Wayne Yu Wang

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Research Positions

Aug. 2018 - present	Department of EECS and Statistics, University of Michigan Advisors: Profs. A. O. Hero and Y. Chen Projects: Tensor-variate graphical models for spatio-temporal processes; Bayesian point processes; solar flare predictions	Graduate Researcher
May 2021 - Aug. 2021	Statistical Sciences Group (CCS-6), Los Alamos National Laboratory Advisors: Drs. N. E. Klein and E. C. Lawrence Project: Online distributed PCA using MPI and MapReduce architecture, with applications to climate and space sciences	Research Intern
Aug. 2016 - Aug. 2018	Department of Statistics, The University of British Columbia Advisors: Profs. J. V. Zidek and N. D. Le Projects: Optimum design of spatial monitoring networks; spatial point processes; record value theory	Graduate Researcher
May. 2015 - Aug. 2015	Department of Statistics and Biomedical Engineering, Simon Fraser University Advisors: Prof. J. Graham Project: Statistical imputation of SNP information for Alzheimer's disease	Undergraduate Researcher

Research Interests

High-dimensional inference; Graphical models; (approximate) Bayesian inference; Generative models for spatio-temporal processes; Applications in natural sciences

Education

2022 (expected)	Statistics, University of Michigan Advisors: Profs. A. O. Hero and Y. Chen	Ph.D.
2018	Statistics, University of British Columbia Advisors: Profs. J. V. Zidek and N. D. Le	M.Sc.
2016	Actuarial Science, Simon Fraser University	B.Sc.

Updated: July 20, 2021

Publications

Wang, Y., & Hero, A. (2021). Sg-palm: A fast physically interpretable tensor graphical model, In *Proceedings of the thirty-eighth international conference on machine learning (ICML'21)*. https://arxiv.org/abs/2105.12271

Wang, Y., Hougen, C., Oselio, B., Dempsey, W., & Hero, A. (2021). "A geometry-driven longitudinal topic model". *Harvard Data Science Review*. https://doi.org/10.1162/99608f92.b447c07e

Wang, Y., Le, N. D., & Zidek, J. V. (2021). "Approximately optimal subset selection for statistical design and modelling". *Journal of Statistical Computation and Simulation*, 1–13. https://doi.org/10.1080/00949655.2021.1900182

Wang, Y., Le, N. D., & Zidek, J. V. (2020). "Approximately optimal spatial design: How good is it?" *Spatial Statistics*, 100409. https://www.sciencedirect.com/science/article/pii/S2211675320300038

Wang, Y., Jang, B., & Hero, A. (2020). The sylvester graphical lasso (syglasso), In *Proceedings of the twenty-third international conference on artificial intelligence and statistics (AISTATS'20)*, PMLR. http://proceedings.mlr.press/v108/wang20d.html

Casquilho-Resende, C., Le, N. D., Zidek, J. V., & Wang, Y. (2018). "Design of monitoring networks using k-determinantal point processes". *Environmetrics*, *29*(1), e2483. https://onlinelibrary.wiley.com/doi/full/10.1002/env.2483

Presentations

Contributed presentations

Wang, Y. (2021). Gaussian graphical models for active region modeling and flare prediction, In *Joint statistical meetings (jsm) 2021, seattle, wa.*

Wang, Y. (2021). Sg-palm: A fast physically interpretable tensor graphical model, In *Icml 2021, remote.*

Wang, Y. (2021). A geometry-driven longitudinal topic model, In *2021 symposium on data science and statistics.*

Wang, Y. (2020). Sylvester graphical models for complex spatio-temporal processes, In *The 4th annual review for the aro-muri: Adaptive exploitation of non-commutative multimodal information structure, ann arbor, mi.*

Wang, Y. (2020). The sylvester graphical lasso (syglasso), In *Joint statistical meetings (jsm) 2020, philadelphia, pa.*

Wang, Y. (2020). The sylvester graphical lasso (syglasso), In *Aistats 2020, palermo, italy.*

Wang, Y. (2018). Uncertainty quantification for minimum and maximum temperature forecast, In *Joint statistical meetings (jsm) 2018, vancouver, canada.*

Wang, Y. (2018). Determinantal point processes with application to spatial design, In *The 46th annual meeting of the statistical society of canada (ssc) 2018, montreal, canada.*

Wang, Y. (2017). Determinantal point processes with application to spatial design, In *Sfu/ubc joint statistics seminar.*

Invited presentations

Wang, Y. (2020). A scalable tool for longitudinal twitter analysis: Understanding the impact of covid-19 on public discourse, In *Covid-19 data science research special webinar series, michigan institute for data science, ann arbor, mi.*

Teaching

Teaching Assistant

University of Michigan

2021	EECS 545: *Machine Learning* *Description:* Graduate-level introduction to foundations of machine learning, mathematical derivation and implementation of the algorithms, and their applications.
2020	STATS 551: *Bayesian Modelling and Computation* *Description:* Graduate-level introduction to Bayesian inference. *Course materials:* ywa136.github.io/teaching/stats551_2020Winter
2019	STATS 306: *Introduction to Statistical Computing* *Description:* Senior undergraduate-level introductory statistical computing course based on the R programming language. *Course materials:* https://ywa136.github.io/teaching/stats306_2019Fall
2019	STATS 426: *Introduction to Theoretical Statistics* *Description:* Senior undergraduate-level introduction to theoretical statistics.
2018	STATS 250: *Introduction to Statistics and Data Analysis* *Description:* Junior undergraduate-level course in applied statistical methodology for data analysis.

University of British Columbia

2017	STATS 251: *Introductory Probability and Statistics* *Description:* Introductory statistics and probability course for junior undergraduates major in statstics.
2016	STATS 200: *Elementary Statistics for Applications* *Description:* Introductory statistics course for junior undergraduates major in arts and social sciences.

Awards, Fellowships, and Honors

2018 - 2019	Department of Statistics Fellowship, UMich
2018	International Doctoral Fellowship, UBC. (Declined; **Five year $35,000 per year fellowship awarded to the top 15 admitted international doctoral students across the university.**)
2017	Travel Award for CBMS Regional Conference on Spatial Statistics.
2016	Statistics & Actuarial Science Endowment Award: Academic Merit, SFU. (**Awarded to undergraduate student with the best academic performance across the department in the academic year.**)
2015	VP Research - Undergraduate Student Research Award, SFU. (**Awarded for the research project "Robust program for automated statistical imputation of the Alzheimer's Disease Neuroimaging Initiative (ADNI) data".**)
2014	April Allen Memorial Undergraduate Scholarship, SFU.
2014	President's Honour List, SFU.
2013 - 2016	Dean's Honour List, SFU.

Technical Skills

Programming Languages: Julia (proficient), Python (proficient), R (proficient), MATLAB (working knowledge), C (working knowledge) • **Distributed Computing:** Hadoop/Spark (working knowledge), MPI (working knowledge) • **Cloud Services:** AWS, GCP

Services

Reviewer for AISTATS 2021, PLOS ONE, Communications in Statistics - Theory and Methods, NeurIPS 2021, Journal of Scientific Computing.