Nima Hejazi

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Curriculum Vitæ

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Research Interests

Methodology — causal inference; statistical/machine learning; non-/semi-parametric inference; high-dimensional inference; targeted loss-based estimation; adaptive experimental designs; clinical trials—design and analysis; outcome-dependent sampling designs; statistical epidemiology; statistical genomics; statistical/numerical computing; open-source statistical data science and reproducible research

Applied Science — infectious diseases: epidemiology, immunology, vaccinology; high-dimensional and computational biology; precision health and comparative effectiveness research; cancer biology and epidemiology; environmental health science $\times$ infectious diseases

Formal Education

2021 **Doctor of Philosophy in Biostatistics**, *University of California, Berkeley*, Berkeley, CA
Designated emphasis (doctoral minor) in Computational and Genomic Biology
Committee: Mark van der Laan, co-chair; Alan Hubbard, co-chair; Nicholas Jewell; Fernando Pérez
Thesis: *Semiparametric Statistical Methods for Causal Inference with Stochastic Treatment Regimes*

2017 **Master of Arts in Biostatistics**, *University of California, Berkeley*, Berkeley, CA
Committee: Mark van der Laan, co-chair; Alan Hubbard, co-chair; Martyn Smith
Thesis: *Generalized Application of Empirical Bayes Statistics to Asymptotically Linear Parameters*

2015 **Bachelor of Arts**, *University of California, Berkeley*, Berkeley, CA
Triple major in Molecular & Cell Biology (em. Neurobiology), Psychology, and Public Health

Primary Appointments

07/2022–now **Assistant Professor of Biostatistics**, *Harvard T.H. Chan School of Public Health*, Boston, MA
Department of Biostatistics

2021–2022 **NSF Postdoctoral Research Fellow**, *Weill Cornell Medical College*, New York, NY
Division of Biostatistics, Department of Population Health Sciences (Sponsor: Prof. Iván Díaz)

Secondary Appointments & Affiliations

08/2023–now **Faculty Affiliate**, *Massachusetts General Hospital Biostatistics Center*, Boston, MA

08/2023–now **Faculty Member**, *Harvard–MIT Program in Health Sciences and Technology*, Boston, MA
Harvard Medical School and Massachusetts Institute of Technology

07/2023–now **Faculty Member**, *Dana-Farber / Harvard Cancer Center*, Boston, MA
Programs in Cancer Data Sciences and Cancer Epidemiology

03/2023–now **Associate Member**, *The Broad Institute of MIT and Harvard*, Cambridge, MA

11/2022–now **Faculty Affiliate**, *Harvard Data Science Initiative, Harvard University*, Cambridge, MA

09/2022–now **Faculty Affiliate**, *Institute for Quantitative Social Science, Harvard University*, Cambridge, MA

2021–2022 **Affiliate Postdoctoral Researcher**, *Fred Hutchinson Cancer Research Center*, Seattle, WA
Vaccine & Infectious Disease Division (Sponsor: Prof. Peter B. Gilbert)

Selected Experience

2018–now **Statistical & Data Science Consultant**

2017–2021 **Graduate Student Researcher**, *University of California, Berkeley*, Berkeley, CA
Division of Biostatistics, School of Public Health (Advisor: Prof. Mark J. van der Laan)

2016–2021 **Graduate Student Researcher**, *University of California, Berkeley*, Berkeley, CA
Division of Biostatistics, School of Public Health (Advisor: Prof. Alan E. Hubbard)

05–08/2021 **Research Data Scientist Intern**, *Netflix*, Los Gatos, CA
Payments & Partnerships, Data & Insights (Supervisor: Dr. Wenjing Zheng)

10–12/2020 **Research Data Scientist Intern**, *SiriusXM/Pandora*, Oakland, CA
Shared Science Foundation, Science & Music Analysis (Supervisor: Dr. Samuel D. Lendle)

06–09/2020 **Research Data Scientist Intern**, *Netflix*, Los Gatos, CA
Payments & Partnerships, Data Science & Engineering (Supervisor: Dr. Wenjing Zheng)

2018–2019 **Biostatistician Intern**, *Kaiser Permanente Division of Research*, Oakland, CA
Biostatistics Core (Supervisor: Dr. Romain S. Neugebauer)

Awards & Honors

April 2022 Early Career Travel Award (NSF New Researchers Grant), American Causal Inference Conference

2021 Mathematical Sciences Postdoctoral Research Fellowship, National Science Foundation

April 2021 Participation Scholarship, Summer Institute in Statistics and Modeling in Infectious Diseases, Department of Biostatistics, University of Washington

June 2020 The Wallace Lowe Fellowship, School of Public Health, University of California, Berkeley

May 2020 Student Travel Award for the Joint Statistical Meetings, San Francisco Bay Area Chapter of the American Statistical Association

May 2019 Thomas R. Ten Have Memorial Award (for "exceptionally creative or skillful research in causal inference"), Atlantic Causal Inference Conference

May 2019 Student Travel Award for the Joint Statistical Meetings, San Francisco Bay Area Chapter of the American Statistical Association

April 2019 The Eki & Nobuta Akahoshi and Seiko Baba Brodbeck Endowed Fund Scholarship, School of Public Health, University of California, Berkeley

April 2019 Travel Scholarship, BioC 2019: Where Software and Biology Connect, the Bioconductor Project for Open Source Software in Bioinformatics

June 2018 Travel Scholarship, BioC 2018: Where Software and Biology Connect, the Bioconductor Project for Open Source Software in Bioinformatics

April 2018 The Wellness Scholarship in Honor of Chin Long Chiang, School of Public Health, University of California, Berkeley

2017 Biomedical Big Data Training Fellowship (NIH-NLM T32), University of California, Berkeley

April 2017 Participation Scholarship, Summer Institute in Statistics for Big Data, Department of Biostatistics, University of Washington

May 2017 Honorable Mention for the Thomas R. Ten Have Memorial Award (for "exceptionally creative or skillful research in causal inference"), Atlantic Causal Inference Conference

July 2016 "Short Program" Training Scholarship, Computational Genomics Summer Institute, Institute for Pure and Applied Mathematics, UCLA

June 2015 Summer Training Fellowship, Summer Institute in Biostatistics (NIH-NHLBI), Department of Biostatistics & Medical Informatics, University of Wisconsin — Madison

Publications

♚ total citations: 1503 ♘ h-index: 16 ♗ i10-index: 18
† Equal contribution or co-first authorship, usually listed alphabetically

Statistical Methodology (refereed)

[1] P. Boileau, **N. S. Hejazi**, and S. Dudoit, "Exploring high-dimensional biological data with sparse contrastive principal component analysis," *Bioinformatics*, vol. 36, no. 11, pp. 3422–3430, 2020. DOI: 10.1093/bioinformatics/btaa176.

[2] I. Díaz and **N. S. Hejazi**, "Causal mediation analysis for stochastic interventions," *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, vol. 82, no. 3, pp. 661–683, 2020. DOI: 10.1111/rssb.12362.

[3] I. Díaz, **N. S. Hejazi**, K. E. Rudolph, and M. J. van der Laan, "Non-parametric efficient causal mediation with intermediate confounders," *Biometrika*, vol. 108, no. 3, pp. 627–641, 2021. DOI: 10.1093/biomet/asaa085.

[4] **N. S. Hejazi**, W. Zheng, and S. Anand, "A framework for causal segmentation analysis with machine learning in large-scale digital experiments," *Conference on Digital Experimentation at MIT*, vol. 8th (annual), 2021. [Online]. Available: https://arxiv.org/abs/2111.01223.

[5] **N. S. Hejazi**, M. J. van der Laan, H. E. Janes, P. B. Gilbert, and D. C. Benkeser, "Efficient nonparametric inference on the effects of stochastic interventions under two-phase sampling, with applications to vaccine efficacy trials," *Biometrics*, vol. 77, no. 4, pp. 1241–1253, 2021. DOI: 10.1111/biom.13375.

[6] H. Li, S. Rosete, J. Coyle, R. V. Phillips, **N. S. Hejazi**, I. Malenica, B. F. Arnold, J. Benjamin-Chung, A. Mertens, J. M. Colford Jr., M. J. van der Laan, and A. E. Hubbard, "Evaluating the robustness of targeted maximum likelihood estimators via realistic simulations in nutrition intervention trials," *Statistics in Medicine*, vol. 41, no. 12, pp. 2132–2165, 2022. DOI: 10.1002/sim.9348.

[7] **N. S. Hejazi**, P. Boileau, M. J. van der Laan, and A. E. Hubbard, "A generalization of moderated statistics to data adaptive semiparametric estimation in high-dimensional biology," *Statistical Methods in Medical Research*, vol. 32, no. 3, pp. 539–554, 2023. DOI: 10.1177/09622802221146313.

[8] P. Boileau, **N. S. Hejazi**, M. J. van der Laan, and S. Dudoit, "Cross-validated loss-based covariance matrix estimator selection in high dimensions," *Journal of Computational and Graphical Statistics*, vol. 32, no. 2, pp. 601–612, 2023. DOI: 10.1080/10618600.2022.2110883.

[9] A. Ertefaie, **N. S. Hejazi**, and M. J. van der Laan, "Nonparametric inverse-probability-weighted estimators based on the highly adaptive lasso," *Biometrics*, vol. 79, no. 2, pp. 1029–1041, 2023. DOI: 10.1111/biom.13719.

[10] **N. S. Hejazi**, K. E. Rudolph, M. J. van der Laan, and I. Díaz, "Nonparametric causal mediation analysis for stochastic interventional (in)direct effects," *Biostatistics*, vol. 24, no. 3, pp. 686–707, 2023. DOI: 10.1093/biostatistics/kxac002.

[11] I. Díaz, K. L. Hoffman, and **N. S. Hejazi**, "Causal survival analysis under competing risks using longitudinal modified treatment policies," *Lifetime Data Analysis*, vol. (in press), 2023. DOI: 10.1007/s10985-023-09606-7.

[12] P. Boileau, N. Leng, **N. S. Hejazi**, M. J. van der Laan, and S. Dudoit, "A nonparametric framework for treatment effect modifier discovery in high dimensions," revision invited at *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, 2023. [Online]. Available: https://arxiv.org/abs/2304.05323.

[13] **N. S. Hejazi**, D. Benkeser, I. Díaz, and M. J. van der Laan, "Efficient estimation of modified treatment policy effects based on the generalized propensity score," under review at *Electronic Journal of Statistics*, 2023. [Online]. Available: https://arxiv.org/abs/2205.05777.

Scientific Applications (refereed)

[14] A. Sobh, A. Loguinov, G. N. Yazici, R. S. Zeidan, A. Tagmount, **N. S. Hejazi**, A. E. Hubbard, L. Zhang, and C. D. Vulpe, "Functional profiling identifies determinants of arsenic trioxide cellular toxicity," *Toxicological Sciences*, vol. 169, no. 1, pp. 108–121, 2019. DOI: 10.1093/toxsci/kfz024.

[15] K. E. Rudolph, I. Díaz, **N. S. Hejazi**, M. J. van der Laan, S. X. Luo, M. Shulman, A. Campbell, J. Rotrosen, and E. V. Nunes, "Explaining differential effects of medication for opioid use disorder using a novel approach incorporating mediating variables," *Addiction*, vol. 116, no. 8, pp. 2094–2103, 2021. DOI: 10.1111/add.15377.

[16] G. E. Gray, L.-G. Bekker, F. Laher, M. Malahleh, M. Allen, Z. Moodie, N. Grunenberg, Y. Huang, D. Grove, B. Prigmore, J. J. Kee, D. Benkeser, J. Hural, C. Innes, E. Lazarus, G. Meintjes, N. Naicker, D. Kalonji, M. Nchabeleng, M. Sebe, N. Singh, P. Kotze, S. Kassim, T. Dubula, V. Naicker, W. Brumskine, C. N. Ncayiya, A. M. Ward, N. Garrett, G. Kistnasami, Z. Gaffoor, P. Selepe, P. B. Makhoba, M. P. Mathebula, P. Mda, T. Adonis, K. S. Mapetla, B. Modibedi, T. Philip, G. Kobane, C. Bentley, S. Ramirez, S. Takuva, M. Jones, M. Sikhosana, M. Atujuna, M. Andrasik, **N. S. Hejazi**, A. Puren, L. Wiesner, S. Phogat, C. Diaz Granados, M. Koutsoukos, O. Van Der Meeren, S. W. Barnett, N. Kanesa-thasan, J. G. Kublin, M. J. McElrath, P. B. Gilbert, H. Janes, and L. Corey, "Vaccine efficacy of ALVAC-HIV and bivalent subtype C gp120–MF59 in adults," *New England Journal of Medicine*, vol. 384, no. 12, pp. 1089–1100, 2021. DOI: 10.1056/NEJMoa2031499.

[17] P. B. Gilbert, D. C. Montefiori, A. B. McDermott, Y. Fong, D. Benkeser, W. Deng, H. Zhou, C. R. Houchens, K. Martins, L. Jayashankar, F. Castellino, B. Flach, B. C. Lin, S. O'Connell, C. McDanal, A. Eaton, M. Sarzotti-Kelsoe, Y. Lu, C. Yu, B. Borate, L. W. P. van der Laan, **N. S. Hejazi**, C. Huynh, J. Miller, H. M. El Sahly, L. R. Baden, M. Baron, L. De La Cruz, C. Gay, S. Kalams, C. F. Kelley, M. Kutner, M. P. Andrasik, J. G. Kublin, L. Corey, K. M. Neuzil, L. N. Carpp, R. Pajon, D. Follmann, R. O. Donis, R. A. Koup, and on behalf of the Immune Assays Team; Moderna, Inc., Team; Coronavirus Prevention Network (CoVPN)/Coronavirus Efficacy (COVE) Team; and the United States Government (USG)/CoVPN Biostatistics Team, "Immune correlates analysis of the mRNA-1273 COVID-19 vaccine efficacy clinical trial," *Science*, vol. 375, no. 6576, pp. 43–50, 2021. DOI: 10.1126/science.abm3425.

[18] H. K. Amato, C. Hemlock, K. L. Andrejko, A. R. Smith, **N. S. Hejazi**, A. E. Hubbard, S. C. Verma, R. K. Adhikari, D. Pokhrel, K. Smith, J. P. Graham, and A. Pokhrel, "Biodigester cookstove interventions and child diarrhea in semi-rural Nepal: a causal analysis of daily observations," *Environmental Health Perspectives*, vol. 130, no. 1, 2022. DOI: 10.1289/EHP9468.

[19] Y. Fong, A. B. McDermott, D. Benkeser, S. Roels, D. J. Stieh, A. Vandebosch, M. Le Gars, G. A. Van Roey, C. R. Houchens, K. Martins, L. Jayashankar, F. Castellino, O. Amoa-Awua, M. Basappa, B. Flach, B. C. Lin, C. Moore, M. Naisan, M. Naqvi, S. Narpala, S. O'Connell, A. Mueller, L. Serebryannyy, M. Castro, J. Wang, C. J. Petropoulos, A. Luedtke, O. Hyrien, Y. Lu, C. Yu, B. Borate, L. W. P. van der Laan, **N. S. Hejazi**, A. Kenny, M. Carone, D. N. Wolf, J. Sadoff, G. E. Gray, B. Grinsztejn, P. A. Goepfert, S. J. Little, L. Paiva de Sousa, R. Maboa, A. K. Randhawa, M. P. Andrasik, J. Hendriks, C. Truyers, F. Struyf, H. Schuitemaker, M. Douoguih, J. G. Kublin, L. Corey, K. M. Neuzil, L. N. Carpp, D. Follmann, P. B. Gilbert, R. A. Koup, R. O. Donis, and on behalf of the Immune Assays Team; the Coronavirus Prevention Network (CoVPN)/ENSEMBLE Team; and the United States Government (USG)/CoVPN Biostatistics Team, "Immune correlates analysis of the ENSEMBLE single Ad26.COV2.S dose vaccine efficacy clinical trial," *Nature Microbiology*, vol. 7, pp. 1996–2010, 2022. DOI: 10.1038/s41564-022-01262-1.

[20] Y. Fong, Y. Huang, D. Benkeser, L. N. Carpp, G. Áñez, W. Woo, A. McGarry, L. M. Dunkle, I. Cho, C. R. Houchens, K. Martins, L. Jayashankar, F. Castellino, C. J. Petropoulos, A. Leith, D. Haugaard, B. Webb, Y. Lu, C. Yu, B. Borate, L. W. P. van der Laan, **N. S. Hejazi**, A. K. Randhawa, M. P. Andrasik, J. G. Kublin, J. Hutter, M. Keshtkar-Jahromi, T. H. Beresnev, L. Corey, K. M. Neuzil, D. Follmann, J. A. Ake, C. L. Gay, K. L. Kotloff, R. A. Koup, R. O. Donis, P. B. Gilbert, and on behalf of the Immune Assays Team; Coronavirus Prevention Network (CoVPN)/2019nCov-301 Principal Investigators and Study Team; and the United States Government (USG)/CoVPN Biostatistics Team, "Immune correlates analysis of the PREVENT-19 COVID-19 vaccine efficacy clinical trial," *Nature Communications*, vol. 14, no. 331, 2023. DOI: 10.1038/s41467-022-35768-3.

[21] D. Benkeser†, Y. Fong†, H. E. Janes, E. J. Kelly, I. Hirsch, S. Sproule, A. M. Stanley, J. Maaske, T. Villafana, C. R. Houchens, K. Martins, L. Jayashankar, F. Castellino, V. Ayala, C. J. Petropoulos, A. Leith, D. Haugaard, B. Webb, Y. Lu, C. Yu, B. Borate, L. W. P. van der Laan, **N. S. Hejazi**, L. N. Carpp, A. K. Randhawa, M. P. Andrasik, J. G. Kublin, M. B. Isaacs, M. Makhene, T. Tong, M. L. Robb, L. Corey, K. M. Neuzil, D. Follmann, C. Hoffman, A. R. Falsey, M. Sobieszczyk, R. A. Koup, R. O. Donis, P. B. Gilbert, and on behalf of the AstraZeneca AZD1222 Clinical Study Group; the Immune Assays Team; and the United States Government (USG)/CoVPN Biostatistics Team, "Immune correlates analysis of a phase 3 trial of the AZD1222 (ChAdOx1 nCoV-19) vaccine," *npj Vaccines*, vol. 8, no. 36, 2023. DOI: 10.1038/s41541-023-00630-0.

[22] D. Benkeser†, D. C. Montefiori†, A. B. McDermott†, Y. Fong, H. E. Janes, W. Deng, H. Zhou, C. R. Houchens, K. Martins, L. Jayashankar, F. Castellino, B. Flach, B. C. Lin, S. O'Connell, C. McDanal, A. Eaton, M. Sarzotti-Kelsoe, Y. Lu, C. Yu, B. Borate, L. W. P. van der Laan, **N. S. Hejazi**, A. Kenny, M. Carone, B. D. Williamson, C. Huynh, J. Miller, H. M. El Sahly, L. R. Baden, S. Frey, E. Malkin, S. A. Spector, M. P. Andrasik, J. G. Kublin, L. Corey, K. M. Neuzil, L. N. Carpp, R. Pajon, D. Follmann, R. O. Donis, R. A. Koup, P. B. Gilbert, and on behalf of the Immune Assays Team; Moderna, Inc., Team; Coronavirus Prevention Network (CoVPN)/Coronavirus Efficacy (COVE) Team; and the United States Government (USG)/CoVPN Biostatistics Teams, "Comparing antibody assays as correlates of protection against COVID-19 in the COVE mRNA-1273 vaccine efficacy trial," *Science Translational Medicine*, vol. 15, no. 692, 2023. DOI: 10.1126/scitranslmed.ade9078.

[23] J. Benjamin-Chung, A. Mertens, J. M. Colford Jr., A. E. Hubbard, M. J. van der Laan, J. Coyle, O. Sofrygin, W. Cai, A. Nguyen, N. N. Pokpongkiat, S. Djajadi, A. Seth, W. Jilek, E. Jung, E. O. Chung, S. Rosete, **N. Hejazi**, I. Malenica, H. Li, R. Hafen, V. Subramoney, J. Häggström, T. Norman, K. H. Brown, P. Christian, B. F. Arnold, and the *ki* Child Growth Consortium, "Early-childhood linear growth faltering in low- and middle-income countries," *Nature*, vol. 621, pp. 550–557, 2023. DOI: 10.1038/s41586-023-06418-5.

[24] A. Mertens, J. Benjamin-Chung, J. M. Colford Jr., A. E. Hubbard, M. J. van der Laan, J. Coyle, O. Sofrygin, W. Cai, W. Jilek, S. Rosete, A. Nguyen, N. N. Pokpongkiat, S. Djajadi, A. Seth, E. Jung, E. O. Chung, I. Malenica, **N. Hejazi**, H. Li, R. Hafen, V. Subramoney, J. Häggström, T. Norman, P. Christian, K. H. Brown, B. F. Arnold, and the *ki* Child Growth Consortium, "Child wasting and concurrent stunting in low- and middle-income countries," *Nature*, vol. 621, pp. 558–567, 2023. DOI: 10.1038/s41586-023-06480-z.

[25] A. Mertens, J. Benjamin-Chung, J. M. Colford Jr., J. Coyle, M. J. van der Laan, A. E. Hubbard, S. Rosete, I. Malenica, **N. Hejazi**, O. Sofrygin, W. Cai, H. Li, A. Nguyen, N. N. Pokpongkiat, S. Djajadi, A. Seth, E. Jung, E. O. Chung, W. Jilek, V. Subramoney, R. Hafen, J. Häggström, T. Norman, K. H. Brown, P. Christian, B. F. Arnold, and the *ki* Child Growth Consortium, "Causes and consequences of child growth faltering in low-resource settings," *Nature*, vol. 621, pp. 568–576, 2023. DOI: 10.1038/s41586-023-06501-x.

[26] Y. Huang, **N. S. Hejazi**, B. Blette, L. N. Carpp, D. Benkeser, D. C. Montefiori, A. B. McDermott, Y. Fong, H. E. Janes, W. Deng, H. Zhou, C. R. Houchens, K. A. Martins, L. Jayashankar, B. Flach, B. C. Lin, S. O'Connell, C. McDanal, A. Eaton, M. Sarzotti-Kelsoe, Y. Lu, C. Yu, A. Kenny, M. Carone, C. Huynh, J. Miller, H. M. El Sahly, L. R. Baden, L. A. Jackson, T. B. Campbell, J. L. Clark, M. P. Andrasik, J. G. Kublin, L. Corey, K. M. Neuzil, R. Pajon, D. A. Follmann, R. O. Donis, R. A. Koup, P. B. Gilbert, and on behalf of the Immune Assays Team; Moderna, Inc., Team; Coronavirus Prevention Network (CoVPN)/Coronavirus Efficacy (COVE) Team; and the United States Government (USG)/CoVPN Biostatistics Teams, "Stochastic interventional vaccine efficacy and principal surrogate analyses of antibody markers as correlates of protection against symptomatic COVID-19 in the COVE mRNA-1273 trial," *Viruses*, vol. 15, no. 10, p. 2029, 2023. DOI: 10.3390/v15102029.

[27] **N. S. Hejazi**, X. Shen, L. N. Carpp, D. Benkeser, D. Follmann, H. E. Janes, L. R. Baden, H. M. El Sahly, W. Deng, H. Zhou, B. Leav, D. C. Montefiori, and P. B. Gilbert, "Stochastic interventional approach to assessing immune correlates of protection: Application to the COVE mRNA-1273 vaccine trial," *International Journal of Infectious Diseases*, vol. (just accepted), 2023.

[28] A. S. Adams, C. Lee, G. Escobar, E. A. Bayliss, B. Callaghan, R. W. Grant, M. Horberg, J. A. Schmittdiel, C. M. Trinacty, R. Dlott, L. K. Gilliam, E. Kim, H. Lew, M. Motooka, A. Cosyleon, **N. S. Hejazi**, L. Ma, and R. Neugebauer, "Machine learning approach to estimate risk of lower extremity complications among adults newly diagnosed with diabetic polyneuropathy," under review at *JAMA Network Open*, 2023.

Statistical Software (refereed)

[29] **N. S. Hejazi**, W. Cai, and A. E. Hubbard, "biotmle: Targeted Learning for biomarker discovery," *Journal of Open Source Software*, vol. 2, no. 15, p. 295, Jul. 2017. DOI: 10.21105/joss.00295.

[30] J. R. Coyle and **N. S. Hejazi**, "origami: A generalized framework for cross-validation in R," *Journal of Open Source Software*, vol. 3, no. 21, p. 512, Jan. 2018. DOI: 10.21105/joss.00512.

[31] **N. S. Hejazi**, R. V. Phillips, A. E. Hubbard, and M. J. van der Laan, "methyvim: Targeted, robust, and model-free differential methylation analysis in R," *F1000Research*, vol. 7, p. 1424, Sep. 2018. DOI: 10.12688/f1000research.16047.1.

[32] W. Cai, A. E. Hubbard, and **N. S. Hejazi**, "adaptest: Data-adaptive statistics for high-dimensional testing in R," *Journal of Open Source Software*, vol. 3, no. 30, p. 161, Oct. 2018. DOI: 10.21105/joss.00161.

[33] P. Boileau, **N. S. Hejazi**, and S. Dudoit, "scPCA: A toolbox for sparse contrastive principal component analysis in R," *Journal of Open Source Software*, vol. 5, no. 46, p. 2079, Feb. 2020. DOI: 10.21105/joss.02079.

[34] **N. S. Hejazi**, J. R. Coyle, and M. J. van der Laan, "hal9001: Scalable highly adaptive lasso regression in R," *Journal of Open Source Software*, vol. 5, no. 53, p. 2526, Sep. 2020. DOI: 10.21105/joss.02526.

[35] **N. S. Hejazi** and D. C. Benkeser, "txshift: Efficient estimation of the causal effects of stochastic interventions in R," *Journal of Open Source Software*, vol. 5, no. 54, p. 2447, Oct. 2020. DOI: 10.21105/joss.02447.

[36] P. Boileau, **N. S. Hejazi**, B. Collica, M. J. van der Laan, and S. Dudoit, "cvCovEst: Cross-validated covariance matrix estimator selection and evaluation in R," *Journal of Open Source Software*, vol. 6, no. 63, p. 3273, Jul. 2021. DOI: 10.21105/joss.03273.

[37] **N. S. Hejazi**, K. E. Rudolph, and I. Díaz, "medoutcon: Nonparametric efficient causal mediation analysis with machine learning in R," *Journal of Open Source Software*, vol. 7, no. 69, p. 3979, Jan. 2022. DOI: 10.21105/joss.03979.

[38] **N. S. Hejazi**, M. J. van der Laan, and D. Benkeser, "haldensify: Highly adaptive lasso conditional density estimation in R," *Journal of Open Source Software*, vol. 7, no. 77, p. 4522, Sep. 2022. DOI: 10.21105/joss.04522.

[39] D. Benkeser and **N. S. Hejazi**, "Doubly-robust inference in R using drtmle," *Observational Studies*, vol. 9, no. 2, pp. 43–78, Mar. 2023. DOI: 10.1353/obs.2023.0017.

Commentaries and Reviews (refereed)

[40] **N. Hejazi**, C. Schiffman, and X. Zhou, "Review of 'Statistical analysis of numerical preclinical radiobiological data'," *ScienceOpen Research*, 2017. DOI: 10.14293/s2199-1006.1.sor-stat.afhtwc.v1.rxidzs.

[41] **N. S. Hejazi** and M. J. van der Laan, "Revisiting the propensity score's central role: Towards bridging balance and efficiency in the era of causal machine learning," *Observational Studies*, vol. 9, no. 1, pp. 23–34, 2023. DOI: 10.1353/obs.2023.0001.

[42] J. R. Coyle†, **N. S. Hejazi**†, I. Malenica†, R. V. Phillips†, B. F. Arnold, A. Mertens, J. Benjamin-Chung, W. Cai, S. Dayal, J. M. Colford Jr., A. E. Hubbard, and M. J. van der Laan, "Targeting Learning," *Wiley StatsRef: Statistics Reference Online*, 2023. DOI: https://doi.org/10.1002/9781118445112.stat08414.

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Books and Book Chapters (non-refereed)

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Conference and Seminar Talks

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[33] N. Mitra[‡], R. J. A. Little, M. E. Halloran, P. Ding, E. A. Stuart, **N. S. Hejazi**, and L. D'Agostino McGowan, "Rosenbaum & Rubin's propensity score: Impact, introspection and discussion 40 years later," Joint Statistical Meetings, Toronto, ON, Canada, Aug. 2023. [Online]. Available: https://www.stat.berkeley.edu/~nhejazi/present/2023_jsm_psrr/.

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[34] **N. S. Hejazi**, P. Boileau, I. Malenica, P. B. Gilbert, S. Dudoit, and M. J. van der Laan, "Evaluating mediational vaccine efficacy under unmeasured baseline confounding using the natural direct effect," Society for Epidemiologic Research Meeting, Portland, OR, USA, Jun. 2023.

[35] M. Juraska, A. M. Early, A. Khorgade, S. F. Schaffner, M. Lievens, C. A. Margaret, B. Simpkins, **N. Hejazi**, D. Benkeser, L. D. Mercer, S. Adjei, T. Agbenyega, D. Ansong, D. Bii, A. Bollaerts, P. B. Y. Buabeng, S. Kariuki, K. Otieno, F. Roman, A. M. Samuels, N. Westercamp, C. Ockenhouse, O. Ofori-Anyinam, C. K. Lee, B. L. MacInnis, P. B. Gilbert, D. F. Wirth, and D. E. Neafsey, "Efficacy against molecular infection of fractional-dose RTS,S/AS01$_E$ malaria vaccine regimens under natural exposure in a phase 2b trial with monthly blood sampling," American Society of Tropical Medicine and Hygiene, Seattle, WA, USA, Nov. 2022.

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Other Talks and Presentations

[48] **N. S. Hejazi**[‡], "Efficient estimation of modified treatment policy effects based on the generalized propensity score," National Studies on Air Pollution and Health Biostatistics Working Group Meeting, Department of Biostatistics, T.H. Chan School of Public Health, Harvard University, Boston, MA, USA, Aug. 2023. [Online]. Available: https://www.stat.berkeley.edu/~nhejazi/present/2023_nsaph_haldensify.pdf.

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[60] **N. Hejazi** and W. Zheng, "Flexible and efficient inverse probability weighted estimation," Experimentation Forum, Netflix, Sep. 2020.

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Software

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[4] **N. S. Hejazi**, D. C. Benkeser, and M. J. van der Laan, *haldensify: Highly adaptive lasso conditional density estimation*, version 0.2.5, R package with 19292 downloads (2023-10-06). DOI: 10.5281/zenodo.3698329. [Online]. Available: https://CRAN.R-project.org/package=haldensify.

[5] **N. S. Hejazi** and D. C. Benkeser, *txshift: Efficient estimation of the causal effects of stochastic interventions*, version 0.3.8, R package with 10624 downloads (2023-10-06). DOI: 10.5281/zenodo.4070042. [Online]. Available: https://CRAN.R-project.org/package=txshift.

[6] P. Boileau, **N. S. Hejazi**, and B. Collica, *cvCovEst: Cross-validated covariance matrix estimation*, version 1.2.1, R package with 11947 downloads (2023-10-06). [Online]. Available: https://CRAN.R-project.org/package=cvCovEst.

[7] **N. S. Hejazi**, M. J. van der Laan, and A. E. Hubbard, *biotmle: Targeted Learning with moderated statistics for biomarker discovery*, version 1.24.0, R package (Bioconductor v3.17) with 8671 downloads (2023-10-06). DOI: 10.18129/B9.bioc.biotmle. [Online]. Available: https://bioconductor.org/packages/biotmle.

[8] **N. S. Hejazi** and M. J. van der Laan, *methyvim: Targeted, robust, and model-free differential methylation analysis*, version 1.11.0, R package (deprecated Bioconductor v3.12) with 4647 downloads (2023-10-06). DOI: 10.18129/B9.bioc.methyvim. [Online]. Available: https://bioconductor.org/packages/methyvim.

[9] W. Cai, **N. S. Hejazi**, and A. E. Hubbard, *adaptest: Data-adaptive statistics for high-dimensional multiple testing*, version 1.10.0, R package (deprecated Bioconductor v3.12) with 3307 downloads (2023-10-06). DOI: 10.18129/B9.bioc.adaptest. [Online]. Available: https://bioconductor.org/packages/adaptest.

[10] P. Boileau, **N. S. Hejazi**, and S. Dudoit, *scPCA: Sparse contrastive principal component analysis*, version 1.14.0, R package (Bioconductor v3.17) with 5389 downloads (2023-10-06). DOI: 10.18129/B9.bioc.scpca. [Online]. Available: https://bioconductor.org/packages/scPCA.

[11] J. R. Coyle, **N. S. Hejazi**, I. Malenica, R. V. Phillips, and O. Sofrygin, *sl3: Super Machine Learning with pipelines*, version 1.4.4, R package. DOI: 10.5281/zenodo.1342293. [Online]. Available: https://github.com/tlverse/sl3.

[12] **N. S. Hejazi** and I. Díaz, *medshift: Causal mediation analysis for stochastic interventions*, version 0.1.4, R package. [Online]. Available: https://github.com/nhejazi/medshift.

[13] **N. S. Hejazi**, I. Díaz, and K. E. Rudolph, *medoutcon: Efficient natural and interventional causal mediation analysis*, version 0.2.0, R package. [Online]. Available: https://github.com/nhejazi/medoutcon.

[14] **N. S. Hejazi**, J. R. Coyle, and M. J. van der Laan, *tmle3shift: Targeted Learning of the causal effects of stochastic interventions*, version 0.2.1, R package. [Online]. Available: https://github.com/tlverse/tmle3shift.

[15] **N. S. Hejazi**, J. P. Duncan, D. McCoy, and M. J. van der Laan, *tmle3mediate: Targeted Learning for causal mediation analysis*, version 0.0.3, R package. [Online]. Available: https://github.com/tlverse/tmle3mediate.

[16] **N. S. Hejazi**, W. Zheng, and Netflix, Inc., *sherlock: Causal machine learning for segment discovery and analysis*, version 0.2.0, R package. DOI: 10.5281/zenodo.5652010. [Online]. Available: https://github.com/Netflix/sherlock.

Research Support & Funding

Completed

09/2021–06/2022 Nonparametric Causal Inference in Complex Randomized and Observational Studies
- Source: National Science Foundation DMS–2102840
- Role: Postdoctoral research fellow (PI: N.S. Hejazi)
- Note: Guaranteed through 08/2023 but terminated early to begin faculty position

06/2017–05/2021 Causal Effects of Endogenous and Exogenous Risk Factors for Wasting
- Source: The Bill & Melinda Gates Foundation OPP–1165144
- Role: Graduate student researcher (PI: M.J. van der Laan)

08/2018–08/2019 Predicting Conversion from Prediabetes to Diabetes
- Source: Kaiser Permanente Division of Research
- Role: Biostatistical research analyst (PI: J.A. Schmittdiel)

06/2017–05/2018 UC Berkeley Biomedical Big Data Training Program
- Source: National Library of Medicine T32–LM012417
- Role: Graduate student research trainee (PI: M.J. van der Laan)

11/2016–05/2017 Molecular Mechanisms of Obesity in Children Exposed to Phthalates in Utero
- Source: National Institute of Environmental Health Sciences R01–ES021369
- Role: Graduate student researcher (PI: N.T. Holland)

03/2016–05/2017 Toxic Substances in the Environment
- Source: National Institute of Environmental Health Sciences P42–ES004705
- Role: Graduate student researcher (PI: M.T. Smith)

Service & Affiliations

Associate Editorships

2023–now *Journal of Causal Inference*

2022–now *The International Journal of Biostatistics*

Ad-Hoc Refereeing

2018–now *American Journal of Epidemiology*, *Annals of Applied Statistics*, *Biometrics*, *Biometrika*, *Biostatistics*, *BMJ Open*, *Cell Reports Medicine*, *Communications Medicine*, *Epidemiology*, *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, *JAMA Network Open*, *Journal of the American Statistical Association*, *Journal of Business & Economic Statistics*, *Journal of Causal Inference*, *Journal of Machine Learning Research*, *Journal of Nonparametric Statistics*, *Journal of Open Source Software*, *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, *Journal of the Royal Statistical Society: Series C (Applied Statistics)*, *Journal of Statistical Software*, *Lifetime Data Analysis*, *Nature Communications*, *Nature Medicine*, *Rapid Reviews: COVID-19*, *Statistical Methods in Medical Research*, *Statistics in Medicine*

Ad-Hoc Grant Reviewing

Harvard Data Science Initiative

Dutch Research Council (NWO)

National Science Foundation

Education and Outreach

2018–2023 Lesson Maintainer, "Version Control with Git" (workshop materials), Software Carpentry

University, School, and Departmental Committees

2022–now Co-chair of Departmental Colloquium Series, Department of Biostatistics, T.H. Chan School of Public Health, Harvard University; Boston, MA, USA

2022–now Member of the Admissions Committee, Doctoral Program in Biostatistics (PhD), Department of Biostatistics, T.H. Chan School of Public Health, Harvard University; Boston, MA, USA

2022–2023 Member of the Executive Committee, Master's in Biostatistics Programs (SM BIO), Department of Biostatistics, T.H. Chan School of Public Health, Harvard University; Boston, MA, USA

2018–2021 Member of the Executive Board, Biostatistics Graduate Student Association, Graduate Group in Biostatistics, University of California, Berkeley; Berkeley, CA, USA

Feb. 2018 Invited Member of Admissions Committee for Graduate Studies, Graduate Group in Biostatistics, University of California, Berkeley; Berkeley, CA, USA

Affiliations

2023–now Institute of Mathematical Statistics

2021–now Society for Causal Inference

2020–now Society for Epidemiologic Research

2017–now International Biometric Society

2016–now American Statistical Association

2016–2019 Berkeley Institute for Data Science

Advising & Formal Mentoring

Dissertation Committees (Non-Chair)

01/2023–now Michael Cork, Department of Biostatistics, T.H. Chan School of Public Health, Harvard University (Chair: Francesca Dominici)

09/2022–now Tigist F. Menkir, Department of Epidemiology, T.H. Chan School of Public Health, Harvard University (Chair: Caroline O. Buckee)

Independent Study (Doctoral)

01/2023–now Salvador Balkus, Department of Biostatistics, T.H. Chan School of Public Health, Harvard University (Jointly with Rachel C. Nethery)

Master's Theses and Projects

2020–2021 Brian Collica, Department of Statistics, University of California, Berkeley (Jointly with Philippe Boileau and Sandrine Dudoit). Project: "Developing an `R` package for cross-validated covariance matrix estimator selection"

Undergraduate Theses and Projects

09–12/2020 Jamarcus Liu, Department of Statistics, University of California, Berkeley (Jointly with Philippe Boileau and Sandrine Dudoit). Project: "Developing an `R` package for cross-validated covariance matrix estimator selection"

09–12/2020 Dylan Chima-Sanchez, Department of Statistics, University of California, Berkeley (Jointly with Mark van der Laan). Project: "Evaluating efficient nonparametric inverse probability weighted estimators"

Teaching

Primary Instructorships

2024+ "Causal Inference: Theory and Practice" (BST/BIOSTAT 258), Department of Biostatistics, T.H. Chan School of Public Health and Faculty of Arts & Sciences, Harvard University

- Advanced doctoral-level elective course for Ph.D. students in biostatistics and allied quantitative disciplines.

2023–now "Introduction to Biostatistics" (HST 190), Program in Health Sciences and Technology, Harvard Medical School and Massachusetts Institute of Technology

- Required 4-week introductory course for M.D., Ph.D., and M.D./Ph.D. students in the Health Sciences and Technology (HST) doctoral program (https://hst.mit.edu/) for biomedical and physician scientists.
- Summer 2023: 30 medical and/or doctoral students; instructor overall effectiveness rating of 3.83/5.00 and course overall rating of 3.33/5.00 (evaluation survey response rate: 80%).

Short Course and Workshop Instructorship

2021–now "Modern Causal Mediation Analysis", with Iván Díaz and Kara E. Rudolph

- Jun. 2023: Half-day workshop at the Society for Epidemiologic Research (SER) meeting in Portland, OR, USA. Materials: https://code.nimahejazi.org/ser2023_mediation_workshop
- Jun. 2022: Half-day in-person workshop at the Society for Epidemiologic Research (SER) meeting in Chicago, IL, USA. Materials: https://code.nimahejazi.org/ser2022_mediation_workshop
- May 2022: Half-day virtual workshop given as part of the Society for Epidemiologic Research (SER) meeting. Materials: https://code.nimahejazi.org/ser2022_mediation_workshop
- May 2021: Half-day workshop at the Society for Epidemiologic Research (SER) meeting ~~in San Diego, CA, USA~~ virtually. Materials: https://code.nimahejazi.org/ser2021_mediation_workshop

2019–now "Targeted Learning in the `tlverse`: Causal Inference Meets Machine Learning", with Mark J. van der Laan, Alan E. Hubbard, Ivana Malenica, and Rachael V. Phillips

- Mar. 2024: Full-day *advanced* short course at the Eastern North American Region (ENAR) of the International Biometric Society meeting in Baltimore, MD, USA. Materials to appear.
- Aug. 2023: Full-day *introductory* short course at the Joint Statistical Meetings (JSM) in Toronto, ON, Canada. Materials: https://tlverse.org/jsm2023-workshop
- Mar. 2023: Full-day *advanced* short course at the Eastern North American Region (ENAR) of the International Biometric Society meeting in Nashville, TN, USA. Materials: https://tlverse.org/enar2023-workshop
- Jun. 2022: Combined half-day *introductory* and *advanced* workshops at the Society for Epidemiologic Research (SER) meeting in Chicago, IL, USA. Materials: https://tlverse.org/ser2022-workshop
- May 2022: Full-day *advanced* workshop at the American Causal Inference Conference (ACIC) in Berkeley, CA, USA. Materials: https://tlverse.org/acic2022-adv-workshop
- Aug. 2021: 4-day short course for the Programa de Actualización en Salud Pública y Epidemiología of the Instituto Nacional de Salud Pública ~~in CDMX, MX~~ virtually. Materials: https://tlverse.org/tmlcimx2021-workshop
- Jun. 2021: Half-day workshop at the Society for Epidemiologic Research (SER) meeting ~~in San Diego, CA, USA~~ virtually. Materials: https://tlverse.org/ser2021-workshop
- Mar. 2021: Full-day short course at the Eastern North American Region (ENAR) of the International Biometric Society meeting ~~in Baltimore, MD, USA~~ virtually. Materials: https://tlverse.org/enar2021-workshop
- Feb. 2020: Full-day short course at the Conference on Statistical Practice (CSP) in Sacramento, CA, USA. Materials: https://tlverse.org/csp2020-workshop
- Nov. 2019: 3-hour invited workshop for the Bill & Melinda Gates Foundation in Seattle, WA, USA. Materials: https://tlverse.org/gates2019-workshop
- Oct. 2019: 3-day invited short course for the group of Prof. Ashley I. Naimi (Univ. Pittsburgh) in Pittsburgh, PA, USA. Materials: https://tlverse.org/pitt2019-workshop.
- May 2019: Full-day short course at the Atlantic Causal Inference Conference (ACIC) in Montréal, QC, Canada. Materials: https://tlverse.org/acic2019-workshop

2017–2019 *Software Carpentry* — workshop instruction aiming to promote and foster skills, best practices, and workflows for software development and scientific computing in research settings.

- Jan. 2019: "Scientific Computing with Bash, Git, and R"; workshop instructor (co-instructors: S. Peterson, N. Varoquaux); Berkeley Institute for Data Science; website: https://bids.github.io/2019-01-17-bids/
- Jul. 2018: "Scientific Computing with Bash, Git, and Python"; workshop instructor (co-instructor: K. Marwaha); Berkeley Institute for Data Science; website: https://bids.github.io/2018-07-16-bids
- Jan. 2018: "Scientific Computing with Bash, Git, and R"; workshop helper with K. Ottoboni & T. Hart; Berkeley Institute for Data Science; website: http://www.kellieottoboni.com/2018-01-11-bids

2017–2018 *Data Carpentry* — workshop instruction centering on core skills and best practices for the application of data analytic principles and tools for scientific computing in research.

- May 2018: "Software Tools for Genomic Data Analysis"; workshop instructor (co-instructor: A. Orr); Lawrence Berkeley National Laboratory; website: https://code.nimahejazi.org/2018-05-03-LBNL
- Aug. 2017: "Software Tools for Genomic Data Analysis"; workshop helper with K. Hertweck & E. Becker; Lawrence Berkeley National Laboratory; website: https://k8hertweck.github.io/2017-08-07-LBNL

2017–2019 The R Bootcamp, module instructor with Dr. Christopher J. Paciorek, Department of Statistics, University of California, Berkeley

- Description: "An intensive two-day introduction to the R language for members of the Berkeley campus" (https://statistics.berkeley.edu/computing/training/workshops/r-bootcamp)
- Aug. 2019: Presented modules on programming concepts (e.g., iteration, flow control, writing functions) and statistical data analysis and modeling; revised instructional materials; and provided one-on-one instruction. Materials available at https://github.com/berkeley-scf/r-bootcamp-fall-2019.
- Jan. 2019: Presented modules on data tidying and modern data visualization, focusing on the tidyverse ecosystem of R packages; revised instructional materials; and provided one-on-one instruction. Materials available at https://github.com/berkeley-scf/r-bootcamp-winter-2019.
- Aug. 2018: Presented modules on modern data manipulation and visualization, with a focus on the tidyverse ecosystem of R packages; contributed new instructional materials; and provided one-on-one instruction. Materials available at https://github.com/berkeley-scf/r-bootcamp-2018.
- Aug. 2017: Presented a module on programming concepts in R (e.g., iteration, flow control, writing functions), contributed new materials on modern functional programming, and provided one-on-one instruction. Materials available at https://github.com/berkeley-scf/r-bootcamp-2017.

Guest Lectures Delivered

Spring 2022 "Causal Mediation Analysis and the tmle3mediate R package", Targeted Learning in Practice (PBHLTH 243B), *Instructor:* Mark J. van der Laan, Division of Biostatistics, School of Public Health, University of California, Berkeley

Spring 2022 "Stochastic Treatment Regimes and the tmle3shift R package", Targeted Learning in Practice (PBHLTH 243B), *Instructor:* Mark J. van der Laan, Division of Biostatistics, School of Public Health, University of California, Berkeley

Spring 2022 "Targeted Maximum Likelihood Estimation and the tmle3 R package", Targeted Learning in Practice (PBHLTH 243B), *Instructor:* Mark J. van der Laan, Division of Biostatistics, School of Public Health, University of California, Berkeley

Fall 2021 "Reproducible Collaborative Data Science with Git and GitHub", Data Science I: R and Python (HBDS 5018), *Instructor:* Elizabeth M. Sweeney, Division of Biostatistics, Department of Population Health Sciences, Weill Cornell Medical College

Spring 2020 "Building R Packages: 'Good Enough' Practices for Applied Statistics", Biostatistics Master's Thesis Seminar (PBHLTH 292), *Instructor:* Corinne A. Riddell, Division of Biostatistics, School of Public Health, University of California, Berkeley

Teaching Assistantships

Spring 2021 "Biomedical Big Data Training Capstone Seminar" (PBHLTH 290), with Prof. Mark J. van der Laan, Division of Biostatistics, School of Public Health, University of California, Berkeley

- Newly designed graduate-level seminar course of 21 masters and doctoral students.
- Graduate student instructor overall effectiveness rating: 6.67/7.00 (6.22 departmental average).
- Co-designed all course content (based on our in-development book *Targeted Learning in R: Causal Data Science with the tlverse Software Ecosystem*), and jointly supervised collaborative research projects.
- Administrative support to "regularize" as *PBHLTH 243B*: "Targeted Learning in Practice" (Spring 2022+).

Fall 2020 "Survival Analysis and Causality" (PBHLTH 240B & STAT 245B), with Prof. Mark J. van der Laan, Division of Biostatistics, School of Public Health, University of California, Berkeley

- Core graduate-level lecture course of 24 masters and doctoral students.
- Graduate student instructor overall effectiveness rating: 6.67/7.00 (6.34 departmental average).
- Designed and delivered weekly computer laboratory instruction, and supervised course research projects.

Spring 2020 "Biomedical Big Data Training Capstone Seminar" (PBHLTH 290), with Prof. Alan E. Hubbard, Division of Biostatistics, School of Public Health, University of California, Berkeley

- Advanced graduate-level seminar course of 8 doctoral students.
- Designed and delivered course lectures and jointly supervised collaborative research projects.

Fall 2019 "Longitudinal Data Analysis" (PBHLTH 242C & STAT 247C), with Prof. Alan E. Hubbard, Division of Biostatistics, School of Public Health, University of California, Berkeley

- Introductory graduate-level lecture course of 33 masters and doctoral students.
- Graduate student instructor overall effectiveness rating: 5.56/7.00 (6.23 departmental average).
- Delivered weekly computer laboratory instruction, and provided support for course data analysis projects.

Spring 2018 "Targeted Learning in Biomedical Big Data" (PBHLTH 290), with Prof. Mark J. van der Laan, Division of Biostatistics, School of Public Health, University of California, Berkeley

- Advanced graduate-level seminar course of 11 masters and doctoral students.
- Developed all laboratory materials and assessments, delivered weekly computer laboratory instruction, and supervised course projects. Website: https://vanderlaan-group.github.io/tlbbd-sp2018.
- Administrative support to "regularize" as *PBHLTH 243A*: "Targeted Learning" (Fall 2021+).

Accreditation & Training

2021 Summer Institute in Statistics and Modeling in Infectious Diseases, University of Washington

2018 Biomedical Big Data Training Program, University of California, Berkeley

2017 Instructor Training Program Certification, Software Carpentry

2017 Summer Institute in Statistics for Big Data, University of Washington

2016 Genomic Data Science Specialization, Johns Hopkins University via Coursera

2015 Data Science Specialization, Johns Hopkins School of Public Health via Coursera

Selected Courses (credit or audit)

2022–now **Harvard (as faculty):** Adv. Epidemiologic Methods (J.M. Robins), Designing & Monitoring Adaptive Clinical Trials (C. Mehta), Eradicating Infectious Diseases (J. Dvorin, M. Duraisingh, D.F. Wirth), Stat. Inference II (R. Mukherjee)

2016–2021 **Berkeley (as graduate):** Theoretical Stat. I (W. Fithian), Theoretical Stat. II (M.I. Jordan), Applied Stat. I (P.B. Stark), Applied Stat. II (J.D. McAuliffe), Stat. Genomics (S. Dudoit), Machine Learning in Molecular Bio. (J. Listgarten), Probabilistic Modeling for Genomics (Y.S. Song), Intro. Comp. Bio. (N. Yosef, P. Moorjani, D. Rokhsar), Intro. Causal Inference (M.L. Petersen), Modern Causal Inference (M.L. Petersen), Observational Study Design (S.D. Pimentel), Experimental Design (S.D. Pimentel), Causal Inference (P. Ding), Adaptive Trial Design (M.J. van der Laan), Targeted Learning (M.J. van der Laan), Fairness in Machine Learning (M. Hardt), Deep Reinforcement Learning (S. Levine), Deep Time-Series Learning (L. El Ghaoui), Stat. Consulting (P.B. Stark, L.R. Goldberg, J.D. McAuliffe)

2011–2015 **Berkeley (as undergraduate):** Theoretical Biostat. (M.J. van der Laan, A.E. Hubbard), Survival Analysis & Causality (M.J. van der Laan), Computational Biostat. (S. Dudoit), Reproducible Stat. Data Science (K.J. Millman), Applied Longitudinal Data Analysis (N.P. Jewell), Intro. Multivariate Stat. (L. Li), Stat. Methods for Big Data (L. Li), Fourier Analysis & Wavelets (J.A. Strain), Mathematical Methods in Molecular Bio. (L. Pachter), Chemical Bio. (M.B. Francis), Biophysical Neurobio. (H.E. Lecar), Molecular Neurobio. (N. Caporale), Mammalian Neuroanatomy (H. Roelink, D.T. Larue), Human Neuropsychology (R.T. Knight), Adv. Genetics & Genomics (E. Ünal, H. Roelink, N. King), Intro. Epidemiology (L.F. Barcellos, M. Mujahid)

Computing Skills

Systems: Linux (Ubuntu/Debian, Arch, Red Hat), macOS/OSX, ~~Windows~~

Languages: R, JULIA, PYTHON, shell scripting, SQL, LaTeX, markdown, HTML

Tools: Git, GitHub, Jupyter, Google Colaboratory, R Markdown, Amazon Web Services (EC2), Google Compute Engine, Google Workspace, Microsoft Office

Distractions

Trail and distance running (recreational)

- Urban/trail running: ∼30–70 miles per month.
- Half marathons: NYC Spring 2022 (May 01), Boston Athletic Assoc. 2022 (Nov. 13), NYCRuns Central Park 2023 (Feb. 26), Boston Athletic Assoc. 2023 (Nov. 12)