

SUSAN A. MURPHY

(617) 495 5497, samurphy@fas.harvard.edu
<http://people.seas.harvard.edu/~samurphy/>

Professor of Statistics,
Radcliffe Alumnae Professor at the Radcliffe Institute and
Professor of Computer Science at the Harvard
John A. Paulson School of Engineering and Applied Sciences
Harvard University
Cambridge, MA 02138-2901

RESEARCH INTERESTS:

Experimental design and causal inference to inform sequential decision making, particular with regards to sequencing treatments in health and in mobile health intervention development. Inference for high dimensional models.

EDUCATION:

Ph.D., Statistics (1989), “Time-Dependent Coefficients in a Cox-Type Regression Model”
(P.K. Sen, advisor) University of North Carolina, Chapel Hill, NC

B.S., Mathematics (1980), Louisiana State University, Baton Rouge, LA

PROFESSIONAL POSITIONS SINCE 2001:

Fall, 2017-	Professor of Statistics and Professor of Computer Science at the Harvard John A. Paulson School of Engineering and Applied Sciences Harvard Univ.
Fall, 2017-	Radcliffe Alumnae Professor at the Radcliffe Institute, Harvard Univ.
Fall, 2014-2017	H.E. Robbins Distinguished University Professor of Statistics, Dept of Statistics, Univ. of Michigan
Fall, 2005 -2017	Professor of Psychiatry, Univ. of Michigan
Fall, 2004 - 2014	H.E. Robbins Professor of Statistics, Dept. of Statistics, Univ. of Michigan
Fall, 2001 - 2004	Professor of Statistics, Dept. of Statistics, Univ. of Michigan
Fall, 2001 - 2017	Research Professor, Institute for Social Research, Univ. of Michigan

HONORS since 2000:

2018: Australian Mathematical Sciences Institute-Statistical Society of Australia 2018 Lecturer
2018: R.A. Fisher Award and Lectureship
2018: Precision Medicine World Conference 2018 Luminary Award
2016: Elected a member of the National Academy of Sciences of the US National Academies
2014: Elected a member of the National Academy of Medicine (formerly the Institute of Medicine)
of the US National Academies
2014: Elected a Fellow of the College on Problems in Drug Dependence.
2014-2018: MacArthur Fellow.
2011: Elected a Member of the International Statistical Institute.
2007-8: Invited Fellow at the Center for Advanced Study in the Behavioral Sciences, Stanford
University

2002: Elected a Fellow of the American Statistical Association.

2000: Elected a Fellow of the Institute of Mathematical Statistics.

Keynote, Plenary and Distinguished Lectures since 2010:

2018: 2018 Distinguished Lecture in Statistical Sciences, Fields Institute for Research in Mathematical Sciences

2018: Keynote, COLT 2018 in Stockholm, Sweden

2018: Opening Keynote, 2018 Modern Modeling Methods Conference, Storrs CT

2018: Harvard Award and Lecture in Psychiatric Epidemiology and Biostatistics, Harvard Program in Brain Health.

2017: Keynote Lecture at the Machine Learning in Health Care Workshop, NIPS.

2017: David Sprott Distinguished Lecture, Department of Statistics and Actuarial Science, University of Waterloo; Waterloo, Canada.

2017: Vice Chancellor for Research Distinguished Lecture, University of Tennessee Health Center; Memphis, TN.

2017: Keynote Lecture, Centre for Behaviour Change's 3rd Digital Health Conference; UCL, London

2016: Plenary Talk, CLAPEM, San José, Costa Rica

2016: Keynote Lecture, IMPACT Symposium IV

2016: Keynote Lecture, IEEE Wireless Health

2016: Lecture in the NSF Distinguished Lecture Series in Mathematical and Physical Sciences, Washington, DC

2016: Plenary Talk, Conference on Statistical Learning and Data Science, Chapel Hill

2016: Presented the Henry Seeley White Lectures at Vassar College, NY

2016: Association for the Advancement of Artificial Intelligence 2016 Invited Talk, Phoenix, AR (one of 6 invited talks)

2015: Plenary Lecturer, ASA Biopharmaceutical 2015 Workshop

2015: IMS Wald Lecturer, JSM, Seattle

2015: Invited Speaker at the International Conference on Machine Learning (ICML), Lille, Paris (one of three invited speakers)

2015: Presented the Keynote Lecture at the Joint ICSA/Greybill Symposium, Ft. Collins

2015: Presented the Bernard G. Greenberg Lecture Series, UNC, Chapel Hill

2015: Keynote Speaker at the 2015 Doctoral Hooding Ceremony, UNC, Chapel Hill

2015: Presented the Bradley Lecture, University of Georgia, Athens

2014: Presented the 12th Annual Armitage Lecture, Medical Research Council Biostatistics Unit, Cambridge

2014: Presented the G. Snedecor Memorial Lecture, Department of Statistics, Iowa State University

2014: Presented the P. Porcelli Lectures, Department of Mathematics, Louisiana State University

2014: Presented the R.R. Bahadur Memorial Lectures, Department of Statistics, University of Chicago

SERVICE TO THE SCIENTIFIC COMMUNITY (since 2005):

2018-2019

President-Elect, Institute of Mathematical Statistics

2017-2019	President, Bernoulli Society
2017-	External Advisory Board; MIT Institute for Data, Systems and Society
2016-2017	SAMSI Director Search Committee
2016-2017	Local Organizing Committee, 3rd Multi-disciplinary Conference on Reinforcement Learning and Decision Making
2015	President-Elect, Bernoulli Society
Fall, 2015	External Review Committee Member; UC, Berkeley Statistics Dept.
2015	Reviewer for ICML, AAAI (computer science conferences)
2015-	Member, Committee on National Statistics, The National Academies
2015-	Member, Organizing Committee for The Multi-disciplinary Conference on Reinforcement Learning and Decision Making (RLDM)
2013-2016	Member, IMS Council
2012	Member, Organizing Committee for Workshop on Future Research Directions in Statistics
2012-2015	SAMSI National Advisory Committee Co-Chair
2011-12	Chair, Committee to Select Editors, AOS
2011	Member, Joint IMS/BS Publications Management Committee
2010	Member of the Scientific Organizing Committee for International Conference on Health Policy Statistics 2011
2009-2010	Member of the NAS Oversight Committee on the Handling of Missing Data in Clinical Trials
2009-2011	Member of the NIMH Interventions Committee for Adult Disorders
2009-2011	Member of the Columbia University HIV Center for Clinical and Behavioral Studies's external PSMB.
2008-2015	Member of the SAMSI National Advisory Council
2007	Member of the Scientific Committee, International Society for Clinical Biostatistics Meeting in Greece
2007-2009	Editor of <i>The Annals of Statistics</i> (with B. Silverman)
2007	Co-Editor of a supplemental volume of <i>Drug and Alcohol Dependence</i> on Adaptive Treatment Strategies (with L. Collins and A.J. Rush).
2006-2007	Co-organizer of the SAMSI program on Challenges in Dynamic Treatment Regimes and Multistage Decision-Making in June, 2007
Aug., 2005	Organizer of the ENAR invited session on Dynamic Treatment Regimes at the JSM, Minnesota.
July, 2005	Organizer of the EMS invited session on Causal Inference and Dynamic Treatment Regimes, Norway.

PUBLICATIONS AND MANUSCRIPTS:

Articles in Refereed Journals and Refereed Proceedings

Klasnja, P., Smith, S., Seewald, N.J., Lee, A., Hall, K., Luers, B., Hekler, E.B. and Murphy, S.A. Efficacy of contextually-tailored suggestions for physical activity: A micro-randomized optimization trial of HeartSteps *To appear in the Annals of Behavioral Medicine.*

Bidargaddi N, Almirall D, Murphy, S.A., Nahum-Shani I, Kovalcik M, Pituch T, Maaieh H and Strecher V. To prompt or not to prompt? A micro-randomized trial of time-varying push notifications to increase proximal engagement with a mobile health application *To appear in JMIR mHealth and uHealth*.

Rabbi M, Philyaw-Kotov M, Cunningham R, Bonar EE, Nahum-Shani I, Klasnja P, Walton M, **Murphy, S.A.**, Towards increasing engagement in substance use data collection: Development of the SARA app and protocol for a micro-randomized trial with adolescents and emerging adults. *JMIR Res Protoc* 2018;7(7):e166 URL: <https://www.researchprotocols.org/2018/7/e166>. doi:10.2196/resprot.9850 <http://dx.doi.org/10.2196/resprot.9850>

Walton, A, Nahum-Shani, I, Crosby, L, Klasnja, P and **Murphy, S.A.**, (2018). Optimizing Digital Integrated Care via MicroRandomized Trials. *Clinical Pharmacology & Therapeutics*, 104 (1), 53-58. <http://doi.org/10.1002/cpt.1079> NIHMS ID 956009 PMID: PMC5995647

Luers, B., Klasnja P. and **Murphy, S.A.**, Standardized effect sizes for preventive mobile health interventions in micro-randomized trials. *To appear in Prevention Science*.

Greenewald, K., Tewari A., Klasnja P. and **Murphy, S.A.** Action Centered Contextual Bandits. *Adv Neural Inf Process Syst*. 2017 Dec; 30: 59735981, PMID: PMC5719505

Dempsey, W.H., Moreno, A., Scott, C.K., Dennis, M.L., Gustafson, D.H., **Murphy, S.A.** and Rehg, J.M., iSurvive: An Interpretable, Event-time Prediction Model for mHealth, Proceedings of the 34th International Conference on Machine Learning, Sydney, Australia, PMLR 70, 2017. NIHMS922395.

Boruvka, A., Almirall, D., Witkiewitz, K. & **Murphy, S.A.**. Assessing Time-Varying Causal Effect Moderation in Mobile Health, (in press) *to appear in the Journal of the American Statistical Association*. Accepted author version posted online: 31 Mar 2017 <http://dx.doi.org/10.1080/01621459.2017.1305274>

Nahum-Shani, I., Smith, S.N. Spring, B.J., Collins, L.M., Witkiewitz, K., Tewari, A., & **Murphy, S.A.**. (2018). Just-in-Time Adaptive Interventions (JITAs) in Mobile Health: Key Components and Design Principles for Ongoing Health Behavior Support. *Ann Behav Med*. 2018 May 18;52(6):446-462. doi: 10.1007/s12160-016-9830-8. PMID: PMC5364076

Bekiroglu, K., Lagoa, C., **Murphy, S.A.** & S. T. Lanza, S.T. Control Engineering Methods for the Design of Robust Behavioral Treatments, (2016) *IEEE Transactions on Control Systems Technology*. Vol 25(3):979-990. Epub 2016 Jun 28. PMID: PMC5362168

Dempsey, W., Liao, P., Klasnja, P., Nahum-Shani, I., **Murphy, S.A.** (2015). Randomized trials for the Fitbit generation, *Significance*. 12(6):20-23. PMID: PMC4721268

Liao, P., Klasnja, P., Tewari, P., **Murphy, S.A.**, (2015) Micro-Randomized Trials in mHealth, *Statistics in Medicine*. Dec 28. doi: 10.1002/sim.6847. [Epub ahead of print] PubMed PMID: 26707831

Klasnja, P., Hekler, E.B., Shiffman, S., Boruvka, A., Almirall, D., Tewari, A. and **Murphy, S.A.** (2015). Micro-randomized trials: An experimental design for developing just-in-time adaptive interventions, *Health Psychology*. Vol 34(Suppl):1220-1228. doi: 10.1037/hea0000305. PubMed PMID: 26651463; PubMed Central PMID: PMC4732571

Lu, X., Lynch, K.G., Oslin, D.W. and **Murphy, S.A.** (2015) Comparing Treatment Policies with Assistance from the Structural Nested Mean Model. *Biometrics*. Sep 13. [Epub ahead of print] PubMed PMID: 26363892

Kumar, S., Abowd, G., Abraham, W., al Absi, M., Beck, J.G., Chau, D.H., Condie, T., Conroy, D.E., Ertin, E., Estrin, D., Ganesan, D., Lam, C., Marlin, B., Marsh, C.B., **Murphy, S.A.**, Nahum-Shani, I., Patrick, K., Rehg, J., Sharmin, M., Shetty, V., Sim, I., Spring, B., Srivastava, M., Wetter, D. Center of Excellence for Mobile Sensor Data-to-Knowledge (MD2K)(2015). *Journal of the American Medical Informatics Association*. 22(6): 1137-1142 First published online: 3 July 2015

Gunlicks-Stoessel, M., Mufson, L., Westervelt, A., Almirall, D. and **S.A. Murphy** (2015). A Pilot SMART for Developing an Adaptive Treatment Strategy for Adolescent Depression. *Journal of Clinical Child & Adolescent Psychology*. 2015 Mar 18:1-15. [Epub ahead of print] PMID: 25785788

Kilbourne, A. M., Almirall, D., Eisenberg, D., Waxmonsky, J., Goodrich, D. E., Fortney, J. C., Kirchner, J. E., Solberg, L. I., Main, D., Bauer, M.S., Kyle, J.,**Murphy, S.A.**, Nord, K.M., and M. R. Thomas (2014). Protocol: Adaptive Implementation of Effective Programs Trial (ADEPT): cluster randomized SMART trial comparing a standard versus enhanced implementation strategy to improve outcomes of a mood disorders program. *Implementation Science*. 2014 Sep 30;9:132. PMID: PMC4189548

Laber, E., D. Lizotte, M. Qian, W.E. Pelham and **S.A. Murphy** (2014). Dynamic treatment regimes: technical challenges and applications. *Electronic Journal of Statistics, with discussion*. Vol. 8, No. 0, 1225-1272. PMID: PMC4209714

Shortreed, S.M., E. Laber, T.S. Stroup, J. Pineau, & **S.A. Murphy** (2014). A multiple imputation strategy for sequential multiple assignment randomized trials. *Statistics in Medicine* Oct 30;33(24):4202-14. PMID: PMC4184954

Kasari C., Kaiser A., Goods K., Nietfeld J., Mathy P., Landa R., **S.A. Murphy**, Almirall D. (2014) Communication Interventions for Minimally Verbal Children with Autism: Sequential Multiple Assignment Randomized Trial. *Journal of the American Academy of Child and Adolescent Psychiatry* Jun;53(6):635-46. PMID: PMC4030683

Almirall D., Nahum-Shani, I., Sherwood, N.E. & **S.A. Murphy** (2014). Introduction to SMART Designs for the Development of Adaptive Interventions: With Application to Weight Loss Research. *Translational Behavioral Medicine: Practice, Policy and Research*. Sep; 4(3): 260274. PMID: PMC4167891

Lagoa, C.M., Bekiroglu, K., Lanza, S.T. & **S.A. Murphy**(2014) Designing Adaptive Intensive Interventions Using Methods from Engineering. *Journal of Consulting and Clinical Psychology* Oct;82(5):868-78. PMID: PMC4176810

Kumar, S., W.J. Nilsen, A. Abernethy, A. Atienza, K. Patrick, M. Pavel, W.T. Riley, A. Shar, B. Spring, D. Spruijt-Metz, D. Hedeker, V. Honavar, R. Kravitz, R. Craig Lefebvre, D.C. Mohr, **S.A. Murphy**, C. Quinn, V. Shusterman, D. Swendeman, (2013) Mobile Health Technology Evaluation, The mHealth Evidence Workshop. *Am J Prev Med* 45(2):228-236. PMID: PMC3803146

Almirall, D., Griffin BA, McCaffrey DF, Ramchand R, Yuen RA, **Murphy S.A.** (2014). Time-varying effect moderation using the structural nested mean model: estimation using inverse-weighted regression-with-residuals. *Statistics in Medicine*. Sep 10;33(20):3466-87. PMID: PMC4008726

Bekiroglu, K., Lagoa, C., **Murphy S.** & Lanza, S. T. (2013). A robust MPC approach to the design of treatments. *Proceedings of the 2013 52nd IEEE Conference on Decision and Control* Dec:3505 - 3510. DOI:10.1109/CDC.2013.6760421

Fonteneau, R., **S.A. Murphy**, Wehenkel, L., D. Ernst, (2013). Batch Mode Reinforcement Learning based on the Synthesis of Artificial Trajectories. *Annals of Operations Research*. 208:383-416. PMID: PMC3773886

Lizotte D.J., Bowling M., **S.A. Murphy** (2012). Linear Fitted-Q Iteration with Multiple Reward Functions. *Journal of Machine Learning Research*.13(Nov):3253-3295. PMID: PMC3670261

Almirall D., Compton S.N., Rynn M.A., Walkup J.T., **S.A. Murphy**, SMARTer Discontinuation Trials: With Application to the Treatment of Anxious Youth. *Journal of Child and Adolescent Psychopharmacology*. Oct 2012; 22(5): 364-374. doi: 10.1089/cap.2011.0073 PMID: PMC3482379

Little RJ, D Agostino R, Cohen ML, Dickersin K, Emerson SS, Farrar JT, Frangakis C, Hogan JW, Molenberghs G, **S.A. Murphy**, Neaton JD, Rotnitzky A, Scharfstein D, Shih W, Siegel JP and H Stern. (2012). The Prevention and Treatment of Missing Data in Clinical Trials. *New England Journal of Medicine*. vol. 367:1355-1360 PMID: PMC3771340

I. Nahum-Shani, M. Qian, D. Almiral, W.. Pelham, B. Gnagy, G. Fabiano, J. Waxmonsky, J. Yu and **S.A. Murphy**. Experimental Design and Primary Data Analysis Methods for Comparing Adaptive Interventions. *Psychological Methods* 17(4), 457-477. doi: 10.1037/a0029372. Epub 2012 Oct 1 PMID: PMC3825557

I. Nahum-Shani, M. Qian, D. Almiral, W.. Pelham, B. Gnagy, G. Fabiano, J. Waxmonsky, J. Yu and **S.A. Murphy**. Q-Learning: A Data Analysis Method for Constructing Adaptive Interventions. *Psychological Methods* 17(4):478-94. doi: 10.1037/a0029373. Epub 2012 Oct 1. PMID: PMC23025434

D. Almirall, S. N. Compton, M. Gunlicks-Stoessel, N. Duan, **S.A. Murphy** (2012). Designing a Pilot Sequential Multiple Assignment Randomized Trial for Developing an Adaptive Treatment Strategy. *Statistics in Medicine* 31(17):1887-1902. PMC3399974

K. Deng, J. Pineau and **S.A. Murphy** (2011). Active Learning for Developing Personalized Treatment. *Proceedings of the Twenty-Seventh Conference Annual Conference on Uncertainty in Artificial Intelligence (UAI-11)* AUAI Press 161-8. (These papers are externally reviewed; 34% acceptance rate.)

K. Deng, J. Pineau and **S.A. Murphy** (2011). Active Learning for Personalizing Treatment. *Adaptive Dynamic Programming And Reinforcement Learning (ADPRL), 2011 IEEE Symposium on* 11-15 April 2011. pgs 32-39.

L. Gunter, J. Zhu, and S.A. Murphy (2011). Variable Selection for Qualitative Interactions in Personalized Medicine while Controlling the Family-wise Error Rate. *Journal of Biopharmaceutical Statistics*. Nov;21(6):1063-78.

Z. Li and **S.A. Murphy** (2011). Sample Size Formulae for Two-Stage Randomized Trials with Survival Outcomes. *Biometrika* 98(3):503-518, PMID: PMC3254237

D. Almirall, D.F. McCaffrey, R. Ramchand and **S.A. Murphy** (2011). Subgroups Analysis when Treatment and Moderators are Time-varying. *Prevention Science* Published Online First 22 March 2011. PMID: PMC3135740

M. Qian and **S.A. Murphy** (2011). Performance Guarantees for Individualized Treatment Rules. *Annals of Statistics* 39(2):1180-1210. PMC3110016

E. Laber and **S.A. Murphy** (2011), Adaptive Confidence Intervals for the Test Error in Classification. *Journal of the American Statistical Association* 106:904-913. (This paper was selected as the JSM 2011 JASA(T&M) Invited Paper) Posted online on 30 Mar 2011. PMC3285493

S. M. Shortreed, E. Laber, D. J. Lizotte, T. S. Stroup, J Pineau and **S.A. Murphy** (2010). Informing sequential clinical decision-making through reinforcement learning: an empirical study. *Machine Learning*, July 1; 84(1-2):109-136. PMC3143507

D. Lizotte, M. Bowling and **S.A. Murphy** (2010), Efficient Reinforcement Learning with Multiple Reward Functions for Randomized Controlled Trial Analysis, *Proceedings of the 27th International Conference on Machine Learning (ICML 2010)* pgs. 695-702. (These papers are externally reviewed.)

R. Fonteneau, **S.A. Murphy**, L. Wehenkel and D. Ernst (2011). Towards min max generalization in reinforcement learning. In Agents and Artificial Intelligence: International Conference, ICAART 2010, Valencia, Spain, January 2010, Revised Selected Papers, Series: Communications in Computer and Information Science (CCIS), Volume 129, J. Filipe, A. Fred, and B. Sharp (Editors), pp. 61-77. Springer, Heidelberg. (These papers are externally reviewed.)

Fonteneau, R., **S.A. Murphy**, L. Wehenkel and D. Ernst (2010), Model-Free Monte Carlo-like Policy Evaluation. *Volume 9: AISTATS 2010 Proceedings of the Thirteenth International Conference on Artificial Intelligence and Statistics* May 13-15, 2010, Chia Laguna Resort, Sardinia, Italy 9:217-224, 2010. (These papers are externally reviewed.)

H. McGowan, R.L. Nix, **S.A. Murphy**, K.L. Bierman and CPPRG (2010), Investigating the Effects of Selection Bias in Dose-Response Analyses of Preventive Interventions. *Prevention Science* 11:239-251. PMC3044506

Almirall D, Ten Have T, **Murphy SA** (2010). Structural Nested Mean Models for Assessing Time-Varying Effect Moderation. *Biometrics*. 66(1), 131-139, Published Online: 13 Apr 2009 PMC 2875310

L. Gunter, J. Zhu, **S.A. Murphy** (2011). Variable Selection for Qualitative Interactions. *Statistical Methodology* 8(1):42-55. PMC3003934

B. Chakraborty, **S.A. Murphy** and V. Strecher (2010). Inference for Nonregular Parameters in Optimal Dynamic Treatment Regimes. *Statistical Methods in Medical Research* 2010 19: 317-343. PMC2891316

Fonteneau, R., **S.A. Murphy**, L. Wehenkel and D. Ernst (2010). A Cautious Approach to Generalization in Reinforcement Learning. Joaquim Filipe, Ana L. N. Fred, Bernadette Sharp (Eds.): ICAART 2010 - Proceedings of the International Conference on Agents and Artificial Intelligence, Volume 1 - Artificial Intelligence, Valencia, Spain, January 22-24, 2010. INSTICC Press 2010, 64-73. (This paper won the Best Student Paper Award; these are externally reviewed papers.)

R. Fonteneau, **S.A. Murphy**, L. Wehenkel and D. Ernst. (2009) Inferring bounds on the performance of a control policy from a sample of trajectories. In Proceedings of the IEEE International Symposium on Adaptive Dynamic Programming and Reinforcement Learning (ADPRL09), pages 117-123. Nashville, United States, March 30 April 2, 2009. (These are externally reviewed.)

S.A. Murphy and D. Bingham (2009). Screening Experiments for Developing Dynamic Treatment Regimes. *Journal of the American Statistical Association*, Vol 184:391-408. PMC2892819

Chakraborty B, Collins L, Strecher V, **Murphy SA** (2009). Developing Multicomponent Interventions using Fractional Factorial Designs. *Statistics in Medicine* September 20; 28(21): 2687-2708. PMC2746448

Collins, LM, Chakraborty B, **Murphy SA**, Strecher V (2009). Comparison of a phased experimental approach and a single randomized clinical trial for developing multicomponent behavioral interventions. *Clinical Trials*, Vol 6(1): 5-15. PMC2711350

E. Laber, **S.A. Murphy** (2008). Small Sample Inference for Generalization Error in Classification Using the CUD Bound, *Proceedings of the 2008 Uncertainty in Artificial Intelligence Conference* AUAI Press, 357:365. These papers are externally reviewed. PMC2876736

V. Nair, V. Strecher, A. Fagerlin, P. Ubel, K. Resnicow, **S.A. Murphy**, R. Little, B. Chakraborty, A. Zhang, 2008. Screening Experiments and Fractional Factorial Designs in Behavioral Intervention Research, *American Journal of Public Health*, Vol.98, No.8:1354-1359. PMC2446451

S.A. Murphy, L.M. Collins, A.J. Rush (2007). Customizing Treatment to the Patient: Adaptive Treatment Strategies (Editorial). Drug and Alcohol Dependence, *Drug and Alcohol Dependence*. 88(2):S1-S72. PMC1924645

J. Pineau, M.G. Bellemare, A. J. Rush, A. Ghizaru, **S.A. Murphy** (2007). Constructing evidence-based treatment strategies using methods from computer science. *Drug and Alcohol Dependence*, 88, Supplement 2:S52-S60. PMC1934348

L. Gunter, J. Zhu, **S.A. Murphy** (2007). Variable Selection for Optimal Decision Making. *Proceedings of the 11th Conference on Artificial Intelligence in Medicine*. LNCS/LNAI 4594, 149-154. This proceedings had a 50% acceptance rate.

L.M. Collins, **S.A. Murphy**, V. Strecher (2007). The Multiphase Optimization Strategy (MOST) and the Sequential Multiple Assignment Randomized Trial (SMART): New Methods for More Potent e-Health Interventions. *American Journal of Preventive Medicine*, 32(5S):S112-118. PMC2062525

S.A. Murphy, K.G. Lynch, J.R. McKay, D. Oslin, T. TenHave (2007). Developing Adaptive Treatment Strategies in Substance Abuse Research. *Drug and Alcohol Dependence*, 88(2):S24-S30. PMC1922034

S.A. Murphy, D. Oslin, A.J.Rush, J. Zhu for MCATS (2007). Methodological Challenges in Constructing Effective Treatment Sequences for Chronic Disorders, *Neuropsychopharmacology*, 32(2):257-62. advance online publication, November 8 2006, doi: 10.1038/sj.npp.1301241 PMC17091129

Bierman K., R. Nix, J.J. Maples and **S.A. Murphy**. (2006). Examining Clinical Judgment in an Adaptive Intervention Design: The Fast Track Prevention Program *American Journal of Community Psychology* 74(3):468-81. PMC2753970

Bray, B., D. Almiral, R.S. Zimmerman, D. Lynam and **Murphy, S.A.** (2006). Assessing the Total Effect of Time-varying Predictors in Prevention Research. *Prevention Science*. 7(1):1-17. PMC1479302

Murphy S.A. (2005). A Generalization Error for Q-Learning. *Journal of Machine Learning Research*. 6(Jul):1073-1097. PMC1475741

Collins, L.M., **Murphy, S.A.**, Nair, V. and V. Strecher. (2005) A Strategy for Optimizing and Evaluating Behavioral Interventions. *The Annals of Behavioral Medicine* , 30:65-73.

- Murphy, S.A.** (2005) An Experimental Design for the Development of Adaptive Treatment Strategies. *Statistics in Medicine*, **24**:1455-1481. PMC15586395
- Barber, J.S., **Murphy, S.A.** & N. Verbitsky (2004), Adjusting for Time-Varying Confounding in Survival Analysis. *Sociological Methodology*, **34**:163-192.
- Collins, L.D., **Murphy, S.A.** and K. Bierman. (2004), A Conceptual Framework for Adaptive Preventive Interventions. *Prevention Science*, **3**:185-196. PMC3544191
- Murphy, S.A.** (2003) Optimal Dynamic Treatment Regimes (with discussion). *JRSSB*, **65(2)**, 331-366.
- Maples, J.J., **Murphy, S.A.** and W.G. Axinn (2002), Two Level Proportional Hazards Models. *Biometrics*, **58(4)**, 180-188.
- Murphy, S.A.**, M.J. van der Laan, JM. Robins and CPPRG (2001), Marginal Mean Models for Dynamic Regimes *JASA*, **96** 1410-1423.
- Murphy, S.A.** and A.W. van der Vaart, (2001). Semiparametric Mixtures in Case-control Studies. *Journal of Multivariate Analysis*, **79**:1-32.
- Barber, J.S., **S.A. Murphy**, W.G. Axinn and J. Maples, (2000) Discrete Time Multilevel Survival Analysis. *Sociological Methodology*, **30** 201-235.
- Murphy, S.A.** and A.W. van der Vaart, (2000) On Profile Likelihood. (with discussion). *JASA*, **95** 449-485.
- Murphy S.A.**, van der Vaart AW and Wellner JA. (1999) Current Status Regression. *Mathematical Methods of Statistics*, **8** 407-425.
- Murphy S.A.** and van der Vaart AW. (1999) Observed Information in Semiparametric Models. *Bernoulli*. **5** 381-412.
- Bacik, J.M., **S.A. Murphy** and J.C. Anthony, (1998) Drug Use Prevention Data, Missing Assessments and Survival Analysis. *Multivariate Behavioral Research*, **33** 573-588.
- Murphy, S.A.**, A.J. Rossini and A.W. van der Vaart, (1997) MLE in the Proportional Odds Model. *JASA*, **92** 968-976
- Murphy, S.A.** and A.W. van der Vaart, (1997) Semiparametric Likelihood Ratio Inference. *Annals of Statistics*, **25** 1471-1509
- Murphy, S.A.** and A.W. van der Vaart, (1996) Likelihood Inference in the Errors-in-Variables Model. *J. of Multivariate Analysis*, **59** 81-108
- Murphy, S.A.**, (1995) Likelihood Ratio-Based Confidence Intervals in Survival Analysis. *JASA*, **90** 1399-1405.
- Murphy, S.A.** (1995) A Central Limit Theorem for Local Martingales with Applications to the Analysis of Longitudinal Data, *Scand. J. of Stat.*, **22** 279-294.
- Murphy, S.A.**, M.A. O'Hanesian, and G. Bentley, (1995) An Analysis for Menstrual Data with Time-Varying Covariates, *Stat. in Med.*, **14** 1843-1857.
- Murphy S.A.** (1995) Asymptotic Theory for the Frailty Model, *Annals of Statistics*, **23** 182-198.
- Murphy, S.A.** and B. Li, (1995) Projected Partial Likelihood and its Application to Longitudinal Data, *Biometrika*, **82** 399-406.
- Akritas, M., **S. Murphy**, M. LaValley, and E. Feigelson, (1995) The Theil-Sen Estimator with Doubly Censored Data and Applications to Astronomy, *JASA*, **90** 170-177.
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Mobile Health: Sensors, Analytic Methods, and Applications edited by James Rehg, Susan Murphy & Santosh Kumar. *Springer International Publishing AG 2017*, DOI 10.1007/978-3-319-51394-2 4.

Other Refereed Articles/Editorials/Book Chapters

Hall, K., Nahum-Shani, I., August, G., Patrick, M.E., Murphy, S.A., Almirall, D., Adaptive Intervention Designs in Substance Use Prevention. To appear in the book: Prevention of Substance Use. Springer

Wagner III, B., Liu, E., Shaw, S., Lakovlev, G., Zhou, L., Harrington, C., Abowd, G., Yoon, C., Kumar, S., **Murphy, S.A.**, Spring, B., and Nahum-Shani, I. ewrapper: Operationalizing engagement strategies in mHealth. Ubicomp Workshop: MENTAL HEALTH AND WELL-BEING: SENSING AND INTERVENTION.

Rabbi, M., Philyaw-Kotov, M., Lee, J., Mansour, A., Dent, L., Wang, X., Cunningham, R., Bonar, E., Nahum-Shani, I., Klasnja, P., Walton, M. and **Murphy, S.A.**. SARA: A Mobile App to Engage Users in Health Data Collection. In Proceedings of the 2017 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2017 ACM International Symposium on Wearable Computers (UbiComp '17). ACM, New York, NY, USA, 781-789. DOI: <https://doi.org/10.1145/3123024.3125611>

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S.A. Murphy, L.M. Collins, A.J. Rush (2007). Editorial: Customizing treatment to the patient: Adaptive treatment strategies, *Drug Alcohol Dependence*, 88(2):S1-S72.

S.A. Murphy and McKay, J.R. (2003). Adaptive Treatment Strategies: An Emerging Approach for Improving Treatment Effectiveness. *Clinical Science (Newsletter of the American Psychological Association Division 12, section III: The Society for the Science of Clinical Psychology) Winter 2003/Spring 2004*.

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RESEARCH GRANTS AND AWARDS SINCE 2010:

Co-Investigator U01 CA229437 (9/1/2018-8/31/2022) NCI

“Novel Use of mHealth Data to Identify States of Vulnerability and Receptivity to JITAIs” The goal of this grant is to systematically investigate the nature of the states of individual vulnerability and receptivity as well as how knowledge of these states can be used to optimize real-time engagement in self-regulatory activities aimed at helping individuals quit smoking. This project will use a racially/ethnically diverse collection of real time, real world data on individuals attempting to quite smoking to investigate how the temporal dynamics and interactions of emotions, self-regulatory capacity, context, and other factors can be used to detect states of vulnerability to a lapse and states of receptivity to engage in self-regulatory activities. We will investigate how knowledge of these states can be used to optimize real-time engagement in self-regulatory activities by conducting a Micro-Randomized Trial (MRT) enrolling 150 smokers attempting to quit. Utilizing a mobile smoking cessation app, the MRT will randomize each individual multiple times per day to either (a) no intervention prompt; (b) a prompt recommending engagement in brief (low effort) strategies; or (c) a prompt recommending a more effortful practice of self-regulation strategies. The proposed research will be the first to yield a comprehensive conceptual, technical, and empirical foundation necessary to develop effective JITAIs based on dynamic models of vulnerability and receptivity. Overall Co-PIs are Inbal Nahum-Shani and David Wetter.

Principal Investigator R01 AA023187 (9/1/2015-8/31/2020) NIAAA

“Data-Based Methods for Just-In-Time Adaptive Interventions in Alcohol Use.” The purpose of this proposal is develop, and bring to fruition, methods for using data to optimize mobile interventions aimed at preventing, treating and supporting the recovery from alcohol use disorders. The goal of this project is (1) to develop and evaluate data analysis methods and optimization algorithms that can reside on the mobile device and that, as an individual experiences the mobile intervention and provides responses, will optimize the timing and selection of the behavioral intervention to the individual; (2) to develop data analysis methods and optimization algorithms that can be used following a clinical study involving the mobile intervention to further optimize the intervention; and (3) to disseminate and illustrate the developed methods and algorithms to the clinical science community so as to maximize clinical impact.

Project Leader of Research Component and PI of Michigan Site P50 DA039838(09/01/15 - 08/31/20) NIDA

“Innovative Methods for Constructing Just-In-Time Adaptive Interventions.” The long-term goal of this component is to improve public health by facilitating the evidence-based construction of effective, individualized mobile substance use prevention and intervention services. This component develops data analytic methods that will enable drug abuse prevention and services scientists to more effectively adapt interventions to individuals changing needs over time and more effectively expand the reach of their interventions. The overarching goal of this component is to integrate ideas from statistics, computer science, and behavioral science to develop data analytic methodologies that will (i) enable scientists to construct more effective mobile interventions for delivery of SUD/HIV prevention and SUD recovery services, and (ii) inform development of more dynamic and nuanced behavioral theories. Overall PI is Linda Collins.

Co-Investigator R01 DA039901 01 (09/01/15 - 07/31/20) NIDA

“Novel Longitudinal Methods for SMART Studies of Drug Abuse and HIV.” The treatment of drug use and HIV often requires sequential, individualized decisions concerning the type or delivery of treatments. The methods developed in this project will improve clinical and public health outcomes by enabling drug use and HIV scientists to develop more potent approaches to guide the sequential, individualization of drug use and HIV treatments. The Co-PIs are I. Nahum-Shani and D. Almirall

Co-Investigator R01 HL125440 (9/1/2014-8/31/2019) NIH/NHLBI/NIA

“Heart Steps: Adaptive mHealth interventions for physical-activity maintenance.” In this project, we will conduct a micro-randomized trial and using this data, design, and evaluate a personalized, adaptive mHealth intervention that leverages frequent interactions that people have with their mobile phones to enable individuals with heart disease to stay focused on their health goals, engage in opportunistic physical activity throughout the day, and build robust and sustainable physical-activity habits that can help reduce and keep down their cardiac risks. PI is P. Klasnja.

Co-Investigator and PI of Michigan Component U54EB020404 (07/01/14-06/30/18) NIBIB through funds provided by the trans-NIH Big Data to Knowledge (BD2K) initiative (www.bd2k.nih.gov). “Centers of Excellence for Big Data Computing in the Biomedical Science.” The goal of this project is to design a micro-randomized trial and evaluate statistical learning methods for using sensor data to identify precipitants and antecedents of adverse behavior as well as predict times of high risk so as to inform future development of a just-in-time adaptive intervention. Overall PI is S. Kumar

Co-Investigator (09/04/12-05/31/17) NICHD

“Adaptive Interventions for Minimally Verbal Children with ASD in the Community” The overarching aim of this Network study is to construct an adaptive intervention that utilizes two efficacious interventions (JASP-EMT and CORE-DTT) that rely on distinct intervention procedures and that show promise for optimizing the number of unique socially communicative and spontaneously spoken words in minimally verbal children with ASD. JASP-EMT (Joint Attention, Symbolic Play and Enhanced Milieu Teaching) focuses on creating a context for joint engagement within naturally occurring, child-led play activities. CORE-DTT (discrete trial training for core features of ASD) emphasizes didactic, adult-led instruction. The study utilizes a novel sequential multiple assignment randomized trial to evaluate and construct an optimal adaptive intervention. PI is C. Kasari.

Co-Investigator (12/01/2013-11/30/2018) NIMH

“Improving Mental Health Outcomes: Building an Adaptive Implementation Strategy” The overarching goal of this study is to build the most cost-effective adaptive implementation intervention involving Replicating Effective Programs (REP) and the augmentation of the External Facilitation (EF) and Internal Facilitation (IF) roles to improve patient outcomes and the uptake of an evidence-based program (EBP) for mood disorders (Life Goals-LG) in community settings. PI is A. Kilbourne.

Project Leader of Research Component(7/1/10-8/31/15) NIDA:

“SMART Methodology for Constructing Adaptive Interventions” This is one research component of a P50 center at The Pennsylvania State University. In this project we consider how best to incorporate multiple competing outcomes in developing adaptive interventions, we provide improved measures of confidence and we disseminate these methods via software and analyses of clinical trial data. (over 5 years this component has: \$1,765,822 direct costs)

Principal Investigator (5/1/07 - 4/30/12) NIMH:

“Learning Adaptive Treatment Strategies in Mental Health.” The goal of this project is to improve the adaptive, sequential clinical decision making that occurs in clinical practice, particularly regarding the management of patients suffering from chronic mental health disorders. This project will be conducted by a collaborative team involving a computer scientist, two psychiatrists and a statistician. (over 5 years: \$1,847,525 direct costs).

PRESENTATIONS:

Invited Papers Presented at Professional Meetings since 2011

Aug, 2018	AMSI/SSA Plenary Speaker, ISCB-ASC-2018	Stratified Micro-Randomized Trials with applications to mobile health
Aug, 2018	Fisher Lecture 2018	Stratified Micro-Randomized Trials with applications to mobile health
Aug, 2018	JSM 2018	Real-time, Within Person- Randomization using a Bandit Algorithm in a Clinical Trial
July, 2018	COLT 2018	mHealth Adventures in Sequential Experimentation & Reinforcement Learning!
June, 2018	PMWC 2018	Personalized, Precision mHealth!
May, 2018	Modern Modeling Models	Stratified Micro-Randomized Trials with Applications in Mobile Health
March, 2018	ENAR	Challenges in Developing Learning Algorithms to Personalize Treatment in Real Time
Dec, 2017	Machine Learning in Health Care Workshop NIPS	Challenges in Developing Learning Algorithms to Personalize mHealth Treatments
August, 2017	JSM	Personalizing Mobile Health Interventions
July, 2017	61st ISI World Congress	Randomization-Based Inference With Complex Data Need Not Be Complex!
May, 2017	American Thoracic Society	Wearable Devices and Smoking

	2017 International Conference	Cessation: What Have We Learned About Using Wearables in Behavior Change Research?
Feb., 2017	Centre for Behaviour Change's 3rd Digital Health Conference UCL, London	Assessing Moderated Effects of Mobile Health Interventions on Behavior
Jan, 2017	Raymond and Beverly Sackler U.S.-U.K. Scientific Forum on Machine Learning	Experimental Design & Machine Learning Opportunities in Mobile Health
Dec, 2016	XIV Latin American Congress of Probability and Mathematical Statistics (CLAPEM)	Assessing Time-Varying Causal Interactions and Treatment Effects with Applications to Mobile Health
Nov, 2016	IMPACT Symposium IV	Assessing Time-Varying Causal Interactions and Treatment Effects with Applications to Mobile Health
Oct, 2016	IEEE Wireless Health	Assessing Moderated Effects of Mobile Health Interventions on Behavior
Oct, 2016	2nd Seattle Symposium on Health Care Data Analytics	Some Data Analytics for Developing Just-in-Time Adaptive Interventions in Mobile Health
Sept, 2016	The Brain Conferences: New Insights into Psychiatric Disorders through Computational, Biological and Developmental Approaches, Copenhagen, 2016	Assessing Moderated Effects of Mobile Health Interventions on Behavior
June, 2016	Conference on Statistical Learning and Data Science, Chapel Hill, NC Plenary Lecture	Assessing Time-Varying Causal Effect Moderation in Intensive Time-Varying Treatment
April, 2016	Society of Behavioral Medicine Master Lecture	Micro-randomized Trials in Mobile Health
Feb., 2016	AAAI 2016 Invited Talk, Phoenix, AR	Learning Treatment Policies in Mobile Health
Oct., 2015	MIDAS Inaugural Symposium, Ann Arbor, MI	Learning Treatment Policies in Mobile Health
Sept., 2015	ASA Biopharmaceutical 2015 Workshop	Micro-randomized Trials & mHealth
Aug, 2015	Wald Lectures Seattle, WA	Three Lectures on Design of Experiments and Data Analysis in Sequential Decision Making
July, 2015	INFORMS Healthcare 2015 Nashville, TN	A Batch, Off-Policy Actor-Critic Algorithm for Optimizing Mobile Interventions
July, 2015	Invited Speaker(one of three) ICML, Lille, Paris	Learning Treatment Policies in Mobile Health
June, 2015	Keynote Lecture ICSA/Greybill Conference, Ft. Collins	Experimental Design, Data Analysis Methods for Mobile Interventions
May, 2015	MIT Statistics Symposium, Mobile Health & Statistics	

Feb., 2015 ENAR, Micro-Randomized Trials & mHealth
 Nov., 2014 2014 IMPACT Symposium III, Micro-Randomized Trials & mHealth
 August, 2014 Joint Statistical Meeting, Boston
 Micro-Randomized Trials & mHealth
 August, 2014 New Researchers Conference, Boston
 Micro-Randomized Trials & mHealth
 June, 2014 College on Problems in Drug Dependence, Puerto Rico
 Just-In-Time Adaptive Interventions
 May, 2014 Abel Symposium on High Dimensional Statistics, Lofoten, Norway
 Micro-Randomized Trials and Off-Policy Reinforcement Learning
 Nov., 2013 Future of the Statistical Sciences Workshop, London
 SMART Designs for Combatting Autism
 Oct., 2013 Implementation Sciences and the Global Response to HIV/AIDS
 Gladstone Institutes, San Francisco
 Keynote speaker: Beyond Efficacy, Innovative Designs for Effectiveness
 Oct., 2013 Inter. Conf. on Health Policy Statistics, Chicago
 Machine Learning Methods for Individualizing Real-Time Treatment Policies
 August, 2013 ISI World Statistics Conference 2013, Hong Kong
 Machine Learning Methods for Individualizing Real-Time Treatment Policies
 August, 2013 ISI Young Statisticians Meeting 2013, Hong Kong
 Machine Learning Methods for Individualizing Real-Time Treatment Policies
 June, 2013 9th Annual RSA Pre-Conference Satellite Meeting on Mechanisms of
 Behavior Change; Orlando, FL
 Getting SMART about Adapting Interventions!
 June, 2013 Guelph Biomathematics and Biostatistics Symposium; Guelph, Canada
 Plenary: Gordon C. Ashton Memorial Biometrics Lecture
 A Clinical Trial Design for Constructing and Individualizing Real-Time Treatment Policies
 May, 2013 Statistical Genomics and Data Integration for Personalized Medicine; Ascona, Switzerland
 A Clinical Trial Design for Constructing and Individualizing Real-Time Treatment Policies
 April, 2013 IBS Eastern Mediterranean Region, Tel Aviv
 Advances in Sequential, Multiple Assignment, Randomized Trials and Treatment Policies
 Feb., 2013 AAAS Annual Meeting, Boston
 Experimenting to Improve Clinical Practice
 August, 2012 Meaningful Use of Complex Medical Data, Los Angeles
 Sequential, Multiple Assignment, Randomized Trials and Treatment Policies
 August, 2012 Session on Treatment Heterogeneity, JSM, San Diego
 Treatment Effect Heterogeneity and Dynamic Treatment Regime Development
 July, 2012 Statistical Inference in Complex, High Dimensional Problems, Vienna
 Treatment Policies, Q-Learning and Adaptive Confidence Intervals
 June, 2012 Conference on Statistical Learning and Data Mining, Ann Arbor
 Adaptive Confidence Intervals for Nonregular Parameters
 May, 2012 2012 Atlantic Causal Inference Conference, Baltimore
 Piloting and Sizing Sequential Multiple Assignment Randomized Trials
 in Dynamic Treatment Regime Development

April, 2012 Time for Causality Workshop, Bristol UK
Confidence Intervals, Q-Learning and Dynamic Treatment Regimes

April, 2012 Early Childhood Interventions Inaugural Conference, Chicago
Getting SMART about Adapting Interventions

April, 2012 ENAR Session in Memory of T. TenHave on Sizing Sequential,
Multiple Assignment, Randomized Trials for Survival Analysis

March, 2012 10th Annual ASA CT Chapter Mini-Conference, on SMART Clinical
Trial Designs for Developing Dynamic Treatment Regimes

March, 2012 Invited Participant at the Oberwolfach meeting on Frontiers in
Nonparametric Statistics, Oberwolfach, Germany

Sept., 2011 High Dimensional Problems in Statistics Workshop, ETH Zurich, on Adaptive
Confidence Intervals for Non-regular Parameters

August, 2011 Joint Statistical Meeting: JASA, Theory and Methods Invited
Session (joint with E. Lafer)

August, 2011 mHealth Evidence Workshop, NIH Campus, Bethesda
SMART Designs for Advancing mHealth Adaptive Interventions

May, 2011 Society for Clinical Trials Annual Meeting Session on Practical
Application of Adaptive Treatment Strategies in Trial Design and Analysis

May, 2011 Causal Inference in Health Workshop at the CRM, Montreal
Session on Time Varying Treatments and Optimal Treatment Strategies

April, 2011 Society for Behavioral Medicine Session: Drawing on Ideas from
Engineering and Computer Science to Build Better Behavioral Interventions

March, 2011 ENAR Session: Recent Method Development on Reinforcement Learning
and Personalized Medicine

Invited Seminars Since 2011

Dec, 2018	Office of Population Research Princeton	Time-Varying Causal Treatment Effects
Oct, 2018	Fields Institute Toronto	Improving Mobile Health Interventions
Oct, 2018	Fields Institute Toronto	Challenges in Developing Learning Algorithms to Personalize Treatment in Real Time
Oct, 2018	NYU School of Medicine Honors Lecture	Mobile Health Intervention Optimization
Sept, 2018	UCSF Divisions of Biostatistics and Bioinformatics 10th Annual Invited Lecture in Biostatistics and Bioinformatics	Stratified Micro-randomized trials with Applications in Mobile Health
August, 2018	AMSI-SSA Lectures: University of Melbourne, Flinders University, Macquarie University	Assessing Time-Varying Casual Interactions and Treatment Effects with Applications to Mobile Health
August, 2018	AMSI-SSA Lecture: Queensland University of Technology	Stratified Micro-randomised trials with Applications in Mobile Health

August, 2018	AMSI-SSA Lectures: LaTrobe University, Flinders University, Murdoch University, University of Queensland, University of Technology, Sydney	Optimizing Mobile Health Interventions
June 2018	Children's Hospital of Philadelphia, mHealth Research Affinity Group	Mobile Health Intervention Optimization
Jan 2018	Columbia Univ., Dept of Biomedical Informatics, NY	Challenges in Developing Learning Algorithms to Personalize mHealth Treatments
Jan 2018	Prevention Science Methodology Group	Time-Varying Causal Treatment Effects
Dec 2017	UPenn Biostatistics	Assessing Time-Varying Causal Treatment Effects with Applications to Mobile Health
Dec. 2017	MIT Stochastics and Statistics Seminar MIT Boston, MA	Assessing Time-Varying Causal Treatment Effects with Applications to Mobile Health
Sept. 2017	Depart. of Statistics and Actuarial Science University of Waterloo Waterloo, Canada	Assessing Time-Varying Causal Treatment Effects with Applications to Mobile Health
Sept. 2017	Univ. of Tennessee Health Center Memphis, TN	Mobile Health Intervention Optimization
May 2017	UChicago Computational Social Science and Public Policy Colloquium	Micro-Randomized Trials and Time-Varying Treatment Effects with Applications to Mobile Health
April 2017	Biostatistics Department Brown University	Micro-Randomized Trials and Time-Varying Treatment Effects with Applications to Mobile Health
Jan., 2017	Center for Health Enhancement Systems Studies, Madison, WI	Assessing Moderated Effects of Mobile Health Interventions on Behavior
Jan., 2017	Univ. of Washington Data Science Seminar	Assessing Time-Varying Causal Interactions and Treatment Effects with Applications to Mobile Health
Nov, 2016	Kaiser Permanente's Division of Research, Oakland, CA	Assessing Moderated Effects of Mobile Health Interventions on Behavior
Nov, 2016	Stanford's Data, Society, and Inference Seminar Series	Assessing Time-Varying Causal Effect Moderation
June, 2016	NSF Math and Physical Sciences	Sequential decision making, personalized interventions: The Future is Now!

Feb., 2016	Dept. of Statistics Harvard Univ., Boston	Micro-randomized Trials in Mobile Health
Feb., 2016	Dept. of Mathematics & Statistics Vassar College, NY	Adaptive Interventions: Healing with Data
Feb., 2016	Dept. of Mathematics & Statistics Vassar College, NY	Micro-randomized Trials mHealth
Feb., 2016	Dept. of Statistics Univ. of Washington, Seattle	Micro-randomized Trials mHealth
Jan., 2016	McGill Biostatistics Montreal	Micro-randomized Trials mHealth
Dec., 2015	Princeton Neuroscience Institute	Learning Treatment Policies in Mobile Health
Dec., 2015	Center for Statistics & Machine Learning, Princeton, NJ	Micro-randomized Trials mHealth
June, 2015	Institute for Science and Technology, Vienna Austria	Micro-randomized Trials Mobile Health
June, 2015	Psychiatry Grand Rounds Grey Nuns Hospital, Edmonton, Alberta	Micro-randomized Trials for Just-In-Time Adaptive Intervention Development
May, 2015	Biostatistics B.G. Greenberg Lecture III UNC	An Actor-Critic Algorithm for Optimizing a Mobile Health Intervention
May, 2015	Biostatistics B.G. Greenberg Lecture II UNC	Assessing Moderation and Delayed Effects in Mobile Health
May, 2015	Biostatistics B.G. Greenberg Lecture I UNC	Micro-Randomized Trials and Mobile Health
April, 2015	R.A. Bradley Lecture Univ. of Georgia	Micro-Randomized Trials and mHealth
April, 2015	Statistics Department Wharton, Univ. of Pennsylvania	Micro-Randomized Trials and Mobile Health
April, 2015	Sante Fe Institute Sante Fe, NM	Adaptive Interventions: Healing with Data
March, 2015	School of Nursing Univ. of Pittsburgh	Just-in-Time Adaptive Intervention Development in Mobile Health
Feb., 2015	Dept of Pharmaceutical Sciences Wayne State University	Adaptive Intervention Methodologies for Supporting Clinical Decision Making and Patient Health
Feb., 2015	Center for Children and Families Dept. of Psychology Florida International University	Just-in-Time Adaptive Interventions: Micro-randomized Trials and Mobile Health
Dec., 2014	Language & Literacy Initiative Georgia State University	Micro-Randomized Trials for Developing Just-In-Time Adaptive Interventions in mHealth
Nov., 2014	Medical Research Council Biostatistics Unit, Cambridge	Micro-Randomized Trials & mHealth
Oct., 2014	Biostatistics & Bioinformatics Dept. University of Wisconsin	Micro-Randomized Trials & mHealth

Oct., 2014	Joint Harvard/MIT Economics Seminar, Boston	Micro-Randomized Trials & mHealth
April, 2014	Porcelli Lecture II, Mathematics Dept., Louisiana State University	Getting SMART About Adapting Interventions
April, 2014	Porcelli Lecture I, Mathematics Dept., Louisiana State University	Adaptive confidence intervals for nonregular parameters
April, 2014	Bahadur Memorial Lecture II University of Chicago	Getting SMART About Adapting Interventions
April, 2014	Bahadur Memorial Lecture I University of Chicago	Machine Learning Methods for Individualizing Real-Time Treatment Policies
March, 2014	Dept. of Statistics & Biostatistics University of Minnesota	Machine Learning Methods for Individualizing Real-Time Treatment Policies
Feb., 2014	Dept. of Biostatistics Harvard University	Machine Learning Methods for Individualizing Real-Time Treatment Policies
Jan., 2014	Dept. of Preventive Medicine Northwestern University	SMART Designs for Developing Adaptive Interventions
Jan., 2014	Dept. of Biostatistics Univ. of Washington	Machine Learning Methods for Individualizing Real-Time Treatment Policies
Nov., 2013	International Year of Statistics Public Lecture, Univ. of Toronto	SMART Designs to Improve Health
May, 2013	Mathematical Association of America Carriage House Lecture	Getting SMART About Adapting Interventions
Feb., 2013	Mathematics Department University of Alberta	Adaptive Confidence Intervals for Non-regular Parameters
Sept, 2012	Computing Science Dept. University of Alberta	Sequential, Multiple Assignment, Randomized Trials and Treatment Policies
Feb., 2012	Statistical Science Cornell University	Adaptive Confidence Intervals for Non-regular Parameters
Dec., 2011	Biostatistics Department Univ. of Pittsburgh	Collecting and Using Data to Inform Sequential, Individualized, Clinical Decision Making
Dec., 2011	HIV Training Program Columbia University	Getting SMART about Adapting Interventions

Webinars and Workshops Since 2011

Sept, 2018	Analyzing Data from a Micro-randomized Trial, 1 & 1 Webinar sponsored by the Methodology Center, PSU
June, 2018	Micro-randomized Trials, 1 & 1 Webinar sponsored by the Methodology Center, PSU
May, 2018	Developing Just-in-time Adaptive Interventions Using Micro- randomized Trial Designs, M3 Pre-conference Workshop University of Connecticut
April, 2018	Workshop on Novel Experimental Approaches to Designing Effective Multi- Component Interventions, Society for Behavioral Medicine
March, 2018	Tutorial on Micro-randomized Trials for Constructing Mobile

Health Interventions, ENAR

Jan, 2018 Webinar on Time-Varying Causal Treatment Effects, Prevention Science Methodology Group

May, 2017 Workshop on Novel Experimental Approaches to Designing Effective Multi-Component Interventions, Chicago Chapter of the ASA and Dept. of Preventive Medicine, Northwestern Univ.

May, 2016 Workshop on JITAI mobile intervention development Annual Meeting of the Association for Psychological Science, Chicago, IL, by Daniel Almirall, Inbal Nahum-Shani, Pedja Klasnja, Susan Murphy & Bonnie Spring

May, 2016 Introduction to JITAIs: Just-in-Time Adaptive Interventions, Micro-Randomized Trials for Developing mHealth JITAIs & Data Analytics for Developing JITAIs Workshop at the Training on Optimization of Behavioral and Biobehavioral Interventions Washington, DC

March, 2016 Workshop on JITAI mobile intervention development Annual Meeting of Society of Behavioral Medicine, Washington, DC, by Daniel Almirall, Inbal Nahum-Shani, Pedja Klasnja, Susan Murphy & Bonnie Spring

May, 2016 Micro-Randomized Trials in Mobile Health, Webinar for Mathematica

April, 2016 Micro-Randomized Trials in Mobile Health, Webinar for Google, Ann Arbor

March, 2016 Building Just-In-Time Adaptive Interventions in Mobile Health: The Role of Micro-Randomized Trials Workshop at the Society of Behavioral Medicine Annual Meeting

March, 2016 Micro-Randomized Designs for Research Using mHealth Technologies, Webinar for the NIDA Clinical Trials Network

Dec., 2015 Micro-randomized Trials in mHealth Big Data Workshop at American Academy of Addiction Psychiatry

August 2015 Clinical Trial Methodology: Micro-randomized Trials & Primary Group Mentor mHealth 2015 Summer Training Institute, UCLA

July 2014 Getting SMART About Adapting Interventions! 14th Annual Summer Institute on Randomized Behavioral Clinical Trials

Nov. 2011 Workshop on Adaptive Treatment Strategies Association for Behavioral and Cognitive Therapies 2011 Annual Meeting

June, 2011 Workshop on Getting SMART About Developing Individualized Sequences of Adaptive Health Interventions at the College on Problems in Drug Dependence Annual Meeting Organized and (partially) given by D. Almirall and S. Murphy

June, 2011 Workshop on Developing Dynamic, Sequential Treatments that Optimize Mental Health Outcomes: Experiences with a Novel Clinical Trial Design at NCDEU Organized and (partially) given by D. Almirall and S. Murphy

June, 2011 Workshop on Getting SMART About Developing Individualized Sequences of Adaptive Health Interventions at the University of Minnesota NIMH-Prevention Center Summer Institute Organized and given by D. Almirall and S. Murphy

April, 2011 Society for Behavioral Medicine Workshop on
Getting SMART About Developing Individualized Sequences of Health Interventions
Organized and given by D. Almirall and S. Murphy