CURRICULUM VITAE

Walter Dempsey, PhD

Part I

PROFESSIONAL DATA

Department of Biostatistics
University of Michigan, School of Public Health
Ann Arbor, MI 48103-2029 USA

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EDUCATION AND TRAINING

Degrees

Ph.D. / 2015	Statistics, University of Chicago, Chicago, IL, USA *Advisors: Peter McCullagh* *Dissertation: Statistical Methods for Joint Models of Longitudinal and Survival Data*
B.S. / 2009	Mathematics (with Honors) , Statistics, and Economics, University of Chicago, Chicago, IL, USA

Postdoctoral Training

2015 – 2019	Postdoctoral Research Fellow Department of Statistics, Harvard University ('17 - '19) Department of Statistics, University of Michigan ('15 - '17) *Mentor: Susan A. Murphy, Ph.D.*

PROFESSIONAL EXPERIENCE

University of Michigan

- Associate Professor, Department of Biostatistics, University of Michigan School of Public Health (2024–present).
- Associate Research Professor, Institute of Social Research, University of Michigan (2024 – present).
- Assistant Professor, Department of Biostatistics, University of Michigan School of Public Health (2019 – 2024).
- Assistant Research Professor, Institute of Social Research, University of Michigan (2019 – 2024).
- Affiliated faculty, Michigan Institute For Data Science (2019 – present).

Other Non-Michigan Professional Experience

- Postdoctoral Research Fellow, Department of Statistics, Harvard University, Boston, MA (2017 – 2019).
- Postdoctoral Research Fellow, Department of Statistics, University of Michigan, Ann Arbor, MA (2015 – 2017).
- Teaching Assistant, Department of Statistics, University of Chicago (2010 – 2015).

AWARDS

- 2023 Chair's Citzenship Award, Department of Biostatistics.
- Winner of Collaborative Research Proposal by Biostatistics and Statistics Departments (2021)
- Scholarship to attend SAMSI's "Program on Statistical, Mathematical, and Computational Methods for Precision Medicine (PMED)" (2018)
- Travel scholarship to attend "International Conference on Machine Learning (2017)".
- Scholarship to attend "IMS/ASA Spring Research Conference (2017)".
- Scholarship to attend "Workshop on Flexible Models for Longitudinal and Survival Data with Applications in Biostatistics (2015)".
- mHealth Institute Fellowship, 2016
- Data Science for Social Good Fellowship, 2013
- Department of Education GAANN Fellowship, 2011-2012

PUBLICATIONS *White numbers indicate first or senior author manuscripts. The * indicates a mentored student or post-doctoral fellow. The † and ‡ indicates co-first and co-last author, respectively.*

Journal Articles (Peer-Reviewed and Published)

1 Shi, J., Wu, Z., **Dempsey, W**. Incorporating Auxiliary Variables to Improve the Efficiency of Time-Varying Treatment Effect Estimation. ► *Journal of the American Statistical Association*. 2025; 1–11. doi: 10.1080/01621459.2025.2516

2 Shi, J., **Dempsey W**. A meta-learning method for estimation of causal excursion effects to assess time-varying moderation. ► *Biometrics*. 2025; **81**(4): ujaf129. doi: 10.1093/biomtc/ujaf129.

3 Huang, Y., Panigrahi, S., and **Dempsey, W**. Selective inference for sparse graphs via neighborhood selection. ► *Electronic Journal of Statistics*. 2025; **19**(2): 4083–4116.

4 Trella, A., **Dempsey, W.**, Doshi-Velez, F., and Murphy, S. Non-Stationary Latent Auto-Regressive Bandits. arXiv:2402.03110. ► *Reinforcement Learning Journal (RLJ)*. 2025; doi: https://doi.org/10.5281/zenodo.13899776

5 Abbott, M. R., **Dempsey, W. H.**, Nahum-Shani, I., Potter, L. N., Wetter, D. W., Lam, C. Y., and Taylor, J. M. G. A Bayesian joint longitudinal-survival model with a latent stochastic process for intensive longitudinal data. ► *Biometrics*. 2025; **81**(2): ujaf052. doi: https://doi.org/10.1093/biomtc/ujaf052

6 Abbott, M. R., **Dempsey, W. H.**, Nahum-Shani, I., Lam, C. Y., Wetter, D. W., Taylor, J. M. G. A Continuous-Time Dynamic Factor Model for Intensive Longitudinal Data Arising from Mobile Health Studies. ► *Psychometrika*. 2025; 1–22. doi: 10.1017/psy.2025.10023.

7 Huch E, Nahum-Shani I, Potter L, Lam C, Wetter DW, **Dempsey W**. Data integration methods for micro-randomized trials. ► *Biometrics*. 2025; **81**(2): ujaf002. doi: 10.1093/biomtc/ujaf002.

8 Huch, E., Shi, J., Abbott, M. R., Golbus, J. R., Moreno, A., **Dempsey, W. H.**. RoME: A Robust Mixed-Effects Bandit Algorithm for Optimizing Mobile Health Interventions. In *Advances in Neural Information Processing Systems*, Vol. 37, 2024; pp. 128280–128329.

9 Abbott, M., Nahum-Shani I, Lam C, Wetter D, **Dempsey W**. A latent variable approach to jointly modeling longitudinal and cumulative event data using a weighted two-stage approach. ► *Statistics in Medicine*. 2024; **43**: 4163-4177.

10 Yang Y, **Dempsey W**, Han P, Deshmukh Y, Richardson S, Tom B, Mukherjee B. Exploring the Big Data Paradox for various estimands using vaccination data from the global COVID-19 Trends and Impact Survey (CTIS). ► *Science Advances*. 2024; **10**(22): eadj0266. doi: 10.1126/sciadv.adj0266.

11 Zhang, Y., **Dempsey W**. Node-Level Community Detection within Edge Exchangeable Models for Interaction Processes. ► *Journal of the American Statistical Association*. 2024; **120**(550): 764–778. doi: 10.1080/01621459.2024.2358560.

12 **Dempsey W**. Recurrent Event Analysis in the Presence of Real-Time High Frequency Data via Random Subsampling. ► *Journal of Computational and Graphical Statistics*. 2023; **33**(2): 525–537. doi: 10.1080/10618600.2023.2276114.

13 Dziak JJ, Almirall D, **Dempsey W**, Stanger C, Nahum-Shani I. SMART Binary: New Sample Size Planning Resources for SMART Studies with Binary Outcome Measurements. ► *Multivariate Behavioral Research*. 2024 Jan-Feb; **59**(1): 1–16. doi: 10.1080/00273171.2023.2229079. Epub 2023 Jul 17. PMID: 37459401; PMCID: PMC10792389.

14 Zhang, Y., **Dempsey, W**. CataBEEM: Integrating Latent Interaction Categories in Node-wise Community Detection Models for Network Data. In *Proceedings of the 40th International Conference on Machine Learning (ICML)*, Proceedings of Machine Learning Research, Vol. 202, pp. 40946–40975, PMLR, 2023.

15 Nahum-Shani, I., Dziak, J., Venera, H., Pfammatter, A., Spring, B., and **Dempsey, W**. Design of experiments with sequential randomizations on multiple timescales: the hybrid experimental design. ► *Behavior Research Methods*. 2024; **56**: 1770–1792. doi: 10.3758/s13428-023-02119-z.

16 **Dempsey, W**. Addressing selection bias and measurement error in COVID-19 case count data using auxiliary information. ► *The Annals of Applied Statistics*. 2023; **17**(4): 2903–2923. doi: 10.1214/23-AOAS1786.

17 Shi, J., Wu, Z., **Dempsey, W**. Assessing time-varying causal effect moderation in the presence of cluster-level treatment effect heterogeneity and interference. ► *Biometrika*. 2023; **110**(3): 645–662. doi: 10.1093/biomet/asac065.

18 Moreno A, Nagesh S, Chatterjee S, Wu Z, **Dempsey W**‡, Rehg‡. Kernel Deformed Exponential Families for Sparse Continuous Attention. ► *Neural Information Processing Systems (Neurips)*. 2022; **35**.

19 Du J, Beesley L, Lee S, Zhou X, **Dempsey W**, and Mukherjee B. Optimal test allocation strategy for COVID-19. ► *Statistics in Medicine*. 2021; **41**: 310–327.

20 Wang Y*, Hougen C, Oselio B*, **Dempsey, W**‡, Hero, A‡. A Geometry Driven Longitudinal Topic Model. ► *Harvard Data Science Review*. 2021; **3**.

21 **Dempsey, W**, Oselio B*, Hero, A. Hierarchical edge exchangeable models for structured interaction networks. ► *Journal of the American Statistical Association*. 2021; **117**: 2056–2073.

22 Moreno A*, Wu Z, Wetter D, Lam C, Nahum-Shani I, **Dempsey W**‡, Rehg J‡. A Functional EM Algorithm for Panel Count Data with Missing Counts. ► *Neural Information Processing Systems*. 2021; **33**.

23 **Dempsey W**. Exchangeable Markov multi-state survival processes. ► *Statistica Sinica*. 2021; **31**: 1–22.

24 Crane H†, **Dempsey W**†. A Statistical Framework for Modern Network Science. ► *Statistical Science*. 2020; **36**: 51–67.

25 **Dempsey W**, Liao P, Kumar S, Murphy SA. The stratified micro-randomized trial design: sample size considerations for testing nested causal effects of time-varying treatments. ► *Annals of Applied Statistics*. 2020; **14**(2): 661–684.

26 Crane H, **Dempsey W**. Relational exchangeability. ► *Journal of Applied Probability*. 2019; **56**: 192–208.

27 Liao P†, **Dempsey W**†, Sarker H, Hossain S, al'Absi M, Klasnja P, Murphy SA. Just-in-Time but Not Too Much: Determining Treatment Timing in Mobile Health. ► *ACM International Joint Conference on Pervasive and Ubiquitous Computing*. 2018; **2**: 179.

28 **Dempsey W**, McCullagh, P. Survival Models and Health Sequences. ► *Lifetime Data Anaysis*. 2018; **24**: 550–584.

29 **Dempsey W**, McCullagh, P. Rejoinder to "Survival Models and Health Sequences". ► *Lifetime Data Anaysis*. 2018; **24**:550–584.

30 Crane H†, **Dempsey W**.† Edge exchangeable models for interaction networks. ► *Journal of the American Statistical Assocation*. 2018; **113**: 1311–1326.

31 **Dempsey W**, McCullagh P. Weak continuity of predictive distribution for Markov survival processes. ► *Electronic Journal of Statistics*. 2017; **11**: 5406-5451.

32 **Dempsey W**, Moreno A, Scott C, Dennis M, Gustafson D, Rehg J, Murphy SA. iSurvive: An Interpretable, Event-time Prediction Model for mHealth. ► *International Conference on Machine Learning*. 2017; **70**.

33 **Dempsey W**, Liao P, Klasnja P, Nahum-Shani I, Murphy SA. Randomized trials for the fitbit generation. ► *Significance*. 2015; **12**: 20–23.

34 Kondor R., **Dempsey W**. Multiresolution analysis on the symmetric group. ► *Advances in Neural Information Processing Systems*. 2012; **25**.

Collaborative Papers

35 Golbus J, Dorsch M, Chen Y, Basu T, Luff E, Klasnja P, Newman M, Skolarus L, **Dempsey W**, Nallamothu B. Abstract 4360862: Impact of Push Notifications on Physical Activity and Sodium Intake Amongst Patients with Hypertension: A Micro-Randomized Trial of a Just-In-Time Adaptive Intervention. ► *Circulation*. 2025; **152**.

36 Dorsch MP, **Dempsey W**, Krambrink A, Ganai S, Greer KM, Ali MS, Gesierich C, O'Neill M, Nallamothu B, Hummel SL. A Just-In-Time Adaptive Mobile Application Intervention to Reduce Sodium Intake and Blood Pressure in Patients with Hypertension: Rationale and Design of the LowSalt4Life 2 Trial. ► *American Heart Journal*. 2025; 107294.

37 Bentley KH, Ball MI, Bose S, Fortgang RG, Coppersmith DDL, DeMarco D, Hu N, Herrmann F, Daniel M, **Dempsey W**, Nock MK. Pilot microrandomized trial of a brief digital intervention for suicidal thoughts. ► *Journal of Consulting and Clinical Psychology*. 2025; **93**(10): 690.

38 Choi SJS, Hung PY, Liu M, **Dempsey W**, Newman MW, Klasnja P. Improving affective associations with physical activity via a message-based mHealth intervention (WalkToJoy): Proof-of-concept study. ► *Journal of Medical Internet Research*. 2024; **27**: e75792.

39 Mayer, C., Walch, O., **Dempsey, W.**, Hannay, K., Clingan, C., Bowen, Z., Rozwadowski, M., Reichert, Z., Henry, L., Alumkal, J., Tewari, M., Forger, D., and Choi, S.W. A circadian and app-based personalized lighting intervention for the reduction of cancer-related fatigue. ► *Cell Reports Medicine*. Accepted March 2025.

40 Golbus, J., Shi, J., Gupta, K., Stevens, R., Jeganathan, V., Luff, E., Boyden, T., Mukherjee, B., Kohnstamm, S., Taralunga, V., Kheterpal, V., Kheterpal, S.. Resnicow, K., Murphy, S., **Dempsey, W.**, Klasnja, P., and Nallamothu, B. Text messages to promote physical activity in patients with cardiovascular disease: a micro-randomized trial of a just-in-time adaptive intervention. ► *Circulation: Cardiovascular Quality and Outcomes*. 2025; **17**:e010731.

41 Golbus JR, Gupta K, Stevens R, Jeganathan VSE, Luff E, Shi J, **Dempsey W**, Boyden T, Mukherjee B, Kohnstamm S, Taralunga V, Kheterpal V, Murphy S, Klasnja P, Kheterpal S, Nallamothu BK. A randomized trial of a mobile health intervention to augment cardiac rehabilitation. ► *NPJ Digital Medicine*. 2023; **6**:173.

42 Mishra SR, **Dempsey W**, Klasnja P. A Text Messaging Intervention for Priming the Affective Rewards of Exercise in Adults: Protocol for a Microrandomized Trial. ► *JMIR Research Protocol*. 2023; **12**:e46560

43 Potter L, Yap J, **Dempsey W**, Wetter D, Nahum-Shani I. Integrating Intensive Longitudinal Data (ILD) to Inform the Development of Dynamic Theories of Behavior Change and Intervention Design: a Case Study of Scientific and Practical Considerations. ► *Prevention Science*. 2023; **1**: 1–13.

44 Nahum-Shani I, Dziak J, Walton M, **Dempsey W**. Hybrid Experimental Designs for Intervention Development: What, Why and How. ► *Advances in Methods and Practices in Psychological Science*. 2022; **25**: 1-15.

45 Wang J, Fang Y, Frank E, Walton M, Burmeister M, Tewari A, **Dempsey W**, NeCamp T, Sen S, Wu Z. Effectiveness of gamified team competition in the context of mHealth intervention for medical interns: a micro-randomized trial. ► *NPJ Digital Medicine*. 2022; **1**: 4.

46 Horwitz A, Czyz E, Al-Dajani N, **Dempsey W**, Zhao Z, Nahum-Shani I, Sen S. Utilizing daily mood diaries and wearable sensor data to predict depression and suicidal ideation among medical interns. ► *Journal of Affective Disorders* . 2022; **313**: 1–7.

47 Coppersmith D, **Dempsey W**, Kleiman E, Bentley K, Murphy SA, Nock M. Just-in-Time Adaptive Interventions for Suicide Prevention: Promise, Challenges, and Future Directions. ► *Psychiatry*. 2022; **85**: 317–333.

48 Jeganathan V, Golbus J, Gupta K, Luff E, **Dempsey W**, Boyden T, Rubenfire M, Mukherjee B, Klasnja P, Kheterpal S, Nallamothu B. Virtual AppLication-supported Environment To INcrease Exercise (VALENTINE) during cardiac rehabilitation study: Rationale and design. ► *American Heart Journal*. 2022; **248**: 53–62.

49 Fang Y, Bohnert A, Pereira-Lima K, Cleary J, Frank E, Zhuo Z, **Dempsey W**, Sen S. Trends in Depressive Symptoms and Associated Factors During Residency, 2007 to 2019: A Repeated Annual Cohort Study. ► *Annals of Internal Medicine*. 2022; **174**: 56-64.

50 Low D, Zuromski K, Kessler D, Ghosh S, Nock M, **Dempsey W**. It's quality and quantity: the effect of the amount of comments on online suicidal posts. ► *Proceedings of the First Workshop on Causal Inference and NLP*. 2021; 95–103.

51 Nahum-Shani I, Potter L, Lam C, Yap J, Moreno A, Stoffel R, Wu Z, Wang N, **Dempsey W**, Kumar S, Ertin E, Murphy S, Rehg J, Wetter D. The Mobile-Assistance for Regulating Smoking (MARS) Micro-Randomized Trial Design Protocol. ► *Contemporary Clinical Trials*, 2021; (110): 106513.

52 Battalio S, Conroy D, **Dempsey W**, Menictas M, Nahum-Shani I, Qian T, Murphy SA, Kumar S, Spring B. Sense2Stop: A Micro-randomized Trial Using Wearable Sensors to Optimize a Just-In-Time-Adaptive Stress Management Intervention for Smoking Relapse Prevention. ► *Contemporary Clinical Trials*. 2021; **109**: 106534.

53 Nock M, Kleiman E, Abraham M, Bentley K, Brent D, Buonopane R, Castro-Ramirez F, Cha C, **Dempsey W**, Draper J, Glenn C, Hollander H, Harkavy-Friedman J, Huffman J, Lee H, Millner A, Mou D, Onnela JP, Picard R, Quay H, Rankin O, Sewards S, Torous J, Wheelis J, Whiteside U, Siegel G, Ordonez A, Pearson J. Consensus Statement on Ethical & Safety Practices for Conducting Digital Monitoring Studies with People at Risk of Suicide and Related Behaviors. ► *Psychiatric Research and Clinical Practice*. 2021; **3**:57–66.

54 Golbus J, **Dempsey W**, Jackson E, Nallamothu B, Klasnja P. Micro-Randomized Trial Design for Evaluating Just-In-Time-Adaptive-Interventions Through Mobile Health Technologies for Cardiovascular Disease. ► *Circulation: Cadiovascular Quality and Outcomes*. 2020; **14**:e006760.

55 Wang SB, Coppersmith DDL, Kleiman EM, Bentley K, Millner A, Fortgang R, Mair P, **Dempsey W**, Huffman J, Nock M. A Pilot Study Using Frequent Inpatient Assessments of Suicidal Thinking to Predict Short-Term Postdischarge Suicidal Behavior. ► *JAMA Network Open*. 2020; **4**:e210591.

Refereed Letters, Communications, Book Chapters, Proceedings, Technical Reports, Other

56 Wang S, **Dempsey W**, Nock M. Machine learning for suicide prediction and prevention: Advances, challenges, and future directions. To appear in ► *Advances in Child and Family Policy and Practice*. 2021.

Pre-print Articles

57 Bakshi, S., **Dempsey, W.**, and Panigrahi, S. Selective Inference for Time-Varying Effect Moderation. arXiv:2411.15908. Revise and Resubmit to ► *Journal of the American Statistical Association (Theory and Methods)*.

58 Bakshi, S., Huang, Y., Panigrahi, S., and **Dempsey, W.**. Inference with Randomized Regression Trees. arXiv:2412.20535. Submitted to ► *Electronic Journal of Statistics*.

59 Meng, X., **Dempsey, W.**, Liao, P., Reid, N., Klasnja, P., and Murphy, S.A. Evaluation of the HeartSteps Online Sampling Algorithm. arXiv:2501.02137. Revise and Resubmit to ► *Journal of the American Statistical Association (Applications and Case Studies)*.

60 Huch, E., **Dempsey, W.**, and Feinberg, F. Robust Bayesian inference of causal effects via randomization distributions. Working paper. Submitted to ► *Journal of the American Statistical Association (Theory and Methods)*.

61 Huch, E., and **Dempsey, W.**. Stable central limit theorems for discrete-time lag martingale difference arrays. arXiv:2510.06524. Submitted to ► *Journal of Applied Probability*.

62 **Dempsey, W.**, Taylor, J.M.G. Improving prediction in M-estimation by integrating external information from heterogeneous populations. arXiv:2509.04609. Submitted to ► *Journal of the American Statistical Association (Theory and Methods)*.

63 Abbott, M., Gonzalez, R., Hummel, S., Nallamothu, B., Dosrch, M., and **Dempsey, W.**. Practical considerations when designing an online learning algorithm for an app-based mHealth intervention. arXiv:2511.08719. Submitted to ► *Contemporary Clinical Trials*.

64 Hsuan, T., and **Dempsey, W.**. Assessing time-varying causal effect moderation on distributional outcomes. Submitting to ► *Journal of the American Statistical Association (Applications and Case Studies)*.

65 Bose, S., and **Dempsey, W.**. Prediction Intervals for Individual Treatment Effects in a Multiple Decision Point Framework using Conformal Inference. arXiv:2512.08828. Submitting to ► *International Conference on Machine Learning (ICML)*.

66 Li, M., Nahum-Shani, I., and **Dempsey, W.**. Evaluating Time-varying Treatment Effects in Hybrid SMART-MRT Designs. Submitting to ► *Annals of Applied Statistics*.

Invited Commentaries

1 **Dempsey W**, Mukherjee B. Reflecting on "A Statistician in Medicine" in 2020. ► *Statistics in Medicine*. 2020; **40**: 42–48.

2 **Dempsey W**. Paradigm Lost? Paradigm Regained? Comment on "A New Paradigm for Polling" by Michael A. Bailey. ► *Harvard Data Science Review*. 2023.

CURRICULUM VITAE
Walter Dempsey, PhD

Part II

ACADEMIC ADVISING

Post-doctoral Advisor

1 Brandon Oselio, Biostatistics, University of Michigan, 2019–2021.

Doctoral Student Thesis Advisees

1 Yaxuan Huang, Biostatistics, Unviersity of Michigan, 2023–

2 Rachel Gonzalez (with Phil Boonstra), Biostatistics, University of Michigan, 2024–

3 Yuxuan Chen, Biostatistics, Unviersity of Michigan, 2023–

4 Tzu-Hsuan Lin, Biostatistics, University of Michigan, 2023–

5 Youqi Yang (with Bhramar Mukherjee), Biostatistics, University of Michigan, 2023–

6 Swaraj Bose, Biostatistics, University of Michigan, 2023–

7 Easton Huch (with Fred Feinberg), Statistics, University of Michigan, 2022–2025

8 Madeline Abbott (with Jeremy Taylor), Biostatistics, University of Michigan, 2020–2024 (F31 Grant Recipient, Best Presentation at MSSISS 2023)

9 Jieru Shi (with Zhenke Wu), Biostatistics, University of Michigan, 2020–2023 (Honorable Mention for Best Presentation at MSSISS 2023)

10 Yuhua Zhang (with Sebastian Zollner), Biostatistics, University of Michigan, 2019–2023.

Other Student Advising

Research Assistant

1 Mengbing Li, Biostatistics, University of Michigan, 2023–

2 Hanna Venera, Biostatistics, University of Michigan, 2021–2023

Thesis Committee

1 Marc Brooks, Statistics, University of Michigan, 2025–

2 Gabriel Durham, Statistics, University of Michigan, 2025–

3 Soham Bakshi, Statistics, University of Michigan, 2024–

4 Ritoban Kundu, Biostatistics, University of Michigan, 2024–2025

5 Jinming Li, Statistics, University of Michigan, 2023–2024

6 Jitao Wang, Biostatistics, University of Michigan, 2023–2025

Yiling Huang, Statistics, University of Michigan, 2023–

Conrad Hougin, EECS, University of Michigan, 2023–2025

Soumik Purkayastha, Biostatistics, University of Michigan, 2022–2025

Margaret Banker, Biostatistics, University of Michigan, 2022–2023

Yibo Wang, Biostatistics, University of Michigan, 2022–2024

Peter MacDonald, Statistics, University of Michigan, 2022–2023

Jangwon Choi, Quantitative Markiting, University of Michigan, 2021–2023

Emily Roberts, Biostatistics, University of Michigan, 2021–2022

Wayne Wang, Statistics, University of Michigan, 2020–2022

Yumu Liu, Statistics, University of Michigan, 2020–2020

Alexander Moreno, Computer Science, Georgia Tech University, 2019-2021

Joseph Naiman, Biostatistics, University of Michigan, 2019–2020

Brandon Oselio, Electrical Engineering and Computer Science, University of Michigan, 2018–2019

TEACHING

Classroom Instruction

University of Michigan, School of Public Health

- BIOS 802. Advanced Statistical Inference (2023–), Instructor.
- BIOS 617. Theory and Methods of Sample Design (2020–2023), Instructor.
- BIOS 629. Case Studies in Health Big Data (2021–), Instructor.

Harvard University

- STAT 234 Sequential Decision Making (2019), Guest Lecturer.

Workshops

- Population Dynamics and Health Program (PDH) Workshop on "Adaptive Interventions." Ann Arbor, Michigan. December, 2025. Talk on "Advanced Topics on using Artificial Intelligence to Personalize JITAIs".
- National Institute of Aging Online Workshop on "Leveraging Technology-based Adaptive Interventions to Reduce Risks for Healthy Aging and AD/ADRD." October, 2024. Talk on "Experimental designs: SMART, MRT, Hybrids."
- National Institute of Mental Health Online Workshop on "Timely and Adaptive Strategies to Optimize Suicide Prevention Interventions." September, 2024. Panelist.
- Mobile Training Institute: Faculty and Mentor, Los Angeles, California. May–June, 2023. Talk on "Experimental Design and Analytic Strategies for Adaptive Behavioral Interventions" and a week-long mentoring session of a mHealth team with capstone project.

- Mobile Training Institute: Faculty and Mentor, Los Angeles, California. June, 2022. Talk on "Data Missingness in mHealth Research" and a week-long mentoring session of a mHealth team with capstone project.
- International Society for Research on Internet Interventions (ISRII). Pittsburgh, USA. Postponed to 2021 due to COVID. "Introduction to optimization of just-in-time adaptive interventions (JITAIs) and other digital interventions using the multiphase optimization strategy (MOST)"
- Neural Information Processing System. Vancouver, Canada. December, 2020. "Machine Learning for Mobile Health"
- AI for Health Summer School in Paris, Paris, France. January, 2020. "Micro-randomized trials and real-time decision making in mobile health"
- Workshop on "Causal inference in the presence of dependence and network structure." Montreal, Canada. June, 2018. Invited Presentation titled "The stratified micro-randomized trial design: sample size considerations for testing nested causal effects of time-varying treatments."
- Training for Optimization of Behavioral and Biobehavioral Interventions, Bethesda, Maryland. May, 2016. Workshop Facilitator. "Adaptive Interventions,", "Sequential, Multiple Assignment, Randomized Trials (SMARTs)," "Just In-Time Adaptive Interventions (JITAIs)," and "Microrandomized Trials."
- Workshop on Flexible Models for Longitudinal and Survival Data with Applications in Biostatistics. Coventry, England. (2015). Invited presentation. "Survival models and health sequences"

RESEARCH GRANT PARTICIPATION

Ongoing Research Support

- *Multimodality Adaptive Intervention for Post-Inpatient Hospitalization Suicide Risk Reduction*
  Dates: 09/01/2025–08/31/2030. Principal Investigator: Matthew Nock, Rebecca Fortgang, and Walter Dempsey
  Responsibility: MPI.

- *Novel Methods to Inform mHealth Interventions for Substance Use*
  Dates: 09/01/2025–08/01/2028. Principal Investigator: Ashkan Ertefaie and Inbal Nahum-Shani
  Responsibility: Co-Investigator.

- *COMPASS: A comprehensive mobile precision approach for scalable solutions in mental health treatment*
  Dates: 09/01/2025–08/01/2029. Principal Investigator: Amy Bohnert, Lars Fritsche, and Srijan Sen
  Responsibility: Co-Investigator.

- *Mobile Technology to Optimize Depression Treatment (R01 MH131617)*
  Dates: 09/01/2022–08/01/2027. Principal Investigator: Srijan Sen
  Responsibility: Co-Investigator.

- *Pragmatic Trials of Cannabidiol and Tailored Cannabis Coaching to Improve Chronic Pain Symptoms among Veterans (Michigan, Department of Licensing and Regulatory Affairs)*
  Dates: 09/01/2022–08/01/2027. Principal Investigator: Kevin Boehnke, Amy Bohnert, and Rachel Bergmans
  Responsibility: Co-Investigator.

- *A Just-In-Time Adaptive Mobile Application Intervention To Reduce Sodium Intake And Blood Pressure In Hypertensive Patients (R61 HL155498)*
  Dates: 07/01/2021 — 06/30/2026. Principal Investigator: Mike Dorsch
  Responsibility: Co-Investigator.

- *Center for Methodologies for Adapting and Personalizing Prevention, Treatment and Recovery Services for SUD and HIV (MAPS Center, P50 DA054039)*

Dates: 07/01/2021–06/30/2026. Principal Investigator: Inbal Nahum-Shani and Daniel Almirall (MPIs)
Responsibility: Co-Investigator.

- *Center for Suicide Research and Prevention (P50MH129699-01A1)*
  Dates: 12/01/2023 – 11/30/2026. Principal Investigator: Smoller, Jordan and Nock, Matthew
  Responsibility: MPI on R34 subcomponent.

- *Leveraging ML algorithms and data integration techniques to improve efficiency of causal moderation analyses of micro-randomized trial data (R01 GM152549)*
  Dates: 09/01/2023 — 11/30/2027. Principal Investigator: Walter Dempsey
  Responsibility: Principal Investigator.

PRESENTATIONS

Scientific Meetings (Invited)

1 BIRS Emerging Statistical Methods for Digital Health Data, Banff, Canada (February, 2025). Invited talk on "Selective inference in semiparametric estimation of time-varying causal moderation effects"

2 Conference on Statistical Learning and Data Science, Newport Beach, California (November, 2024). Invited talk on "Selective inference in semiparametric estimation of time-varying causal moderation effects"

3 Joint Statistical Meeting, Toronto, Canada (August, 2023). Invited poster on "Selective inference in semiparametric estimation of time-varying causal moderation effects"

4 Joint Statistical Meeting, Toronto, Canada (August, 2023). Invited talk on "Improving the Efficiency of Time-varying Causal Effect Moderation Analysis in Mobile Health"

5 Eastern North American Region (ENAR) Conference, Nashville, Tennessee (March 2023). "Improving the Efficiency of Time-Varying Causal Effect Moderation Analysis in Mobile Health." (Part of session "Statistical Methods for the analysis of mobile health data")

6 14th International Conference of the ERCIM WG on Computation and Methodological Statistics, (December, 2022). Invited talk on "Improving the efficiency of time-varying causal effect moderation analysis in mobile health" (Virtual seminar)

7 Joint Statistical Meeting, Washington, DC (August, 2022). Invited talk on "Assessing Time-Varying Causal Effect Moderation in the Presence of Cluster-Level Treatment Effect Heterogeneity"

8 Conference on Health, Information, and Learning (April, 2022). Invited tutorial on "Challenges in developing online learning and experimentation algorithms in digital health" (Virtual seminar)

9 Joint Statistical Meeting, (August, 2021). Invited talk on "Recurrent event analysis in the presence of real-time high frequency data via random subsampling" (Virtual seminar)

10 International Conference on Clnical Biostatistics, (August, 2021). Invited talk on "Micro-randomized trials and cluster-level treatment effect heterogeneity" (Virtual seminar)

11 13th International Conference of the ERCIM WG on Computation and Methodological Statistics, (December, 2020). Invited talk on "Recurrent event analysis in the presence of real-time high frequency data via random subsampling" (Virtual seminar)

12 Pacific Causal Inference Conference, (September, 2020). Invited talk on "Micro-randomized trials and cluster-level treatment effect heterogeneity" (Virtual seminar).

13 Spring Research Conference (May, 2020). Invited talk on "Recurrent event analysis in the presence of functional covariates via random subsampling" (Virtual Seminar).

14 Neural information processing systems (Neurips) conference, Vancouver, Canada (December, 2019). Invited talk on "Learning temporal point processes in mobile health and network analysis" (Part of session "Learning temporal point processes")

15 Society for Ambulatory Assessment's Annual Conference, Syracuse, NY (June, 2019). Invited talk on "Recurrent event analysis in the presence of functional covariates via random subsampling". (Part of session "Analytical methods for making sense of mobile health data in suicide research")

16 Spring Research Conference, Blacksburg, VA (May, 2019). Invited Session. "Statistical network modeling via exchangeable interaction processes" (Part of session "Novel Methods for Structured and Relational Data")

17 New England Statistical Society, Hartford, CT (May, 2019). "The stratified micro-randomized trial design: testing nested causal effects of time-varying treatments" (Part of session "Healthcare Data Analysis for Electronic Health Records")

18 Society of Behavioral Medicine, Washington, DC (March, 2019). "From JITAIs to AIs" (Part of session "The nuts and bolts of behavioral intervention development: study designs, methods, and funding opportunities").

19 Eastern North American Region (ENAR) Conference, Atlanta, Georgia (March, 2018). "The stratified micro-randomized trial design: sample size considerations for testing nested causal effects of time-varying treatments." (Part of session "Recent Innovations in Practical Clinical Trial Design")

20 Joint Statistical Meeting, Baltimore, Maryland (August, 2017). "Accounting for the Sampling Scheme in Network Modeling" (Part of session "Foundations of Network Analysis")

21 NIH BD2K Machine Learning Working Group Webinar Series, Virtual Seminar (January, 2017). "Sample size calculations for stratified micro-randomized trials.

22 Society of Behavioral Medicine, San Diego, California (April, 2017). "From JITAIs to AIs" (Part of session "The nuts and bolts of behavioral intervention development: study designs, methods, and funding opportunities").

23 9th International Conference of the ERCIM WG on Computational and Methodological Statistics, Seville, Spain (December, 2016). "Edge exchangeable models for interaction networks" (Part of session "Statistical network modeling")

24 Society of Behavioral Medicine, Washington, D.C. (April, 2016). Invited presentation. "From JITAIs to AIs" (Part of session "The nuts and bolts of behavioral intervention development: study designs, methods, and funding opportunities").

Scientific Meetings (Contributed)

1 Joint Statistical Meeting, Chicago, Illinois (August, 2016). Contributed presentation. "Sample size calculations for stratified micro-randomized trials."

2 Eastern North American Region (ENAR) Conference, Austin, Texas (March, 2016). "Sample size calculations for stratified micro-randomized trials."

Invited External Seminars

1 Research Methods, Measurement, and Evaluation (RMME) and Statistics Colloquium at University of Connecticut, Storrs, CT (January, 2025). "Challenges in Time-Varying Causal Effect Moderation Analysis in Mobile Health."

2 Discussant in the Online Causal Inference Seminar (November, 2024). Discussing talk by Dr. Qian on "Causal inference and machine learning in mobile health – modeling time-varying effects using longitudinal functional data."

3 Colloquium at University of Maryland's Department of Biostatistics, College Park, MD (November, 2024). "Post-Selective Inference and Data Integration for Time-Varying Causal Effect Moderation Analysis in Mobile Health."

4 Colloquium at Carnegie Mellon University's Department of Statistics, Pittsburgh, PA (September, 2024). "Challenges in Time-Varying Causal Effect Moderation Analysis in Mobile Health."

5 Seminar at Massachusetts General Hospital's Center for Digital Mental Health, Boston, MA (January, 2023). "Data-driven design of effective just-in-time adaptive interventions: promise, pitfalls, and perspective" (Virtual Seminar)

6 Colloquium at University of Pennsylvania's Department of Biostatistics, Philadelphia, PA (October, 2022). "Improving the Efficiency of Time-Varying Causal Effect Moderation Analysis in Mobile Health."

7 Colloquium at Columbia University's Department of Biostatistics, New York, NY (September, 2022). "Improving the Efficiency of Time-Varying Causal Effect Moderation Analysis in Mobile Health."

8 Colloquium at Ohio State University's Department of Biostatistics, Columbus, OH (September, 2022). "Improving the Efficiency of Time-Varying Causal Effect Moderation Analysis in Mobile Health."

9 Colloquium at Imperial College London's Department of Statistics, London, England (June, 2022). "Statistical network modeling via exchangeable interaction processes."

10 Colloquium at Duke University's Department of Biostatistics, Durham, NC (May, 2022). "Improving the efficiency of time-varying effect moderation estimates."

11 Colloquium at University of Pittsburgh's Department of Statistics, Pittsburgh, PA (December, 2021). "Statistical network modeling via exchangeable interaction processes."

12 Colloquium at Johns Hopkins University's Department of Biostatistics, Baltimore, Maryland (January, 2021). "Assessing Time-Varying Causal Effect Moderation in the Presence of Cluster-Level Treatment Effect Heterogeneity."

13 Colloquium at MD Anderson's Department of Health Disparities Research. Houston, TX (June, 2020). Invited talk on "Microrandomized trials for just-in-time adaptive intervention (JITAI) development" (Virtual seminar)

14 Webinar for Office of Disease Prevention's "Medicine: Mind the Gap Webinar Series." Virtual Seminar (November, 2019). "Joint Models of Longitudinal and Time-to-Event Data for Informing Multi-Stage Decision Making in mHealth"

15 Colloquium at University of California, Berkeley's Department of Statistics, Berkeley, CA (January, 2019). "The stratified micro-randomized trial design: sample size considerations for testing nested causal effects of time-varying treatments."

16 Colloquium at Harvard University's Department of Biostatistics, Cambridge, MA (January, 2019). "The stratified micro-randomized trial design: sample size considerations for testing nested causal effects of time-varying treatments."

17 Colloquium at Penn State University's Department of Statistics, State College, PA (January, 2019). "Statistical network modeling via exchangeable interaction processes."

18 Colloquium at Yale University's Department of Biostatistics, New Haven, CT (January, 2019). "The stratified micro-randomized trial design: sample size considerations for testing nested causal effects of time-varying treatments."

19 Colloquium at NC State University's Department of Statistics, Raleigh, NC (December, 2018). "The stratified micro-randomized trial design: sample size considerations for testing nested causal effects of time-varying treatments."

20 Colloquium at Cornell University's Department of Statistics and Data Science, Ithaca, NY (December, 2018). "The stratified micro-randomized trial design: sample size considerations for testing nested causal effects of time-varying treatments."

21 Colloquium at McGill University's Department of Biostatistics, Montreal, Canada (December, 2018). "The stratified micro-randomized trial design: sample size considerations for testing nested causal effects of time-varying treatments."

22 Colloquium at Johns Hopkins University's Department of Biostatistics, Baltimore, Maryland (December, 2018). "The stratified micro-randomized trial design: sample size considerations for testing nested causal effects of time-varying treatments."

23 Colloquium at Johns Hopkins University's Department of Applied Mathematics and Statistics, Baltimore, Maryland (April, 2018). "Statistical network modeling via exchangeable interaction processes."

24 Colloquium at University of Minnesota's Institute for Translational Research. Minneapolis, MN (April, 2018). "Just-in-time interventions and micro-randomized trials in substance use and mental health."

Invited Internal Seminars

1 Computational Social Science Seminar in School of Information, Ann Arbor, MI (September, 2025). "Learning While Treating and Inference after Optimization: Challenges in Deploying Learning Algorithms for Real-Time Health Optimization."

2 Keynote Seminar at Mobile Technologies Research Innovation Collaborative (MeTRIC), Ann Arbor, MI (November, 2024). "Adaptive Interventions for Treatment of Health Conditions and Experimental Designs to Optimize Them."

3 Seminar in the Department of Anesthesiology Digital Data Coordinating Center Methods Seminar, Ann Arbor, MI (September, 2023). "Challenges in the design and analysis of mobile health intervention studies."

4 Seminar (Keynote Speaker) at the Michigan Student Symposium for Interdisciplinary Statistical Sciences (MSSISS), Ann Arbor, MI (March, 2023). "Using data to inform just-in-time adaptive interventions in mobile health: promise, pitfalls, and perspective."

5 Seminar (Keynote Speaker) at the Michigan Student Symposium for Interdisciplinary Statistical Sciences (MSSISS), Ann Arbor, MI (March, 2023). "Using data to inform just-in-time adaptive interventions in mobile health: promise, pitfalls, and perspective."

6 Seminar at University of Michigan's Institute of Social Research, Ann Arbor, MI (May, 2022). "To treat and when to treat? The role of sequential decision making and mobile technologies in health disorder research."

7 Colloquium at University of Michigan's Department of Biostatistics, Ann Arbor, MI (December, 2019). "Statistical network modeling via exchangeable interaction processes."

8 Colloquium at University of Michigan's Institute for Social Research, Ann Arbor, MI (November, 2018). "The stratified micro-randomized trial design: sample size considerations for testing nested causal effects of time-varying treatments."

PROFESSIONAL SERVICE

Professional Memberships

- Eastern North American Region (ENAR) (2018 – present).
- American Statistical Association (ASA) (2007 – present).

Participation on Advisory Panels, Boards, and Committees

- ENAR DataFest Competition Committee, 2023 – 2025. Chair (2023 – 2024).
- Member, Michigan Institute of Data Science Program Committee (2022 – 2025)
- Member, ENAR Regional Advisory Board (2020 – 2024).
- Member, CFE-CMStatistics 2021 Scientific Programme Committee (2021 – 2023).
- Advisor, TalkLife (2019 – 2024).

Program Development

Organizer

- Session Organizer, ENAR Conference (2025). Topic: *Quantile and Distributional Approaches in mHealth*
- Session Organizer, Lifetime Data Science Conference (2023). Topic: *Causal inference and survival analysis*
- Session Organizer, CFE-CMStatistics (2022). Topic: *Recent Statistical Advances for Mobile Health*.
- Session Organizer, CFE-CMStatistics (2021). Topic: *Recent Statistical Advances for Mobile Health*.
- Session Organizer, Joint Statistical Meetings (2021). Topic: *Recent Statistical Advances for Mobile Health*.
- Session Organizer, Lifetime Data Science Conference (2020, cancelled due to COVID). Topic: *Causal inference and survival analysis*
- Session Organizer, International Conference of the ERCIM Working Group on Computational and Methodological Statistics (2020). Topic: *Recent Statistical Advances for Mobile Health*.
- Session Organizer, Neural Information Processing Systems Conference (2020). Topic: *Machine Learning for Mobile Health*.

Journal Peer Review Activities

- **Journal**: Journal of the American Statistical Association, Journal of the Royal Statistical Society (Series A and B), Statistics in Medicine, Biostatistics, Biometrics, Statistical Science, Statistica Sinica, Journal of Complex Networks, Journal of Applied Statistics, Annales Henri Lebesgue, Sociological Methods and Review, Neural Information Processing System (Neurips) .
- **Book**: Chapman & Hall/CRC

Journal or Other Editorial Board Membership

- Associate Editor, *Annals of Applied Statistics* (2024 – present).
- Associate Editor, *Harvard Data Science Review* (2019 – present).

Proposal Reviews

- Ad hoc member, CANSSI Collaborative Research Team Program (June 2019).

Academic Service

Committees

1. MS In Biostatistics Admissions Committee, Department of Biostatistics, University of Michigan, 2024–2025
2. Faculty Retreat Planning Committee (Chair), Department of Biostatistics, University of Michigan, 2023–2025
3. MS In Data Science Admissions Committee, Department of Biostatistics, University of Michigan, 2023–2024
4. "Sharpening Our Competitive Edge" Working Group, School of Public Health, University of Michigan, 2022–2023
5. Bank of America-funded Health Equity Initiative, School of Public Health, University of Michigan, 2022–
6. Junior Faculty Search Committee, Department of Biostatistics, University of Michigan, 2022–2023
7. Faculty Search Committee, Department of Biostatistics, University of Michigan, 2021–2022
8. PhD qualifying exam committee, Department of Biostatistics, University of Michigan, 2021–2022
9. Seminars/Brown-bag committee (co-chair), Department of Biostatistics, University of Michigan, 2020–2022