua Bengio. ACM Computing Surveys 55, no. 2 (2023).

Multiscale analysis of count data through topic alignment. Julia Fukuyama, Kris Sankaran, Laura Symul. *Biostatistics* 24, no. 4 (2022).

Artificial intelligence for climate change adaptation. So-Min Cheong, Kris Sankaran, and Hamsa Bastani. *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery* 12, no. 5 (2022).

Community-wide hackathons to identify central themes in single-cell multi-omics. Kim Anh Lê Cao, Aedin Culhane, Elana Fertig, Vincent Carey, Ricard Argelaguet, Susan Holmes, Michael Love, Guo-Cheng Yuan, Al Abadi, Casey Greene, Ayshwarya Subramanian, Amrit Singh, Alexis Coullomb, Vera Pancaldi, Arshi Arora, Joshua Sodicoff, Joshua Welch, Emily Davis-Marcisak, Matthew Ritchie, Yue You, Genevieve Stein-O'Brien, Kris Sankaran, Ruben Dries, Atul Deshpande. *Genome Biology* 22, no. 1 (2021): 1-21.

FloW: A Dataset and Benchmark for Floating Waste Detection in Inland Waters. Yuwei Cheng, Jiannan Zhu, Mengxin Jiang, Jie Fu, Changsong Pang, Peidong Wang, Kris Sankaran, Olawale Onabola, Yimin Liu, Dianbo Liu, Yoshua Bengio. *Proceedings of the IEEE/CVF International Conference on Computer Vision* (2021).

Interpretability of a deep learning model in the application of cardiac MRI segmentation with an ACDC challenge dataset. Adrianna Janik, Jonathan Dodd, Georgiana Ifrim, Kris Sankaran, Kathleen Curran. *SPIE Medical Imaging Conference (Image Processing Track)* (2021).

Machine Learning for Glacier Monitoring in the Hindu Kush Himalaya. Shimaa Baraka, Benjamin Akera, Bibek Aryal, Tenzing Sherpa, Finu Shresta, Anthony Ortiz, Kris Sankaran, Juan Lavista Ferris, Mir Martin, and Yoshua Bengio. *Climate Change AI Workshop at NeurIPS 2020*. [Spotlight Talk].

Segmentation of water bodies in Peru using knowledge-transfer based convolutional neural networks. Jessenia Gonzalez Villareal, Debjani Bhowmick, and Kris Sankaran. *Workshop on ML for the Developing World at NeurIPS* (2019).

Forecasting Maxima in Climate Time Series. Israel Goytom and Kris Sankaran. *9th International Workshop on Climate Informatics* (2019).

Artificial intelligence based cloud distributor (AI-CD): probing clouds with generative adversarial networks. Tianle Yuan, Hua Song, David Hall, Victor Schmidt, Kris Sankaran and Yoshua Bengio. *9th International Workshop on Climate Informatics* (2019).

Discovering Concepts in Learned Representations using Statistical Inference and Interactive Visualization. Adrianna Janik and Kris Sankaran. *Workshop on Explainable AI/ML (XAI) for Accountability, Fairness, and Transparency at KDD* (2019).

Interactive Segmentation for Disaster Relief Mapping. Muhammed Razzak and Kris Sankaran. *AI for Good Workshop at IJCAI* (2019). [Oral presentation]

Interpreting Black-Box Semantic Segmentation Models in Remote Sensing Applications. Adrianna Janik, Kris Sankaran, and Anthony Ortiz. In *Machine Learning Methods in Visualisation for Big Data* edited by Archambault, Daniel and Nabney, Ian and Peltonen, Jaakko (2019). DOI 10.2312/mlvis.20191158.

Machine Learning based Predictive Maintenance for Renewable Energy: The Case of Power Plants in Morocco. Loubna Benabbou, Zouheir Malki, Kris Sankaran, and Hicham Bouzeckri. *Climate Change AI workshop at ICML* (2019).

Visualizing the consequences of climate change using cycle-consistent adversarial networks. Victor Schmidt, Alexandra Luccioni, Surya Mukkavilli, Narmada Balasooriya, Kris Sankaran, Jennifer Chayes, and Yoshua Bengio. *AI for Social Good Workshop at ICLR* (2019).

Sex-specific association between gut microbiome and fat distribution. Yan Min, Xiaoguang Ma, Kris Sankaran, Yuan Ru, Lijin Chen, Mike Baiocchi, and Shankuan Zhu. *Nature Communications* 10, no. 1 (2019): 2408.

Remembrances of States Past. Kris Sankaran. *2nd Workshop on Visualization for AI Explainability at IEEE VIS* (2019). [Oral presentation]

- Multitable Methods for Microbiome Data Integration.* Kris Sankaran and Susan P. Holmes. *Frontiers in Genetics* 10 (2019).
- Hierarchical Importance Weighted Autoencoders.* Chin-Wei Huang, Kris Sankaran, Eeshan Dhekane, Alexandre Lacoste, Aaron Courville. *Proceedings of the 36th International Conference on Machine Learning*, PMLR 97:2869-2878 (2019).
- Latent Variable Modeling for the Microbiome.* Kris Sankaran and Susan P. Holmes. *Biostatistics* (2018).
- Interactive Visualization of Hierarchically Structured Data.* Kris Sankaran and Susan P. Holmes. *Journal of Computational and Graphical Statistics* (2017).
- Application of Semantic Segmentation with Few Labels in the Detection of Water Bodies from Perusat-1 Satellite's Images.* Jessenia Gonzalez Villareal, Kris Sankaran, Victor Ayma, and Cesar Beltran. *IEEE Latin American GRSS & ISPRS Remote Sensing Conference (LAGIRS)* (2020).
- Foundational mapping of Uganda to assist American Red Cross disaster response to floods and pandemics.* Alexei Bastidas, Matthew Beale, Yoshua Bengio, Anna Bethke, Pablo Fonseca, Jason Jo, Dale Kuncce, Sean McPherson, Vincent Michalski, Anthony Ortiz, Kris Sankaran, and Hanlin Tang. *AI for Social Good Workshop at NeurIPS* (2018).
- Multidomain analyses of a longitudinal human microbiome intestinal cleanout perturbation experiment.* Julia Fukuyama, Laurie Rumker, Kris Sankaran, Pratheepa Jegathan, Les Dethlefsen, David A. Relman, and Susan P. Holmes. *PLOS Computational Biology* 13, no. 8 (2017): e1005706.
- Bioconductor workflow for microbiome data analysis: from raw reads to community analyses.* Ben J. Callahan, Kris Sankaran, Julia A. Fukuyama, Paul J. McMurdie, and Susan P. Holmes. *F1000Research* 5 (2016).
- HIV-1 Protease, Reverse Transcriptase, and Integrase Variation.* Soo-Yon Rhee, Kris Sankaran, Vici Varghese, Mark Winters, Christopher B. Hurt, Joseph J. Eron, Neil Parkin, Susan P. Holmes, Mark Holodniy, and Robert W. Shafer. *Journal of Virology* (2016): JVI-00495.
- Improving Online Course Performance Through Customization: An Empirical Study Using Business Analytics.* Siva Sankaran and Kris Sankaran. *International Journal of Business Analytics (IJBAN)* 3, no. 4 (2016): 1-20.
- structSSI: Simultaneous and Selective Inference for Grouped or Hierarchically Structured Data.* Kris Sankaran and Susan P. Holmes. *Journal of Statistical Software* 59, no. 13 (2014).

Supervision

Postdoctoral Trainees: Margaret Thairu (with Jo Handelsman), Alex Cheong (GSTP secondary).

PhD students: Yuliang Peng, Hanying Jiang (Defended 10/2024).

PhD rotation: Xinran Miao, Zhuoyan Xu, Shuchen Yan, Mason Garza (with Jo Handelsman).

MS students: Sam Merten, Kai Cui, Kaiyan Ma, Margaret Turner, Tinghui Xu, Minking Zheng.

Undergraduate students: Helena Huang (WISCERS), Kobe Uko (WISCERS), Zhi Zheng, Yuliang Peng (Honors Advisor), Harshita Narayanan (WISCERS), Zhuoxin Shi, Zhihao Lyu (VISP), Weiyushi Tian, Yixing Tu.

MS-AS advisees: Yushin Wei, Maria Elisa Montes Gonzalez.

Preliminary Exam Committee Membership: Jitian Zhao, Jingqi Duan.

Thesis Committee Membership: Siyu Zhang, Emily Diaz Vallejo, Shan Lu, Jinyi Wang, Shana Ederer.

Interns supervised (Mila): Anthony Ortiz, Md. Rifat Arefin, Pablo Fonseca, Muhammed Razzak, Israel Goytom, Adrianna Janik, Yasser Salah Eddine Bouchareb, Sara Ebrahim, Mustafa Alghali, Jessenia Gonzalez Villareal, Shima Baraka, Debjani Bhowmick, Joseph Baafi, James Assiene, Benjamin Akera, and Olawale Onabola.

Interns co-supervised (Mila): The [biasly AI](#) team, Wisdom d'Almeida.

Talks

Community

- [Visualizing Microbiome Data](#). African Health Research Institute Seminar (01/2025)
- [Topic Models for Multiscale Analysis](#). International Indian Statistical Association Conference (12/2024)
- [Microbiome Intervention Analysis with mbtransfer](#). Joint Statistical Meetings (08/2024)
- [Topic Models for Multiscale Analysis](#). Computational Genomics Summer Institute (07/2024)
- [Interactivity for Interpretable Machine Learning](#). Computational Genomics Summer Institute (07/2024)
- [Trustworthy and Adaptable Biological Data Integration](#). IMS-NUS Workshop Proposal Meeting (07/2024)
- [Interactivity, Interpretability, and Generative Models](#). INFORMS ALIO-ASOCIO ([recording](#)) (06/2024)
- [Semisynthetic Simulation for Biological Data Analysis: Integrative Analysis](#) ([notebooks](#)). Melbourne Integrative Genomics Workshop (06/2024)
- [Semisynthetic Simulation for Biological Data Analysis: Multivariate Analysis](#) ([notebooks](#)). Melbourne Integrative Genomics Workshop (06/2024)
- [Semisynthetic Simulation for Biological Data Analysis: Marginal Modeling](#) ([notebooks](#)). Melbourne Integrative Genomics Workshop (06/2024)
- [Expressive Interfaces for Multi-omics Simulation](#). Melbourne Integrative Genomics Seminar (05/2024)
- [Multiscale Analysis of Microbiome Data with Alto](#). STATGEN 2024 (05/2024)
- [Interpretability: What's Possible? What's Next?](#). ([recording](#)). BIRS Workshop on Statistical Aspects of Trustworthy Machine Learning. (02/2024)
- [Simulation in Omics](#). UW Methods for Biological Data Workshop (02/2024)
- [Statistical and Computational Challenges in Phylogenetic Inference \(Faculty Introduction\)](#). Wisconsin Institute for Discovery Seminar Series (01/2024)
- [Expressive Interfaces for Multi-omics Simulation](#). UW-Madison Statistics Seminar (12/2023)
- [Student Satisfaction with R vs. Excel in Data Mining and Business Analytics](#). Decision Sciences Institute (11/2023)
- [Visualization in Deep Learning: Theme and Variations](#). UW Machine Learning Lunch Meetings (11/2023)
- [Interactive Multiview Data Science](#). Wisconsin Institute for Discovery Symposium (11/2023)
- [Beyond Black Box Simulation](#). ASA Section on Statistical Computing Mini-Symposium (11/2023)
- [Microbiome Data Science](#). UW-Madison Statistics Department Lightning Talks (09/2023)
- [Generative Models for Microbiome Mediation Analysis](#). Joint Statistical Meetings (08/2023)
- [Generative Models for Microbiome Mediation Analysis](#). EcoSta (08/2023)
- [Selective Inference for Computational Genomics](#). Computational Genomics Summer Institute (07/2023)
- [Ecosystem Modeling using Multimodal Data](#). Microsoft AI for Good Lab (07/2023)
- [Generative Models for Microbiome Mediation Analysis](#). CMStatistics (12/2022)
- [Visualization and Simulation in Microbial Community Analysis](#). Indiana University Bloomington Statistics Department Colloquium (10/2022)
- [Revisiting Iterative Data Structuration](#). University of Pittsburgh Department of Statistics Seminar (04/2022)

[Multiscale Topic Visualization in the Microbiome](#). ML + X Talks, UW-Madison Data Science Hub (11/2021)

[Multiscale Analysis of Count Data through Topic Alignment](#). McMaster University Mathematics and Statistics Department Seminar (11/2021)

[Latent Structure Laboratory](#). UW-Madison Statistics Department Seminar (09/2021)

[Discovery and Visualization](#). UW-Madison Statistics Department Lightning Talks (03/2021)

[Visualizing Mapping Models](#). UW-Madison Data Science Bazaar (02/2021)

Climate Change AI Team Intro. TEDx Climate Countdown (10/2020)

[Invitation to Research](#). UW-Madison Statistics Department Seminar (09/2020)

[Measuring Feature Stability](#). Bernoulli IMS One World Symposium (08/2020)

[Formalization of Complex Workflows](#). Stanford University Data Science Scholars (08/2020)

Navigation and Evaluation in High-Dimensional Data - San Francisco State Mathematics Department Seminar (02/2020)

Navigation and Evaluation in High-Dimensional Data - UC Davis Statistics Department Seminar (02/2020)

Navigation and Evaluation in High-Dimensional Data - UW-Madison Statistics Department Seminar (01/2020)

Navigation and Evaluation in High-Dimensional Data - Penn State Statistics Department Seminar (01/2020)

Navigation and Evaluation in High-Dimensional Data - Waterloo Statistics Department Seminar (01/2020)

Latent Structure in the Microbiome - University of Chicago, Department of Statistics Colloquium (01/2018)

Internal

[Microbiome Data Science](#) UW-Madison Statistics Department Lightning Talks (09/2024)

[Transparent Synthetic Data Generation](#) Machine Learning Lunch Meetings (04/2024)

[Integrated Views of HIV Acquisition Risk](#) Susan Holmes Group Meeting (04/2024)

[Multiview Data Science](#) UW-Madison Statistics Department Lightning Talks (03/2024)

[Simulation in Omics \(quarto, colab\)](#) [UW Methods for Biological Data Workshop](#) (02/2024)

[Interpretability: Beyond Black and White](#) (01/2024)

[Transfer Function Modeling of Microbial Community Shifts](#) (04/2023)

[Evaluating Causal Microbiome Models](#) (01/2023)

[Notes: A Simple Measure of Conditional Independence](#) (09/2022)

[Generative Approaches to Microbiome Mediation Analysis](#) (07/2022)

[Mediation and the Microbiome](#) (04/2022)

[Generative Models and Experimental Design](#) (01/2022)

[Recent Multi-Omics Methods and their Ancestors](#) (10/2021)

[Multiresolution Analysis of Count Data through Topic Alignment](#) (08/2021)

Workshop Organizing

Trustworthy and Adaptable Biological Data Integration

Co-organizers: Wei-Yin Loh, Wanjie Wang, Bibhas Chakraborty

IMS-NUS Workshop Series [May 3 - 21, 2027]

Bridging Biology and Statistics: Insights and Innovations for Modern Biology

Co-organizers: Claire Donnat, Laura Symul

Stanford University [June 3, 2025]

Computer Vision for Global Challenges

Lead Organizers: Laura Sevilla-Lara, Yannis Kalantidis

CVPR 2019 [June 16, 2019]

AI for Social Good

ICML 2019 [June 15, 2019]

ICLR 2019 [May 6, 2019]

Tackling Climate Change with Machine Learning

ICLR 2020. [April 26 - 30, 2020]

Software

multimedia: An R package for modular mediation analysis in high-dimensional data, with an emphasis on microbiome and metabolome applications.

miniLNM: An R package for estimation of logistic normal multinomial models.

mbtransfer: An R package for modeling microbiome dynamics which provides functions for fitting transfer function models, simulating counterfactual trajectories, and selecting significantly perturbed taxa using mirror statistics.

alto: An R package that aligns topics from different LDA models, computes metrics for quantifying the goodness of alignment, and provides visualization functions to explore the alignment and robustness of topics across environments or LDA hyperparameters.

NBFvis: An R package for neighborhood-based featurization and visualization for spatial genomics data.

MolPad: An R-Shiny Package for Cluster Co-Expression Analysis in Longitudinal Microbiomics.

waveST: An R package for wavelet-guided dimensionality reduction for spatial transcriptomics data.

treelapse: An R package for interactive visualization of hierarchically structured time series. Suitable for multiscale analysis of longitudinal microbiome data.

structSSI: An R package implementing hierarchically structured and grouped multiple hypothesis testing procedures.

GFLasso: An R package for the graph-fused lasso.

Funding

NIAID/NIH R01AI184095 [\$819K] for “Identifying drivers of genital inflammation and HIV acquisition in women living in sub-Saharan Africa.” Sub-PI with Douglas Kwon (PI), Scott Handley, and Laura Symul. (08/2024 - 06/2029).

NIGMS/NIH R01GM152744 [\$478K] for “Modeling Microbial Community Response to Invasion: A Multi-omics and Multifactorial Approach.” Joint with Jo Handelsman. (09/2023 - 07/2026).

Fall Research Competition [\$48K, conditional award] for “Differential Interactome Analysis for Multifactorial and Multi-Omics Experiments.” (12/2022).

AI for Earth Microsoft Azure Compute Grant [\$18K] for “Glacier Monitoring for Adaptation to Climate Change.” (10/2019).

AI for Earth Microsoft Azure Compute Grant [\$10K] for “Automated River Plastic Debris Removal.” (10/2019).

Teaching

Long Courses

STAT 436 (Statistical Data Visualization). UW-Madison. Spring 2025.

STAT 992 (Interpretable and Explainable Machine Learning). UW-Madison. Spring 2024.

STAT 436 (Statistical Data Visualization). UW-Madison. Fall 2024.

STAT 436 (Statistical Data Visualization). UW-Madison. Spring 2024.

STAT 992 (Selective Inference in Multi-Omics). UW-Madison. Spring 2024.

STAT 679/992 (Advanced Statistical Data Visualization). UW-Madison. Fall 2023.

STAT 992 (Multi-Omics Data Analysis). UW-Madison. Spring 2023.

STAT 436 (Statistical Data Visualization). UW-Madison. Spring 2023.

STAT 679 (Advanced Statistical Data Visualization). UW-Madison. Fall 2022.

STAT 479 (Statistical Data Visualization). UW-Madison. Spring 2022.

STAT 424 (Statistical Experimental Design). UW-Madison. Fall 2021.

STAT 479 (Statistical Data Visualization). UW-Madison. Spring 2021.

STAT 424 (Statistical Experimental Design). UW-Madison. Fall 2020.

IFT6758 (Introduction to Data Science) co-instructor Université de Montréal. Fall 2019.

STATS 390 (Free Statistical Consulting Workshop). Stanford University. Summer 2017.

Short Courses

International Indian Statistical Association Conference. [Interpretable and Interactive Machine Learning](#). (12/2024).

BME 780 Guest Lecture. [Managing Batch Effects in Biological Data](#) (10/2024).

BME 780 Guest Lecture. [Multiple Testing in Quantitative Biology](#) (10/2023).

Data Science Nigeria AI Bootcamp. Session on [Foundations of Machine Learning](#) (08/2023).

Annual Nepal AI School 2023. Session on [Foundations of Machine Learning](#). (06/2023)

UW-Madison MSTP M2 Journal Club. [Microbiome Studies: Design, Infrastructure, and Inference](#) (11/2022).

UW-Madison STAT 627. Lecture on [Is a PhD right for me?](#) (02/2022).

Third Nepal Winter School in AI. Session on [Foundations of Machine Learning](#) (12/2021).

Data Science Nigeria AI Bootcamp. Session on [Understanding Machine Learning](#) (10/2021).

Data Science Nigeria AI Bootcamp. Sessions on [AI for Social Good](#) and [Statistics and Machine Learning](#) (11/2021)

McMaster Innovate 1Z03 Lecture on [AI, Sustainability, and Climate Change](#).

Deep Learning Indaba instructor. Session on [Memory and Attention](#). Nairobi, Kenya. (08/2019).

First Nepal Winter School in AI instructor. Sessions on [Deep Learning Foundations](#), [Advanced Deep Learning](#), and [Humanitarian AI](#). Kathmandu, Nepal (12/2018).

Strategies and Techniques for Analyzing Microbial Population Structures TA Marine Biological Laboratory, Woods Hole. (08/2017).

Other

Madison Teaching and Learning Excellence Fellow - Chi Cohort.

Service

Reviewer for *mBio*, *Journal of Data Science*, *Statistics in Medicine*, *BioData Mining*, *Briefings in Bioinformatics*, *Computational and Structural Biotechnology Journal*, *mSystems*, *BMC Microbiology*, *Genome Biology*, *Bioinformatics*, *Entropy*, *Nature Scientific Reports*, *Journal of Computational and Graphical Statistics*, *BMC Bioinformatics*, *PLOS Computational Biology*, *The Journal of Machine Learning Research*, *Annals of Applied Statistics*, *eLife*, *Environmental Data Science*, *The R Journal*, *Biometrics*, *Biostatistics*, *Frontiers of Computer Science*, *The Journal of the American Statistical Association*, *Microbiome*, *F1000 Research*.

Reviewer for *RECOMB* [2023, 2024], *Climate Change AI* [ICML 2019, NeurIPS 2019, ICLR 2020, NeurIPS 2020, ICML 2021, ICLR 2023, ICLR 2024], *Practical Machine Learning for Developing Countries* [ICLR 2021], *AAAI 2021*, *AI for Social Impact* [AAAI 2020], *Harvard CRCS Workshop on AI for Social Good 2020*, *AI for Social Good* [NeurIPS 2018, ICLR 2019, ICML 2019], *AI for Good* [IJCAI 2019], *ML for the Developing World* [NeurIPS 2019, NeurIPS 2020], *Montreal AI Symposium* [2019]

Grant reviewer for the Israel Science Foundation (02/2025).

PhD application mentor for the Deep Learning Indaba Mentorship Program, (2023).

Co-Organizer (with Claudia Solis-Lemus) of [Data Science Meets Art](#) exhibition in the Illuminating Discovery Hub.

Judge for UW-Madison Statistics Club Data Challenge. (10/2021, 10/2022, 10/2023).

Judge for UW-Madison Data Science Club Datathon. (10/2021).

Steering committee member for [Climate Change AI](#). (04/2019 - 12/2020).

Project scoper for Data Science for Social Good - Solve. (07/2020 - 10/2020).

Writing Mentor, Deep Learning Indaba. (2020).

Graduate School Application Mentor, Black in AI. (2018 - 2019).

Humanitarian AI [reading group](#) organizer. (2018 - 2019).

Red Judge for IBM Watson AI XPRIZE. (05/2019 - 10/2019).

DataKind SF Chapter Core Volunteer. (2016 - 2017).

Stanford Statistics for Social Good. (2013 - 2017).

STATS 390 (Free Statistical Consulting Workshop) participant. 13 quarters, (2012 - 2017).

Recognition

Best reviewer award. AI for Social Good Workshop, NeurIPS 2018.

Jerome H. Friedman Applied Statistics Dissertation Award 2018

Ric Weiland Graduate Fellowship, 2016 - 2018

[Boothe Prize](#) for Excellence in Writing (Top 6 freshman papers), 2010

Unpublished Reports

Ma, Kaiyan, Margaret W. Thairu, and Kris Sankaran. MolPad: An R-Shiny Package for Cluster Co-Expression Analysis in Longitudinal Microbiomics. <https://doi.org/10.1101/2023.11.29.569321>.

Xu, Tinghui and Kris Sankaran. Interactive Visualization of Spatial Omics Neighborhoods [version 1; peer review: awaiting peer review]. F1000Research 11:799. 2022 <https://doi.org/10.12688/f1000research.122113.1>.

Xu, Zhuoyan, and Kris Sankaran. Spatial Transcriptomics Dimensionality Reduction using Wavelet Bases. [arXiv:2202.00180](https://arxiv.org/abs/2202.00180).

Miao, Xinran and Kris Sankaran. Source Data Selection for Out-of-Domain Generalization. [arXiv:2202.02155](https://arxiv.org/abs/2202.02155).

Sankaran, Kris. Measuring the Stability of Learned Features. 2021. [arXiv:2102.10388](https://arxiv.org/abs/2102.10388)

Ortiz, Anthony, Kris Sankaran, Olac Fuentes, Christopher Kiekintveld, Pascal Vincent, Yoshua Bengio, Doina Precup. Conditional Networks. (Rejected from ICLR 2021, [submission available](#)).

Deudon, Michel, Alfredo Kalaitzis, Israel Goytom, Md. Rifat Arefin, Zichao Lin, Kris Sankaran, Vincent Michalski, Samira E. Kahou, Julien Cornebise, and Yoshua Bengio. (2020). Highres-net: Recursive fusion for multi-frame super-resolution of satellite imagery. [arXiv preprint arXiv:2002.06460](https://arxiv.org/abs/2002.06460).

Casavant, Ellen, Les Dethlefsen, Kris Sankaran, Dan Sprockett, Susan P. Holmes, David Relman, and Joshua Elias. (2019). Strategies for understanding dynamic, personalized profiles of host-derived proteins and microbes from human stool. [bioRxiv, 551143](https://doi.org/10.1101/551143).

Sankaran, Kris, and Susan P. Holmes. Inference of Dynamic Regimes in the Microbiome. [arXiv preprint arXiv:1712.00067](https://arxiv.org/abs/1712.00067) (2017).

Sankaran, Kris, Diego Garcia-Olano, Mobin Javed, Maria Fernanda Alcala-Durand, Adolfo De Unánue, Paul van der Boor, Eric Potash, Roberto Sánchez Avalos, Luis Inaki Alberro Encinas, and Rayid Ghani. Applying Machine Learning Methods to Enhance the Distribution of Social Services in Mexico. [arXiv preprint arXiv:1709.05551](https://arxiv.org/abs/1709.05551) (2017).

Sankaran, Kris, Suzanne Tamang, and Ami Bhatt. Opioid Atlas: Mapping Access to Pain Medication. [arXiv preprint arXiv:1612.00497](https://arxiv.org/abs/1612.00497) (2016).

Hwang, Jessica, and Kris Sankaran. [SparkPoint Bundled Services Analysis](#). San Francisco, CA: United Way Bay Area (2014).

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