

# Arman Oganisian

## Assistant Professor of Biostatistics

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## Education

2021	<b>University of Pennsylvania</b> Ph.D. in Biostatistics Advisors: Nandita Mitra and Jason Roy Committee: Russell Shinohara, Dylan Small, Edward I. George	Philadelphia, PA
2018	<b>University of Pennsylvania</b> M.S. in Biostatistics	Philadelphia, PA
2013	<b>Providence College</b> B.A. in Quantitative Economics, <i>summa cum laude</i> Minor in Mathematics; Liberal Arts Honors Program.	Providence, RI

## Employment

### Academic

2021-pres.	<b>Brown University</b> Assistant Professor, Tenure Track. Department of Biostatistics.	Providence, RI
2017-2021	<b>University of Pennsylvania</b> Associate Fellow, Leonard Davis Institute for Health Economics.	Philadelphia, PA

### Industry

2015-2016	<b>Analysis Group</b> Senior Analyst. Health economics and outcome research (HEOR) practice.	Boston, MA
2013-2015	<b>Analysis Group</b> Analyst. HEOR practice.	Boston, MA

## Awards

2022	<b>Salomon Faculty Research Award</b> \$10,784 grant funding my proposal for “Bayesian Machine Learning for Sequential Decision-Making with Incomplete Information.” Awarded by Office of the Vice President for Research (OVPR), Brown University.
2021	<b>Saul Winegrad Award for Outstanding Dissertation</b> Awarded by University of Pennsylvania, Biomedical Graduate Studies.
2020	<b>ENAR Distinguished Student Paper Award</b> Awarded by International Biometric Society Eastern North American Region’s (ENAR) at 2020 ENAR Spring Meeting in Nashville, TN.
2020	<b>ICHPS Travel Award</b> Awarded by International Conference on Health Policy Statistics (ICHPS) during the 2020 meeting in San Diego, CA.

## Funding

- 2022 PCORI - Statistical Methods for Optimizing Dynamic Patient-Level Treatment and Monitoring Strategies  
Role: Co-investigator. PI: Jason Roy.
- 2022 NIH Ro1 - Benefits and Harms of Long-term Osteoporosis Pharmacotherapy: Impact of Treatment Length, Type, Switching, and Holidays.  
Role: Co-investigator. PI: Kaley Hayes.
- 2021 NIH Ro1 - Data Science for Decision Support in the HIV Care Cascade  
Role: Co-investigator. PI: Joseph Hogan.

## Working and Published Papers

### Working

- Oganisian, A., Getz, K. D., Alonzo, T. A., Aplenc, R. & Roy, J. A. (2022). Bayesian semiparametric model for sequential treatment decisions with informative timing. doi:10.48550/ARXIV.2211.16393
- Li, Y., Oganisian, A., Boge, C. L., Hayes, M., Newman, A. & Fisher, B. T. (2020). Marginal structural model to estimate the effect of cytomegalovirus infection on hospitalization among children undergoing allogeneic hematopoietic cell transplantation *Under Review*.
- Oganisian, A., Mitra, N., Ko, E. & Roy, J. (2020). Bayesian nonparametric causal inference for cost-efficacy estimands with censored cost and survival times.

### Statistical Methodology

- Oganisian, A., Mitra, N. & Roy, J. (2022). Hierarchical bayesian bootstrap for heterogeneous treatment effect estimation. *International Journal of Biostatistics*. In Press. arXiv: 2009.10839 [stat.ME]
- Oganisian, A., Mitra, N. & Roy, J. A. (2021). A bayesian nonparametric model for zero-inflated outcomes: Prediction, clustering, and causal estimation. *Biometrics*, 77(1), 125–135. doi:10.1111/biom.13244
- Oganisian, A. & Roy, J. A. (2021a). A practical introduction to bayesian estimation of causal effects: Parametric and nonparametric approaches. *Statistics in Medicine*, 40(2), 518–551. doi:10.1002/sim.8761
- Oganisian, A. & Roy, J. A. (2021b). Nonparametric bayes: A bridge between cultures. *Observational Studies*, 7(1), 175–178. <https://muse.jhu.edu/article/799730/pdf>
- Oganisian, A. & Roy, J. A. (2020). Invited discussion - bayesian regression tree models for causal inference: Regularization, confounding, and heterogeneous effect. *Bayesian Analysis*. 998–1006. doi:10.1214/19-BA1195
- Hubbard, R. A., Huang, J., Harton, J., Oganisian, A., Choi, G., Utidjian, L., ... Chen, Y. (2019). A bayesian latent class approach for ehr-based phenotyping. *Statistics in Medicine*, 38(1), 74–87. doi:10.1002/sim.7953
- Oganisian, A. (2019). Chirp: Chinese restaurant process mixtures for regression and clustering. *The Journal of Open Source Software*, 4, 1287. doi:10.21105/joss.01287#

### Collaborative

- Huang, A. W., Haslberger, M., Coulibaly, N., Galárraga, O., Oganisian, A., Belbasis, L. & Panagiotou, O. A. (2022). Multivariable prediction models for health care spending using machine learning: A protocol of a systematic review. *Diagnostic and Prognostic Research*, 6(1), 1–5.
- Harrigan, J. J., Abdallah, H., Clarke, E. L., Oganisian, A., Roy, J. A., Lautenbach, E., ... Kelly, B. J. (2021). Respiratory microbiome disruption and risk for ventilator-associated lower respiratory tract infection. *Clinical Infectious Diseases*. ciab678. doi:10.1093/cid/ciab678

- Takvorian, S. U., **Oganisian, A.**, Mamtani, R., Mitra, N., Shulman, L. N., Bekelman, J. E. & Werner, R. M. (2020). Association of Medicaid Expansion Under the Affordable Care Act With Insurance Status, Cancer Stage, and Timely Treatment Among Patients With Breast, Colon, and Lung Cancer. *JAMA Network Open*, 3(2). doi:10.1001/jamanetworkopen.2019.21653
- Harrison, J. M., **Oganisian, A.**, Grande, D. T., Mitra, N., Chhabra, M. & Chaiyachati, K. H. (2020). Economic outcomes of insurer-led care management for high-cost medicaid patients. *The American journal of managed care*, 26(7), 310–316. doi:10.37765/ajmc.2020.43769
- Singh, P., Forman, H., Adamson, A. S., Mostaghimi, A., Ogdie, A. R., **Oganisian, A.** & Barbieri, J. S. (2019). Impact of industry payments on prescribing patterns for tumor necrosis factor inhibitors among medicare beneficiaries. *Journal of General Internal Medicine*, 34(2), 176–178. doi:10.1007/s11606-018-4698-x
- Grandhi, N., Mohiuddin, J., **Oganisian, A.**, Manjunath, S., Mitra, N., Plataras, J., ... Wojcieszynski, A. (2019). Association of radiation dose with local failure in hepatocellular carcinoma (hcc). *International Journal of Radiation Oncology\*Biophysics*, 105(1, Supplement), E219–E220. doi:10.1016/j.ijrobp.2019.06.1970
- Vekeman, F., Pina-Garza, J. E., Cheng, W. Y., Tuttle, E., Giguere-Duval, P., **Oganisian, A.**, ... Isojarvi, J. (2019). Development of a classifier to identify patients with probable lennox-gastaut syndrome in health insurance claims databases via random forest methodology. *Current Medical Research and Opinion*, 35(8), 1415–1420. doi:10.1080/03007995.2019.1595552
- Wan, J., **Oganisian, A.**, Spieker, A. J., Hoffstad, O. J., Mitra, N., Margolis, D. J. & Takeshita, J. (2019). Racial/ethnic variation in use of ambulatory and emergency care for atopic dermatitis among us children. *Journal of Investigative Dermatology*, 139(9), 1906–1913.e1. doi:10.1016/j.jid.2019.02.024

## Invited Talks

- 12/2022 **Computational and Methodological Statistics (CMstatistics) 2022. London, UK.**  
*Bayesian Semiparametric Model for Sequential Treatment Decisions in with Informative Timing*
- 10/2022 **BIO-PhRMA Workshop on Advancing Analytical Methodologies for Unmeasured Confounders in RWE. Virtual.**  
*Bayesian Methods for Causal Inference: Using Priors to assess Sensitivity to Unmeasured Confounding*
- 10/2022 **International Biometrics Society (IBS) Journal Club. Virtual.**  
*Discussion of “Zero-Inflated Beta Distribution Regression Modeling” (invited discussant)*
- 08/2022 **Joint Statistical Meetings (JSM) 2022. Washington DC, USA.**  
*Cultural fit of Nonparametric Bayes (invited panel discussion)*
- 07/2022 **International Society for Bayesian Analysis (ISBA) 2022. Montreal, Canada.**  
*Bayesian Semiparametric Model for Sequential Treatment Decisions in with Informative Timing*
- 07/2022 **International Biometrics Conference (IBC) 2022. Riga, Latvia.**  
*Bayesian Semiparametric Model for Sequential Treatment Decisions in with Informative Timing*
- 06/2022 **Statistical Society of Canada (SSC) 2022 annual meeting. Virtual.**  
*Hierarchical Bayesian Bootstrap for Heterogeneous Treatment Effect Estimation*
- 02/2022 **Center for Causal Inference, University of Pennsylvania. Virtual.**  
*Bayesian Semiparametric Model for Sequential Treatment Decisions in Continuous Time*
- 01/2022 **Department of Biostatistics, Vanderbilt University. Virtual.**  
*Hierarchical Bayesian Bootstrap for Heterogeneous Treatment Effect Estimation*
- 12/2021 **Computational and Methodological Statistics (CMstatistics) 2021. London, UK.**  
*Hierarchical Bayesian Bootstrap for Heterogeneous Treatment Effect Estimation*
- 05/2021 **Novartis - Advanced Methods and Data Science Forum. Virtual.**  
*Bayesian Estimation of Causal Effects: Parametric and Nonparametric Approaches*

## Invited Talks (continued)

- 01/2021 **University of Washington, Department of Biostatistics. Virtual.**  
*A Bayesian nonparametric model for zero-inflated outcomes: prediction, clustering, and causal inference.*
- 01/2021 **Brown University, Department of Biostatistics. Virtual.**  
*A Bayesian nonparametric model for zero-inflated outcomes: prediction, clustering, and causal inference.*
- 11/2020 **Center for Causal Inference, University of Pennsylvania. Virtual.**  
*Hierarchical Bayesian Bootstrap for Heterogeneous Treatment Effect Estimation*
- 08/2020 **Stan Conference (StanCon). Virtual.**  
*Bayesian Causal Inference in Stan: Partial Pooling and Sensitivity Analysis*
- 06/2020 **Department of Population Health Science and Policy. Icahn School of Medicine at Mt. Sinai. Virtual.**  
*Bayesian Nonparametric Causal Estimation with Zero-Inflated Outcomes*
- 01/2020 **International Conference on Health Policy Statistics (ICHPS). San Diego, CA.**  
*An all-in-one Bayesian nonparametric model for medical cost prediction, clustering, and causal estimation*

## Teaching and Advising

### Course Instruction at Brown University

- Fall 2021- PHP2515: Fundamentals of Probability and Statistical Inference.

### Summer Institutes and Short Courses

- 2019 Center for Causal Inference Summer Institute, UPenn.  
Instructor; instrumental variables computing session at annual summer institute hosted by Center for Causal Inference.

### Advising

- Anthony Girard, ScM Biostatistics, 2023.  
Nancy Liu, ScM Biostatistics, 2023.

### PhD Dissertation Committee

- Gauri Kamat, Department of Biostatistics, 2024.  
Meghan Cupp, Department of Epidemiology, 2024  
Blake Hansen, Department of Biostatistics, 2024

### Guest Lectures

- 2022 PHP2610 Causal Inference and Missing Data, Brown.  
Lecture title: Bayesian Inference for Causal effects of Dynamic Treatment Rules.
- 2020 BSTA790 Causal Inference in Biomedical Research, UPenn  
Lecture title: Overview of Bayesian Methods for Causal Inference.
- 2020 BSTA670 Programming and Computation for Biomedical Data Science, UPenn  
Lecture title: Bayesian Computation: Metropolis-Hastings Samplers and Monte Carlo Integration.

## Academic Service

### Reviewer

*Journal of Causal Inference*  
*American Journal of Epidemiology*  
*Biometrics*  
*Biostatistics*  
*International Journal of Biostatistics*  
*Journal of the American Statistical Association*  
*Journal of the Royal Statistical Society: Series C*  
*Observational Studies*  
*Statistics in Medicine*

### School and Departmental Service

- 2022- Masters in Public Health (online) Admission Committee. Brown School of Public Health.
- 2021- Academic Programs Committee, Department of Biostatistics, Brown University.
- 2021- PhD Admission Committee, Department of Biostatistics, Brown University.
- 2022- Social Media Faculty Coordinator, Department of Biostatistics, Brown University.

### Conference Activities

- 2022 Invited Session Organizer and Chair for “Recent Developments in Probabilistic Machine Learning Methods for Causal Inference”. International Biometrics Conference (IBC) 2022.
- Invited Session Organizer and Chair for “Recent Developments in Probabilistic Machine Learning Methods for Causal Inference”. International Biometrics Conference (IBC) 2022.
- 2022 Student Poster Award Committee, New England Statistical Symposium (NESS) 2022.
- 2022 Outreach Committee, International Conference on Health Policy Statistics (ICHPS) 2023.
- 2021 Program Committee, NeurIPS2021 Workshop “Your Model is Wrong: Robustness and misspecification in probabilistic modeling”
- 2021 Program Committee, ICML2021 Workshop “The Neglected Assumptions In Causal Inference”
- 2021 Co-organizer. “Frontiers of Causal Inference in Data Science: Perspectives from Leaders in Tech and Academia”. University of Pennsylvania.
- 2021 Session Organizer. “Causal inference challenges in health policy decision making”. CMStatistics.
- 2020 Program Committee, NeurIPS2020 Workshop “Consequential Decision Making in Dynamic Environments”
- 2020 Session Chair, “Causal Inference Methods for Health Policy Research. International Conference on Health Policy Statistics”. San Diego, CA. Papers. Eastern North American Region. Philadelphia, PA. American Region. Washington, D.C.

### Other Committee/Board Memberships

- 2021-2022 Stan Governing Body (elected to 1-year term). <https://mc-stan.org/>.

### Professional Memberships

- 2017-pres. American Statistical Association
- 2017-pres. International Biometric Society, Eastern North American Region (ENAR)