

Ted Westling, PhD

Contact

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Employment

Assistant Professor 2019 - present
Department of Mathematics and Statistics
University of Massachusetts Amherst

Postdoctoral Researcher 2018 - 2019
Center for Causal Inference, University of Pennsylvania Perelman School of Medicine
Pediatric IDEAS Research Group, Children's Hospital of Philadelphia

Education

University of Washington, Seattle, WA 2013 - 2018
Doctor of Philosophy in Statistics

Stanford University, Stanford, CA 2008 - 2012
Bachelor of Science with Honors in Mathematics

Publications and Manuscripts

Statistical theory and methodology

Ye, T., **Westling, T.**, Page, L., and Keele, L. (2024). Nonparametric identification of causal effects in clustered observational studies with differential selection. *Journal of the Royal Statistical Society: Series A*, accepted. [arXiv:2206.10364](https://arxiv.org/abs/2206.10364)

Wu, Y. and **Westling, T.** (2023). Nonparametric inference under a monotone hazard ratio order. *Electronic Journal of Statistics*, 17(2):3181–3225. doi:[10.1214/23-EJS2173](https://doi.org/10.1214/23-EJS2173)

Westling, T., Luedtke, A., Gilbert, P., and Carone, M. (2023). Inference for treatment-specific survival curves using machine learning. *Journal of the American Statistical Association*, accepted. doi:[10.1080/01621459.2023.2205060](https://doi.org/10.1080/01621459.2023.2205060). [arXiv:2106.06602](https://arxiv.org/abs/2106.06602)

Westling, T., Downes, K. J., and Small, D. (2023). Nonparametric maximum likelihood estimation under a likelihood ratio order. *Statistica Sinica*, 33, 1–19. doi:[10.5705/ss.202020.0207](https://doi.org/10.5705/ss.202020.0207)

Westling, T. (2022). Nonparametric tests of the causal null with nondiscrete exposures. *Journal of the American Statistical Association*, 117(539):1551–1562, doi:[10.1080/01621459.2020.1865168](https://doi.org/10.1080/01621459.2020.1865168)

Balzer, L. and **Westling, T.** (2021). Demystifying Statistical Inference When Using Machine Learning in Causal Research. *American Journal of Epidemiology*, kwab200. doi:[10.1093/aje/kwab200](https://doi.org/10.1093/aje/kwab200)

Ng, T. L., Murphy, T. B., **Westling, T.**, McCormick, T. H., and Fosdick, B. K. (2021). Modeling the social media relationships of Irish politicians using a generalized latent space stochastic blockmodel.

Annals of Applied Statistics, 15(4):1923–1944. doi:[10.1214/21-AOAS1483](https://doi.org/10.1214/21-AOAS1483)

- Westling, T.**, van der Laan, M. J., and Carone, M. (2020). Correcting an estimator of a multivariate monotone function with isotonic regression. *Electronic Journal of Statistics*, 14(2):3032–3069. doi:[10.1214/20-EJS1740](https://doi.org/10.1214/20-EJS1740)
- Westling, T.**, Gilbert, P., and Carone, M. (2020). Causal isotonic regression. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, 82(3):719–747. doi:[10.1111/rssb.12372](https://doi.org/10.1111/rssb.12372)
- Westling, T.** and Carone, M. (2020). A unified study of nonparametric inference for monotone functions. *Annals of Statistics*, 48(2):1001–1024. doi:[10.1214/19-AOS1835](https://doi.org/10.1214/19-AOS1835)
- Westling, T.**, Juraska, M., Seaton, K., Tomaras, G., Gilbert, P., and Janes, H. (2020). Methods for comparing durability of immune responses between vaccine regimens in early-phase trials. *Statistical Methods in Medical Research*, 29(1):78–93. doi:[10.1177/0962280218820881](https://doi.org/10.1177/0962280218820881)
- Westling, T.** and McCormick, T. H. (2019). Beyond Prediction: A Framework for Inference With Variational Approximations in Mixture Models. *Journal of Computational and Graphical Statistics*, 28(4):778–789. doi:[10.1080/10618600.2019.1609977](https://doi.org/10.1080/10618600.2019.1609977)
- Fosdick, B. K., McCormick, T. H., Murphy, T. B., Ng, T. L., and **Westling, T.** (2019). Multiresolution Network Models. *Journal of Computational and Graphical Statistics*, 28(1):185–196. doi:[10.1080/10618600.2018.1505633](https://doi.org/10.1080/10618600.2018.1505633)

Scientific publications

- Ramgopal S., **Westling T.**, Siripong N., Salcido D., Martin-Gill C. (2021). Use of a metalearner to predict emergency medical services demand in an urban setting. *Computational Methods and Programs in Biomedicine*, 207:106201. doi:[10.1016/j.cmpb.2021.106201](https://doi.org/10.1016/j.cmpb.2021.106201)
- Fisher, B. T., **Westling, T.**, Boge, C. K., et al. (2021). Prospective Evaluation of Galactomannan and (1→3) β -D-Glucan Assays as Diagnostic Tools for Invasive Fungal Disease in Children, Adolescents and Young Adults with Acute Myeloid Leukemia Receiving Fungal Prophylaxis. *Journal of the Pediatric Infectious Diseases Society*, 10(8):864–871. doi:[10.1093/jpids/piab036](https://doi.org/10.1093/jpids/piab036)
- Westling, T.**, Cowden, C., Mwananyanda, L., et al. (2020). Impact of Chlorhexidine Baths on Suspected Sepsis and Bloodstream Infections in Hospitalized Neonates in Zambia. *International Journal of Infectious Diseases*, 96:54–60. doi:[10.1016/j.ijid.2020.03.043](https://doi.org/10.1016/j.ijid.2020.03.043)
- Harbison, R. A., Gray, A. J., **Westling, T.**, Carone, M., Rodriguez, C. P., Futran, N., Cannon, R., and Houlton, J. J. (2020). The role of elective neck dissection in high-grade parotid malignancy: a hospital-based cohort study. *The Laryngoscope*, 130:1487–1495. doi:[10.1002/lary.28238](https://doi.org/10.1002/lary.28238)
- Camargo, Yousem, K., **Westling, T.**, Carone, M., and Yousem, D.M. (2019). Ethical Dilemmas in Radiology: Survey of Opinions and Experiences. *American Journal of Roentgenology*, 213(6): 1274–1283. doi:[10.2214/AJR.19.21121](https://doi.org/10.2214/AJR.19.21121)
- Saranya, S., Luedtke, A., Langevin, E., Zhu, M., Bonaparte, M., Machabert, T., Savarino, S., Zambrano, B., Moureau, A., Khromava, A., Moodie, Z., **Westling, T.**, Mascareñas, C., Frago, C., Cortés, M., Chansinghakul, D., Noriega, F., Bouckennooghe, A., Chen, J., Ng, S.-P., Gilbert, P. B., Gurunathan, S., DiazGranados, C. A. (2018). Effect of Dengue Serostatus on Dengue Vaccine Safety and Efficacy. *New England Journal of Medicine*, 379(4):327–340. doi:[10.1056/NEJMoa1800820](https://doi.org/10.1056/NEJMoa1800820)

Manuscripts submitted for publication

- Tang, Z. and **Westling, T.** (2024). Consistency of the bootstrap for asymptotically linear estimators based on machine learning. arXiv:[2404.03064](#)
- Ham, D., **Westling, T.**, and Doss, C. (2024). Doubly robust estimation and inference for a log-concave counterfactual density. arXiv:[2403.19917](#)
- Yang, J., Bhattacharhya, R., Lee, Y., and **Westling, T.** (2023). Statistical and Causal Robustness for Causal Null Hypothesis Tests. arXiv:[2310.10393](#)
- Tang, Z. and **Westling, T.** (2023). Nonparametric Assessment of Variable Selection and Ranking Algorithms. arXiv:[2308.11593](#)
- Takatsu, K. and **Westling, T.** (2022). Debiased inference for a covariate-adjusted regression function. arXiv:[2210.06448](#)

Funding

Current and pending projects

- National Science Foundation DMS 2113171 (Principal Investigator) 2021–2025
Title: Advances in Causal Inference With Continuous Exposures
- National Institutes of Health R01HD106108 (Co-Investigator; PI: Chasan-Taber) 2022–2027
Title: Cardiovascular Disease Risk Factors in At-Risk Hispanic Women following Pregnancy Complications
- National Institutes of Health R01HD110462 (Co-Investigator; PIs: Pilsner, Whitcomb) 2024–2029
Title: Sperm mitochondrial biomarkers and male reproductive health

Selected Presentations

- Invited seminar**, Department of Mathematics and Statistics, Auburn University, Auburn, AL 2024
- Wilks seminar**, Department of Operations Research and Financial Engineering, Princeton University, Princeton, NJ 2023
- Topic-contributed presentation**, Joint Statistical Meetings, Toronto, CA 2023
- Invited presentation**, New England Statistical Symposium, Boston, MA 2023
- Invited presentation**, International Indian Statistical Association Annual Conference, Golden, CO 2023
- Invited seminar**, Department of Statistics and Data Science, Cornell University, Ithaca, NY 2023
- Invited seminar**, Center for Causal Inference, Philadelphia, PA 2023
- Invited presentation**, CMStat 2022, London, England 2022
- Invited seminar**, Computational Social Science Institute, UMass Amherst, Amherst, MA 2022
- Invited presentation**, AMS Sectional Meeting, UMass Amherst, Amherst, MA 2022

Invited presentation (virtual), EcoSta 2022, Kyoto, Japan	2022
Invited seminar (virtual), University of Haifa Statistics Seminar, Haifa, Israel	2022
Invited presentation , NE-TRIPODS, Tufts University, Medford, MA	2022
Invited seminar , UMass Amherst Biostatistics Department, Amherst, MA	2022
Invited seminar (virtual), Online Causal Inference Seminar, Online	2021
Invited seminar (virtual), University of Illinois Chicago, Chicago, IL	2021
Invited seminar (virtual), Baruch College, NY, NY	2021
Invited seminar (virtual), University of Connecticut, Storrs, CT	2020
Invited seminar , Center for Causal Inference, Philadelphia, PA	2020
Student award presentation , Joint Statistical Meetings, Denver, CO	2019
Invited presentation , New England Statistics Symposium, Hartford, CT	2019

Teaching

Instructor , STAT 516H: Honors Colloquium for Statistics II, University of Massachusetts Amherst Spring 2024	
Instructor , STAT 516: Statistics II, University of Massachusetts Amherst	Spring 2024
Instructor , STAT 590C/690C: Intro to Causal Inference, UMass Amherst	Fall 2023
Instructor , STAT 516: Statistics II, University of Massachusetts Amherst	Spring 2022
Instructor , STAT 797S: Efficient estimation in semiparametric and nonparametric models, University of Massachusetts Amherst	Fall 2021
Instructor , STAT 516: Statistics II, University of Massachusetts Amherst	Fall 2020
Instructor , STAT 516: Statistics II, University of Massachusetts Amherst	Spring 2020
Instructor , STAT 797S: Efficient estimation in semiparametric and nonparametric models, University of Massachusetts Amherst	Spring 2020
Instructor , Causal Inference Summer Institute, Center for Causal Inference	July 2019

Honors, Awards, and Fellowships

JSM travel award , Biometrics Section of the American Statistical Association	2019
Student paper award , ENAR Spring Meeting	2019
Outstanding student , Fred Hutchinson Cancer Research Center	2017

JSM student paper award, Section on Bayesian Statistical Science of the American Statistical Association 2016

Undergraduate Research Award, Dept. of Mathematics, Stanford University 2012

Academic Service

Referee, Annals of Statistics, Journal of the American Statistical Association (Theory and Methods), Biometrika, Journal of the Royal Statistical Society: Series B (Statistical Methodology), Electronic Journal of Statistics, Journal of the American Statistical Association (Applications and Case Studies), Journal of Computational and Graphical Statistics, Scandinavian Journal of Statistics, Statistics in Medicine, Statistical Methods in Medical Research, Biostatistics, Science Advances, American Journal of Epidemiology, ESAIM: Probability and Statistics, American Causal Inference Conference, Behaviormetrika, F1000 Research, CRC Press, International Journal of Biostatistics, Statistica Neerlandica, IEEE Transactions on Information Theory, Epidemiologic Methods, Observational Studies, Statistics and Computing, Journal of the French Statistical Society, Frontiers in Public Health, Workshop on Advances in Approximate Bayesian Inference

Invited panelist, National Science Foundation Division of Mathematical Sciences Statistics Panel, 2024

Organizer and chair, Topic-contributed session “Shape-constrained inference in data science” (sponsored by the Nonparametric Statistics Section of the American Statistical Association), JSM 2023

Organizer and chair, Invited session “Nonparametric methods in causal inference”, New England Statistical Symposium 2023

Organizer, Topic-contributed session “Machine learning and nonparametric methods in causal inference” (sponsored by the Section on Statistics in Epidemiology of the American Statistical Association), JSM 2020

Organizer and chair, Topic-contributed session “Advances in nonparametric methods in causal inference” (sponsored by the Section on Statistics in Epidemiology of the American Statistical Association), JSM 2019