

Alex Luedtke

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Education

- 2012-2016 **University of California, Berkeley**, *PhD in Biostatistics*.
Advisor: Mark van der Laan.
- 2008-2012 **Brown University**, *ScB in Applied Mathematics*.

Primary Positions

- 2021- **Associate Professor**, *Dept. of Statistics, University of Washington*.
- 2018-2021 **Assistant Professor**, *Dept. of Statistics, University of Washington*.
- 2016-2018 **Assistant Professor**, *Vaccine and Infectious Disease Division, Fred Hutch*.

Secondary Positions

- 2021- **Adjunct Associate Professor**, *Dept. of Biostatistics, University of Washington*.
- 2023- **Affiliate Faculty**, *Center for Statistics in the Social Sciences, University of Washington*.
- 2023- **Affiliate Faculty**, *eScience Institute, University of Washington*.
- 2020-2021 **Adjunct Assistant Professor**, *Dept. of Biostatistics, University of Washington*.
- 2018- **Affiliate Investigator**, *Vaccine and Infectious Disease Division, Fred Hutch*.
- 2015-2017 **Visiting Scholar**, *Université Paris Nanterre, Nanterre, France*.
Fall 2015, Spring 2016, May 2017.

Honors/Awards

- 2024 **Raymond J. Carroll Young Investigator Award**, *Texas A&M*.
- 2024 **Faculty Excellence in Graduate Teaching Award**, *UW Department of Statistics*.
- 2019 **NIH Director's New Innovator Award**, *NIH*.
- 2019 **AWS Machine Learning Research Award**, *Amazon*.
- 2019 **Statistical Partnerships Among Academe, Industry and Government (SPAIG) Award**, *American Statistical Association*, Member of partnership between Fred Hutch, UW, and Sanofi Pasteur.
- 2016 **Eric L. Lehmann Citation**, *UC Berkeley Department of Statistics*.
- 2016 **Extraordinary Student Research Award**, *UC Berkeley Group in Biostatistics*.
- 2015 **JSM Travel Award**, *SF Bay Area Chapter of the ASA*.
- 2015 **Outstanding Graduate Student Instructor Award**, *UC Berkeley*.
- 2012-2016 **Berkeley Fellowship**, *UC Berkeley*.
- 2012-2015 **National Defense Science and Engineering Graduate (NDSEG) Fellowship**, *U.S. Department of Defense*.

2012 **Reshetko Family Scholarship**, UC Berkeley.

2010 **Benjamin A. Gilman Scholar**, U.S. Department of State.








Refereed Publications

♣ : equal contribution.

👤 : trainee author.

- [1] **A. Luedtke** and I. Chung[♣]. “One-step estimation of differentiable Hilbert-valued parameters”. *The Annals of Statistics* 52.4 (2024), pp. 1534–1563.
- [2] J. Bantjes et al. “Comparative effectiveness of remote digital gamified and group CBT skills training interventions for anxiety and depression among college students: Results of a three-arm randomised controlled trial”. *Behaviour Research and Therapy* 178 (2024), p. 104554.
- [3] L. N. Carpp et al. “Neutralizing antibody correlate of protection against severe-critical COVID-19 in the ENSEMBLE single-dose Ad26. COV2. S vaccine efficacy trial”. *Nature Communications* 15.1 (2024), p. 9785.
- [4] D. Donnell et al. “Study design approaches for future active-controlled HIV prevention trials”. *Statistical Communications in Infectious Diseases* 15.1 (2024), p. 20230002.
- [5] N. Galanter[♣], M. Carone, R. C. Kessler, and **A. Luedtke**. “Can the potential benefit of individualizing treatment be assessed using trial summary statistics alone?” *American Journal of Epidemiology* (2024), kwae040.
- [6] G. E. Gray et al. “Mosaic HIV-1 vaccine regimen in southern African women (Imbokodo/HVTN 705/HPX2008): a randomised, double-blind, placebo-controlled, phase 2b trial”. *The Lancet Infectious Diseases* 24.11 (2024), pp. 1201–1212.
- [7] A. Kenny et al. “Immune correlates analysis of the Imbokodo (HVTN 705/HPX2008) efficacy trial of a mosaic HIV-1 vaccine regimen evaluated in Southern African people assigned female sex at birth: a two-phase case-control study”. *EBioMedicine* 108 (2024).
- [8] R. C. Kessler et al. “A prediction model for differential resilience to the effects of combat-related stressors in US army soldiers”. *International Journal of Methods in Psychiatric Research* 33.4 (2024), e70006.
- [9] C. A. Magaret et al. “Quantifying how single dose Ad26. COV2. S vaccine efficacy depends on Spike sequence features”. *Nature Communications* 15.1 (2024), p. 2175.
- [10] E. L. Ross et al. “Estimated average treatment effect of psychiatric hospitalization in patients with suicidal behaviors: a precision treatment analysis”. *JAMA psychiatry* 81.2 (2024), pp. 135–143.
- [11] J. Tsai et al. “Predicting homelessness among transitioning US Army soldiers”. *American Journal of Preventive Medicine* (2024), pp. 999–1007.
- [12] L. M. Weinstock et al. “Design of a multicenter randomized controlled trial of a post-discharge suicide prevention intervention for high-risk psychiatric inpatients: The Veterans Coordinated Community Care Study”. *International Journal of Methods in Psychiatric Research* 33.4 (2024), e70003.
- [13] N. H. Zainal et al. “Developing an individualized treatment rule for Veterans with major depressive disorder using electronic health records”. *Molecular psychiatry* (2024), pp. 1–11.
- [14] C. Benjet et al. “A Precision Treatment Model for Internet-Delivered Cognitive Behavioral Therapy for Anxiety and Depression Among University Students: A Secondary Analysis of a Randomized Clinical Trial”. *JAMA psychiatry* (2023), pp. 768–777.
- [15] C. Benjet et al. “Internet-delivered cognitive behavior therapy versus treatment as usual for anxiety and depression among Latin American university students: A randomized clinical trial”. *Journal of consulting and clinical psychology* 91.12 (2023), pp. 694–707.

- [16] R. M. Bossarte et al. “Development of a model to predict combined antidepressant medication and psychotherapy treatment response for depression among veterans”. *Journal of Affective Disorders* 326 (2023), pp. 111–119.
- [17] T. Fisher, **A. Luedtke**, M. Carone, and N. Simon. “Marginal Bayesian Posterior Inference using Recurrent Neural Networks with Application to Sequential Models”. *Statistica Sinica* 33 (2023).
- [18] T. Huang[✉], **A. Luedtke**, and I. W. McKeague. “Efficient Estimation of the Maximal Association between Multiple Predictors and a Survival Outcome”. *Annals of Statistics* 51.5 (2023), pp. 1965–1988.
- [19] T. Huang[✉], **A. Luedtke**, and the AMP Investigators Group. “Improved Efficiency for Cross-Arm Comparisons via Platform Designs”. *Biostatistics* 24.4 (2023), pp. 1106–1124.
- [20] J. C. Kearns et al. “A practical risk calculator for suicidal behavior among transitioning US Army soldiers: results from the Study to Assess Risk and Resilience in Servicemembers-Longitudinal Study (STARRS-LS)”. *Psychological Medicine* (2023), pp. 1–10.
- [21] R. C. Kessler et al. “Evaluation of a model to target high-risk psychiatric inpatients for an intensive postdischarge suicide prevention intervention”. *JAMA psychiatry* 80.3 (2023), pp. 230–240.
- [22] L. van der Laan[✉], E. Ulloa-Pérez[✉], M. Carone, and **A. Luedtke**. “Causal isotonic calibration for heterogeneous treatment effects”. *International Conference on Machine Learning* (2023).
- [23] S. Li[✉] and **A. Luedtke**. “Efficient Estimation Under Data Fusion”. *Biometrika* 110.4 (2023), pp. 1041–1054.
- [24] X. Li[✉], S. Li[✉], and **A. Luedtke**. “Estimating the Efficiency Gain of Covariate-Adjusted Analyses in Future Clinical Trials Using External Data”. *Journal of the Royal Statistical Society: Series B* 85 (2 2023), pp. 356–377.
- [25] L. Montoya et al. “The Optimal Dynamic Treatment Rule SuperLearner: Considerations, Performance, and Application”. *The international journal of biostatistics* 19.1 (2023), pp. 217–238.
- [26] V. Puac-Polanco et al. “Development of a model to predict antidepressant treatment response for depression among Veterans”. *Psychological Medicine* 53.11 (2023), pp. 5001–5011.
- [27] H. Qiu[✉] and **A. Luedtke**. “Adversarial meta-learning of Gamma-minimax estimators that leverage prior knowledge”. *Electronic Journal of Statistics* 17.2 (2023), pp. 1996–2043.
- [28] A. J. Rosellini et al. “Developing Transdiagnostic Internalizing Disorder Prognostic Indices for Outpatient Cognitive Behavioral Therapy”. *Behavior Therapy* 54.3 (2023), pp. 461–475.
- [29] C. B. Turley, L. Tables, T. Fuller, ..., and **A. Luedtke**. “Modifiers of COVID-19 Vaccine Efficacy: Results from Four COVID-19 Prevention Network Efficacy Trials”. *Vaccine* 41.33 (2023), pp. 4899–4906.
- [30] T. Westling, **A. Luedtke**, P. Gilbert, and M. Carone. “Inference for treatment-specific survival curves using machine learning”. *Journal of the American Statistical Association* (2023), pp. 1–13.
- [31] C. Benjet et al. “Study protocol for pragmatic trials of Internet-delivered guided and unguided cognitive behavior therapy for treating depression and anxiety in university students of two Latin American countries: the Yo Puedo Sentirme Bien study”. *Trials* 23.1 (2022), pp. 1–19.
- [32] R. M. Bossarte et al. “The Appalachia Mind Health Initiative (AMHI): a pragmatic randomized clinical trial of adjunctive internet-based cognitive behavior therapy for treating major depressive disorder among primary care patients”. *Trials* 23.1 (2022), pp. 1–24.
- [33] Y. Fong et al. “Immune correlates analysis of the ENSEMBLE single Ad26. COV2. S dose vaccine efficacy clinical trial”. *Nature Microbiology* (2022), pp. 1–15.
- [34] P. B. Gilbert, ..., and United States Government (USG)/CoVPN Biostatistics Team (incl. **A. Luedtke**). “Immune correlates analysis of the mRNA-1273 COVID-19 vaccine efficacy clinical trial”. *Science* 375.6576 (2022), pp. 43–50.

- [35] R. C. Kessler et al. “An individualized treatment rule to optimize probability of remission by continuation, switching, or combining antidepressant medications after failing a first-line antidepressant in a two-stage randomized trial”. *Psychological Medicine* (2022), pp. 3371–3380.
- [36] K. Koh et al. “Predicting Homelessness among U.S. Army Soldiers no longer on Active Duty”. *American journal of preventive medicine* 63.1 (2022), pp. 13–23.
- [37] N. Laha , Z. Moodie, Y. Huang, and **A. Luedtke**. “Improved inference for vaccine-induced immune responses via shape-constrained methods”. *Electronic journal of statistics* 16.2 (2022), pp. 5852–5933.
- [38] H. Qiu , M. Carone, and **A. Luedtke**. “Individualized treatment rules under stochastic treatment cost constraints”. *Journal of Causal Inference* 10.1 (2022), pp. 480–493.
- [39] I. H. Stanley et al. “Predicting suicide attempts among US Army soldiers after leaving active duty using information available before leaving active duty: results from the Study to Assess Risk and Resilience in Servicemembers-Longitudinal Study (STARRS-LS)”. *Molecular Psychiatry* 27.3 (2022), pp. 1631–1639.
- [40] H. N. Ziobrowski et al. “Development of a model to predict psychotherapy response for depression among Veterans”. *Psychological Medicine* (2022), pp. 1–10.
- [41] **A. Luedtke**, I. Chung , and O. Sofrygin. “Adversarial Monte Carlo Meta-Learning of Optimal Prediction Procedures”. *Journal of Machine Learning Research* 22.255 (2021), pp. 1–67.
- [42] D. Benkeser  et al. “Improving Precision and Power in Randomized Trials for COVID-19 Treatments Using Covariate Adjustment, for Ordinal or Time to Event Outcomes”. *Biometrics* (with discussion) 77.4 (2021), pp. 1467–1481.
- [43] D. Follmann et al. “A deferred-vaccination design to assess durability of COVID-19 vaccine effect after the placebo group is vaccinated”. *Annals of internal medicine* 174.8 (2021), pp. 1118–1125.
- [44] R. Forrat et al. “Analysis of hospitalized and severe dengue cases over the six-years of follow-up of the tetravalent dengue vaccine (CYD-TDV) efficacy trials in Asia and Latin America”. *Clinical Infectious Diseases* 73.6 (2021), pp. 1003–1012.
- [45] R. C. Kessler and **A. Luedtke**. “Pragmatic Precision Psychiatry—A New Direction for Optimizing Treatment Selection”. *JAMA psychiatry* 78.12 (2021), pp. 1384–1390.
- [46] D. V. Mehrotra et al. “Clinical Endpoints for Evaluating Efficacy in COVID-19 Vaccine Trials”. *Annals of internal medicine* 174.2 (2021), pp. 221–228.
- [47] H. Qiu , **A. Luedtke**, and M. Carone. “Universal sieve-based strategies for efficient estimation using machine learning tools”. *Bernoulli* 27.4 (2021), pp. 2300–2336.
- [48] H. Qiu  et al. “Optimal individualized decision rules using instrumental variable methods”. *Journal of the American Statistical Association* (with discussion) 116.533 (2021), pp. 174–191.
- [49] **A. R. Luedtke**, M. Carone, N. R. Simon, and O. Sofrygin. “Learning to learn from data: using deep adversarial learning to construct optimal statistical procedures”. *Science Advances* 6.9 (2020), eaaw2140.
- [50] **A. R. Luedtke** and A. Chambaz. “Performance guarantees for policy learning”. *Annales de l’Institut Henri Poincaré* 56.3 (2020), pp. 2162–2188.
- [51] **A. R. Luedtke** and J. Wu . “Efficient Principally Stratified Treatment Effect Estimation in Crossover Studies with Absorbent Binary Endpoints”. *Journal de la Société Française de Statistique* 161.1 (2020), pp. 176–200.
- [52] R. C. Kessler, R. M. Bossarte, **A. Luedtke**, A. M. Zaslavsky, and J. R. Zubizarreta. “Suicide prediction models: a critical review of recent research with recommendations for the way forward”. *Molecular Psychiatry* 25 (2020), pp. 168–179.

- [53] R. C. Kessler, S. A. Chalker, **A. R. Luedtke**, E. Sadikova, and D. A. Jobes. “A preliminary precision treatment rule for remission of suicide ideation”. *Suicide and Life-Threatening Behavior* 50.2 (2020), pp. 558–572.
- [54] R. Kessler et al. “Using administrative data to predict suicide after psychiatric hospitalization”. *Frontiers in psychiatry* 11 (2020), p. 390.
- [55] C.-S. Wu et al. “Development and Validation of a Machine Learning Individualized Treatment Rule for Patients With First-episode Schizophrenia”. *JAMA network open* 3.2 (2020), e1921660.
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- [57] **A. R. Luedtke**, E. Kaufmann, and A. Chambaz. “Asymptotically optimal algorithms for budgeted multiple play bandits”. *Machine Learning* 108 (2019), pp. 1919–1949.
- [58] **A. R. Luedtke**, E. Sadikova, and R. C. Kessler. “Sample size requirements for multivariate models to predict between-patient differences in best treatments of major depressive disorder”. *Clinical Psychological Science* 7.3 (2019), pp. 445–461.
- [59] P. Gilbert et al. “Bridging efficacy of a tetravalent dengue vaccine from children/adolescents to adults in high endemic countries based on neutralizing antibody response”. *American Journal of Tropical Medicine and Hygiene* 101.1 (2019), pp. 164–179.
- [60] R. C. Kessler, R. M. Bossarte, **A. R. Luedtke**, A. M. Zaslavsky, and J. R. Zubizarreta. “Machine learning methods for developing precision treatment rules with observational data”. *Behaviour Research and Therapy* 120.103412 (2019).
- [61] T. J. VanderWeele, **A. R. Luedtke**, M. J. van der Laan, and R. C. Kessler. “Selecting optimal subgroups for treatment using many covariates”. *Epidemiology* 30 (2019), pp. 334–341.
- [62] **A. R. Luedtke** and M. J. van der Laan. “Parametric-rate inference for one-sided differentiable parameters”. *Journal of the American Statistical Association* 113.522 (2018), pp. 780–788.
- [63] M. Carone, **A. R. Luedtke**, and M. J. van der Laan. “Toward computerized efficient estimation in infinite-dimensional models”. *Journal of the American Statistical Association* 114.527 (2018), pp. 1174–1190.
- [64] P. B. Gilbert and **A. R. Luedtke**. “Statistical Learning Methods to Determine Immune Correlates of Herpes Zoster in Vaccine Efficacy Trials”. *The Journal of Infectious Diseases* 218 (2018), S99–S101. DOI: 10.1093/infdis/jiy421.
- [65] J. M. Platt et al. “Targeted estimation of the relationship between childhood adversity and fluid intelligence in a U.S. population sample of adolescents”. *American Journal of Epidemiology* 187.7 (2018), pp. 1456–1466.
- [66] S. Sridhar et al. “Effect of Dengue Serostatus on Dengue Vaccine Safety and Efficacy”. *New England Journal of Medicine* (2018), pp. 327–340. DOI: 10.1056/NEJMoa1800820.
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- [68] **A. R. Luedtke** and M. J. van der Laan. “Evaluating the impact of treating the optimal subgroup”. *Statistical Methods in Medical Research* 26.4 (2017), pp. 1630–1640.
- [69] **A. R. Luedtke** and M. J. van der Laan. “Statistical inference for the mean outcome under a possibly non-unique optimal treatment strategy”. *Annals of Statistics* 44.2 (2016), pp. 713–742.
- [70] **A. R. Luedtke** and M. J. van der Laan. “Super-learning of an optimal dynamic treatment rule”. *International Journal of Biostatistics* 12.1 (2016), pp. 305–332.
- [71] J. Ahern, D. Kasarek, **A. R. Luedtke**, T. A. Bruckner, and M. J. van der Laan. “Racial/ethnic differences in the role of childhood adversities for mental health disorders among a nationally representative sample of adolescents”. *Epidemiology* 27.5 (2016), pp. 697–704.

- [72] A. Beck, **A. Luedtke**, K. Liu, and N. Tintle. “A powerful method for including genotype uncertainty in tests of Hardy-Weinberg equilibrium”. *Pacific Symposium on Biocomputing. Pacific Symposium on Biocomputing*. Vol. 22. NIH Public Access. 2016, pp. 368–379.
- [73] **A. R. Luedtke** and M. J. van der Laan. “Optimal individualized treatments in resource-limited settings”. *International Journal of Biostatistics* 12.1 (2015), 283–303. A modification of this text also appears as Chap. 23 in *Targeted Learning in Data Science*, Ed. by M J van der Laan and S Rose, 2018.
- [74] M. J. van der Laan and **A. R. Luedtke**. “Targeted learning of the mean outcome under an optimal dynamic treatment rule”. *Journal of Causal Inference* 3.1 (2015), 61–95. A modification of this text also appears as Chap. 22 in *Targeted Learning in Data Science*, Ed. by M J van der Laan and S Rose, 2018.
- [75] B. Greco[✉] et al. “Application of family-based tests of association for rare variants to pathways”. *BMC Proceedings*. Vol. 8. Suppl 1. BioMed Central Ltd. 2014, S105.
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- [78] **A. R. Luedtke** and H. P. Stahl. “Commentary on multivariable parametric cost model for ground optical telescope assembly”. *Optical Engineering* 51.5 (2012), pp. 059701–1.
- [79] **A. R. Luedtke**[✉] et al. “Evaluating methods for the analysis of rare variants in sequence data”. *BMC proceedings*. Vol. 5. Suppl 9. BioMed Central Ltd. 2011, S119.
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- [81] H. P. Stahl, T. Henrichs, **A. R. Luedtke**, and M. West. “Update on parametric cost models for space telescopes”. *SPIE Optical Engineering+ Applications*. International Society for Optics and Photonics. 2011, 81460F–81460F.

Discussions

- [82] H. Janes, F. Gao, and **A. Luedtke**. “Discussion on “Estimating vaccine efficacy over time after a randomized study is unblinded””. *Biometrics* 78.3 (2022), pp. 841–843.
- [83] D. Benkeser et al. “Rejoinder: Improving precision and power in randomized trials for COVID-19 treatments using covariate adjustment, for binary, ordinal, and time-to-event outcomes”. *Biometrics* 77.4 (2021), pp. 1492–1494.
- [84] R. M. Bossarte et al. “Invited commentary: new directions in machine learning analyses of administrative data to prevent suicide-related behaviors”. *American journal of epidemiology* 190.12 (2021), pp. 2528–2533.
- [85] S. Li[✉], X. Li[✉], and **A. Luedtke**. “Discussion of Kallus (2020) and Mo, Qi, and Liu (2020): New Objectives for Policy Learning”. *Journal of the American Statistical Association* 116.534 (2021), pp. 680–689.
- [86] H. Qiu et al. “Rejoinder: Optimal Individualized Decision Rules Using Instrumental Variable Methods”. *Journal of the American Statistical Association* 116.533 (2021), pp. 207–209.
- [87] B. B. L. Penning de Vries, R. H. H. Groenwold, and **A. Luedtke**. “RE: ‘Selecting optimal subgroups for treatment using many covariates’”. *Epidemiology* 31 (2020), e33–e34.
- [88] H. Qiu[✉], **A. Luedtke**, and M. J. van der Laan. “Discussion of ‘Entropy Learning for Dynamic Treatment Regimes’ by Binyan Jiang, Rui Song, et al.” *Statistica Sinica* 29.4 (2019), pp. 1666–1677.
- [89] T. J. VanderWeele, **A. R. Luedtke**, M. J. van der Laan, and R. C. Kessler. “The authors respond (to a letter from Kent and van Klaveren)”. *Epidemiology* (2019), e31.

- [90] **A. R. Luedtke** and M. J. van der Laan. “Comment (on ‘Personalized Dose Finding Using Outcome Weighted Learning’)”. *Journal of the American Statistical Association* 111.516 (2017), pp. 1526–1530.
- [91] **A. R. Luedtke**[✉], M. Carone[✉], and M. J. van der Laan. “Discussion of ‘Deductive derivation and Turing-computerization of semiparametric efficient estimation’ by Frangakis et al.” *Biometrics* 71.4 (2015), pp. 875–879.
- [92] M. J. van der Laan, **A. R. Luedtke**, and I. Díaz. “Discussion of ‘Identification, Estimation and Approximation of Risk under Interventions that Depend on the Natural Value of Treatment Using Observational Data’, by Jessica Young, Miguel Hernán, and James Robins”. *Epidemiologic Methods* 3.1 (2014), pp. 21–31.

Editorial

- [93] **A. Luedtke** and R. C. Kessler. “New Directions in Research on Heterogeneity of Treatment Effects for Major Depression”. *JAMA psychiatry* 78.5 (2021), pp. 478–480.
- [94] A. Chambaz, A. Hubbard, **A. R. Luedtke**, and M. J. van der Laan. “Foreword to ‘Biostatistics in Africa 2019: A Special Issue of The International Journal of Biostatistics’”. *International Journal of Biostatistics* 15.2 (2019), pp. 1–2.

Book Chapters

- [95] R. C. Kessler et al. “The Role of Big Data Analytics in Predicting Suicide”. *Personalized and Predictive Psychiatry- Big Data Analytics in Mental Health*. Ed. by I. C. Passos, B. Mwangi, and F. Kapczinski. Springer Nature, pp. 77–98.
- [96] **A. Luedtke** and I. Chung[✉]. “Adversarial Monte Carlo Meta-Learning of Conditional Average Treatment Effects”. *Handbook of Statistical Methods for Precision Medicine*. Chapman and Hall/CRC, 2024, pp. 237–248.
- [97] I. Díaz, **A. R. Luedtke**, and M. J. van der Laan. “Sensitivity Analysis”. *Targeted Learning in Data Science*. Ed. by M. J. van der Laan and S. Rose. New York: Springer, New York, 2018. Chap. 27.
Note: Some of this text is from the technical report “The statistics of sensitivity analyses”, pp. 511–522.
- [98] M. J. van der Laan, A. Bibaut, and **A. R. Luedtke**. “CV-TMLE for Nonpathwise Differentiable Target Parameters”. *Targeted Learning in Data Science*. Ed. by M. J. van der Laan and S. Rose. New York: Springer, New York, 2018. Chap. 25, pp. 455–481.

Technical Reports

- [99] L. van der Laan[✉], **A. Luedtke**, and M. Carone. “Automatic doubly robust inference for linear functionals via calibrated debiased machine learning”. *arXiv preprint arXiv:2411.02771* (2024).
- [100] A. Elder[✉], M. Carone, P. Gilbert, and **A. Luedtke**. “A general adaptive framework for multivariate point null testing”. *arXiv preprint arXiv:2203.01897* (2022).
- [101] A. F. Bibaut, **A. Luedtke**, and M. J. van der Laan. *Sufficient and insufficient conditions for the stochastic convergence of Cesaro means*. Tech. rep. arXiv preprint arXiv:2009.05974. 2020.
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- [103] **A. R. Luedtke**, O. Sofrygin, M. J. van der Laan, and M. Carone. *Sequential double robustness in right-censored longitudinal models*. Tech. rep. arXiv preprint arXiv:1705.02459. 2017.
- [104] **A. R. Luedtke**, I. Díaz, and M. J. van der Laan. *The statistics of sensitivity analyses*. Tech. Rep. 341. Division of Biostatistics, University of California, Berkeley, 2015, 1–35.
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- [105] M. J. van der Laan, M. Carone, and **A. R. Luedtke**. *Computerizing efficient estimation of a pathwise differentiable target parameter*. Tech. rep. 340. Division of Biostatistics, University of California, Berkeley, 2015.

- [106] M. J. van der Laan and **A. R. Luedtke**. *Targeted learning of an optimal dynamic treatment, and statistical inference for its mean outcome*. Tech. rep. 329. UC Berkeley, 2014.
- [107] **A. R. Luedtke** and L. Tran. *The Generalized Mean Information Coefficient*. Tech. rep. arXiv preprint arXiv:1308.5712. 2013.

Under Review

- [108] **A. Luedtke**. “Simplifying Debiased Inference via Automatic Differentiation and Probabilistic Programming”. *arXiv preprint arXiv:2405.08675* (2024).
- [109] Y. Jin, **A. Luedtke**, Z. Moodie, H. Janes, and D. Benkeser. “Comparing HIV Vaccine Immunogenicity across Trials with Different Populations and Study Designs”. *arXiv preprint arXiv:2410.05594* (2024).
- [110] L. van der Laan [↗], M. Carone, and **A. Luedtke**. “Combining T-learning and DR-learning: a framework for oracle-efficient estimation of causal contrasts”. *arXiv preprint arXiv:2402.01972* (2024).
- [111] L. van der Laan [↗], Z. Lin [↗], M. Carone, and **A. Luedtke**. “Stabilized Inverse Probability Weighting via Isotonic Calibration”. *arXiv preprint arXiv:2411.06342* (2024).
- [112] Z. Li [↗], H. Nassif, and **A. Luedtke**. “Estimation of subsidiary performance metrics under optimal policies”. *arXiv preprint arXiv:2401.04265* (2024).
- [113] E. Ulloa-Pérez [↗], M. Carone, and **A. Luedtke**. “Propensity score augmentation in matching-based estimation of causal effects”. *arXiv preprint arXiv:2409.19230* (2024).
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Funding History

Numerical construction of optimal estimators using machine learning tools

NSF DMS-2210216. Role: PI

- 9/22-8/25, \$175,000 in total costs

Statistical and data management center: HIV Vaccine Trials Network

NIH 6 UM1 AI068635-13. Role: subaward PI

- 12/2024-11/2027, \$594,872 in subaward total costs
- 12/2020-11/2024, \$670,168 in subaward total costs
- 12/2019-11/2020, \$74,537 in subaward total costs
- 12/2018-11/2019, \$70,610 in subaward total costs

Statistical methodology for causal inference using machine learning tools

Netflix

- 9/24-6/25, \$79,000 in total costs

Statistical and data management center: HIV Vaccine Trials Network

Janssen VAX8922HPX3002. Role: subaward PI

- 6/2022-5/2023, \$35,499 in subaward direct costs
- 6/2021-5/2022, \$34,513 in subaward direct costs
- 6/2020-5/2021, \$33,554 in subaward direct costs

CoVPN 3003 - a phase 3 study to assess the Ad26.COV2.S vaccine

Janssen VAX8922HPX3002. Role: subaward PI

- 4/2022-11/2022, \$21,551 in subaward direct costs
- 5/2021-11/2021, \$29,293 in subaward direct costs

CoVPN 3001 - a phase 3 study to assess the mRNA-1273 SARS-CoV-2 vaccine

Janssen VAX8922HPX3002. Role: subaward PI

- 8/2020-11/2020, \$93,386 in subaward direct costs

Statistical Methods for Evaluating and Guiding Implementation of New HIV Prevention Strategies. NIH 1R56AI143418-01. Role: subaward PI

- 8/2020-7/2021, \$14,835 in subaward total costs

Statistical analysis plan for WHO Solidarity Trial for Vaccines

WHO Subcontract. Role: subaward PI

- 6/2020-8/2020, \$4,633 in subaward total costs

High-resolution inference for correlates of vaccine protection

NIH DP2-LM013340 (New Innovator Award). Role: PI

- 8/2019-7/2024, \$2,332,500 in total costs

Learning to learn from data: using deep adversarial learning to construct optimal statistical procedures. AWS Machine Learning Research Award (Amazon). Role: PI

- 7/2019-6/2021, \$50,000 in AWS computing credits and \$8,000 unrestricted gift

Invited Talks

† denotes virtual talk

- [1] International Chinese Statistical Association Applied Statistics Symposium, TN, 6/2024
- [2] Conference on Statistical Methods for High Dimensional Complex Data, College Station, TX, 5/2024
- [3] University of Pennsylvania, Graduate Group in Epidemiology and Biostatistics, Philadelphia, PA, 4/2024
- [4] CMStatistics, Berlin, Germany, 12/2023
- [5] Harvard University Department of Statistics, Cambridge, MA, 10/2023
- [6] European Meeting of Statisticians, Warsaw, Poland, 7/2023
- [7] CMStatistics, London, UK, 12/2022
- [8] IMS International Conference on Statistics and Data Science, Florence, Italy, 12/2022
- [9] Conference of the International Society for Clinical Biostatistics, Newcastle, UK, 8/2022 †
- [10] EcoSta Conference, Kyoto, Japan, 6/2022 †
- [11] Online Causal Inference Seminar, 4/2022 †
- [12] IMS Workshop: Causal Inference with Big Data, Singapore, 12/2021 †
- [13] CMStatistics, London, UK, 12/2021 †
- [14] Joint Statistical Meetings, 8/2021 †
- [15] Ghent University, Ghent, Belgium, 6/2021 †
- [16] EcoSta Conference, 6/2021 †
- [17] UCSF Department of Epidemiology and Biostatistics, 4/2021 †
- [18] Southern Methodist University Department of Statistical Science, 3/2021 †
- [19] University of Pennsylvania Center for Causal Inference, 10/2020 †
- [20] International Biometric Society ENAR Spring Meeting, 3/2020 †
- [21] University of Washington Machine Learning Seminar, Seattle, WA, 3/2019

- [22] Emory University Dept. of Biostatistics and Bioinformatics, Atlanta, GA, 11/2019
- [23] Atlantic Causal Inference Conference, 5/2018
- [24] Models and Machine Learning for Causal Inference and Decision Making in Health Research (ICERM Workshop), Providence, RI, 11/2019
- [25] International Biometric Society ENAR Spring Meeting, Atlanta, GA 3/2018
- [26] HIV Vaccine Trials Network Sub-Saharan Meeting (Plenary), Cape Town, South Africa, 2/2018
- [27] HIV Vaccine Trials Network Conference (Plenary), Seattle, WA, 10/2017
- [28] Joint Conference on Biometrics & Biopharmaceutical Statistics, Vienna, Austria, 2017
- [29] International Biometric Society WNAR Meeting, Santa Fe, NM, 6/2017
- [30] International Biometric Society ENAR Spring Meeting, Washington D.C., 3/2017
- [31] Columbia University Department of Biostatistics, New York, NY 9/2017
- [32] Conference on Causal Inference in Longitudinal Studies, New York, NY 9/2017
- [33] University of Washington Department of Biostatistics, Seattle, WA, 10/2017
- [34] Johns Hopkins Causal Working Group, Baltimore, MD, 9/2016
- [35] Joint Statistical Meetings, Chicago, IL, 8/2016
- [36] International Biometric Conference, Victoria, Canada, 7/2016
- [37] International Symposium on Nonparametric Statistics, Avignon, France, 6/2016
- [38] Fred Hutchinson Cancer Research Center, Seattle, WA, 2/2016
- [39] UC Berkeley Division of Biostatistics, Berkeley, CA, 2/2016
- [40] Stanford University Department of Biomedical Data Science, Palo Alto, CA, 1/2016
- [41] NC State Department of Statistics, Palo Alto, CA, 11/2015
- [42] University of Washington Biostatistics Seminar, Seattle, WA, 11/2015
- [43] Université Paris Nanterre MODAL'X Seminar, Nanterre, France, 10/2015
- [44] MINES ParisTech Centre for Computational Biology, Paris, France, 9/2015
- [45] Joint Statistical Meetings, Seattle, WA, 8/2015
- [46] SF Chapter of the ASA, Berkeley, CA, 6/2015
- [47] University of Pennsylvania Causal Working Group, Philadelphia, PA, 3/2015

———— Invited Talks as Panelist or Discussant

- [48] International Seminar on Selective Inference, Discussant of talk on “Efficient and Multiply Robust Risk Estimation under General Forms of Dataset Shift” by Edgar Dobriban, 2/2024 †
- [49] Joint Statistical Meetings, Topic-Contributed Panel on “What We Learned Statistically Through Covid-19 Pandemic-Related Research”, 8/2022 †
- [50] New Jersey/Princeton-Trenton American Statistical Association Chapters, Discussant of talks on “Covid-19 Vaccines/Treatment Trials, and Predictive Modeling”, 6/2021 †
- [51] Online Causal Inference Seminar, Discussant of talk on “Higher order Targeted Maximum Likelihood Estimation” by Mark van der Laan, 1/2021 †
- [52] NIAID Workshop, Discussant on “Statistical Challenges and Opportunities in HIV/AIDS Research in the Era of Getting-to-Zero HIV infection”, 3/2019

———— University Service

Department of Statistics, University of Washington

- 2023- PhD Curriculum Review Committee, Member
- 2023- Graduate Curriculum Committee, Member
- 2021- Statistics PhD Admissions Committee, Chair

- 2021- Statistics Department Diversity, Inclusion, Community, and Equity (DICE) Committee, Member
- 2019-2021 Statistics Department Diversity, Inclusion, Community, and Equity (DICE) Committee, Chair
- 2019-2021 Statistics PhD Admissions Committee, Member
- 2019 Statistics PhD Research Prelim Exam Committee, Examiner
- 2019 Reviewer for Royalty Research Fund
- 2018-2021, Biostatistics PhD Theory Exam Committee, Member
- 2022-

Department of Biostatistics, University of Washington

- 2023- Organizing Committee for the 7th Seattle Symposium in Biostatistics
Vaccine and Infectious Disease Division, Fred Hutch
- 2018 Faculty Advisory Committee

Other Service

- 2023-2024 Program Committee for the 2024 American Causal Inference Conference (ACIC)
- 2020- Math Alliance Facilitated Graduate Applications Process (F-GAP) Facilitator
- 2011-2012 Rhode Island Urban Debate League, Program Coordinator
- 2009-2011 Rhode Island Urban Debate League, Debate Coach
- 2009-2010 College Advising Corps, Access Scholar (and AmeriCorps Member)

Editorial Activities

Associate Editor

- 2021- *Journal of the American Statistical Association (Reviews)*
- 2016- *International Journal of Biostatistics*

Area Chair / Senior Program Committee

- 2021- *Conference on Uncertainty in Artificial Intelligence (UAI)*

Ad Hoc Reviewer for Peer-Reviewed Journals

Annals of Applied Statistics, Annals of Statistics, Bernoulli, Biometrics, Biometrika, Biostatistics, Epidemiology, International Journal of Biostatistics, Journal of Causal Inference, Journal of the American Statistical Association, Journal of Computational and Graphical Statistics, Journal of Machine Learning Research, Journal of the Royal Statistical Society - Series B, Management Science, Nature, Pharmacoepidemiology and Drug Safety, Statistical Methods in Medical Research, Statistica Sinica, Statistical Science, Statistics in Medicine

Ad Hoc Reviewer for Conferences

Conference and Workshop on Neural Information Processing Systems (NeurIPS), International Conference on Learning Representations (ICLR)

Teaching History

Formal Courses (University of Washington)

2019-2020, **STAT 581: Advanced Theory of Statistical Inference (1)**.
2023

2019-2024 **STAT 582: Advanced Theory of Statistical Inference (2)**.

2019, **STAT 583: Advanced Theory of Statistical Inference (3)**.
2022-2023

Guest Lectures (University of California, Berkeley)

2015 **PH 240B: Survival Analysis**.

2014 **PH 252D: Introduction to Causal Inference**.

PH 243D: Adaptive Designs.

2013 **PH 252D: Introduction to Causal Inference**.

Teaching Assistant (University of California, Berkeley)

2015 **PH252E: Advanced Topics in Causal Inference**.

2013-2014 **PH252D: Introduction to Causal Inference**.

Other Teaching

2018, 2019 Precision Medicine Module at University of Washington's Summer Institutes in Biostats

———— Advising and Formal Mentoring

PhD Committees in Chair Role (ongoing)

2021- Lars van der Laan. Co-chair with Marco Carone

2022- Jaewon Lim.

2022- Nina Galanter. Co-chair with Marco Carone

2022- Alex Kokot. Co-chair with Marina Meila

2024- Medha Agarwal. Co-chair with Zaid Harchaoui

PhD Committees in Chair Role (completed)

2019 Nilanjana Laha. Co-chaired with Jon Wellner

Current position: Assistant Professor (Tenure Track) at Texas A&M Statistics

2021 Hongxiang (David) Qiu. Co-chair with Marco Carone

Current position: Assistant Professor (Tenure Track) at Michigan State Epidemiology and Biostatistics

2022 Ernesto Ulloa. Co-chair with Marco Carone

Current position: Postdoctoral scholar at University of Pennsylvania Biostatistics

2022 Adam Elder. Co-chair with Marco Carone

Current position: Postdoctoral scholar at University of Washington Epidemiology

2022 Xiudi Li. Co-chair with Ali Shojaie

Current position: Assistant Professor (Tenure Track) at UC Berkeley

2023 Sijia (Lucy) Li

Current position: Postdoctoral scholar at Harvard Biostatistics

2024 Zhaoqi Li. Co-chair with Lalit Jain

Current position: Postdoctoral scholar at Stanford Computer Science

PhD Committees in Non-Chair Role

2024 Aparaj Venkat, Sarah Teichman, Ronak Mehta, Pan Zhao (Inria, France)
2023 Gaoqian Xu, Alice Qi (Grad School Representative)
2022 Wendao Xue, Arash Tarkhan
2021 Anna Neufeld, Tianyu Zhang, Yiqun Chen, Aaron Hudson
2020 Aaron Osgood-Zimmerman, Kellie MacPhee (Grad School Representative)
2019 David Whitney, Brenda Price
Master's students
2024- Ziming Lin, Facheng Yu
2023-2024 Tianyang Jiang
Postdoctoral Fellows
2023- Paweł Morzywołek
2020-2022 Tzu-Jung Huang
2017-2019 Anna Bellach