

Akira Horiguchi (he/him)



Employment

| | | |
|--|---|----------------|
| Visiting Assistant Professor | Department of Statistics, University of California, Davis | 2024 - Present |
| Postdoctoral Associate | Department of Statistical Science, Duke University | 2021-2024 |
| Advised by Dr. Li Ma and Dr. Cliburn Chan. | | |
| Co-Instructor, Data Science | J.P. Morgan Chase & The Ohio State University | 2019 |
| Graduate Research Assistant | Nationwide Insurance & The Ohio State University | 2018-2019 |
| Statistical Consultant | Department of Statistics, The Ohio State University | 2018 |
| Data Visualization Intern | NORC at the University of Chicago | 2016 |

Education

| | |
|--|----------|
| Ph.D. Statistics, The Ohio State University | Dec 2020 |
| Thesis: <i>Bayesian Additive Regression Trees: Sensitivity Analysis and Multiobjective Optimization.</i> | |
| Advised by Dr. Matthew T. Pratola and Dr. Thomas J. Santner. | |
| M.S. Statistics, The Ohio State University | May 2017 |
| B.S. Mathematics, University of Maryland, Departmental Honors & Gemstone Honors College Citation | May 2015 |
| Thesis: <i>Improving Photovoltaics with High Luminescence Efficiency Quantum Dot Layers.</i> | |
| Advised by Dr. Jeremy N. Munday. | |

Awards & Honors





| | | |
|--|---|------|
| Travel Award for 3rd BNP Networking Workshop in Singapore. | Scientific Committee of Workshop. | 2024 |
| Postdoctoral Professional Development Award. | Awarded annually to five postdocs by the Duke Office of Postdoctoral Services. | 2023 |
| Travel Award for ISBA 2022 World Meeting. | Scientific Committee of World Meeting. | 2022 |
| Student Travel Award for Joint Statistical Meetings. | Quality and Productivity Section, American Statistical Association. | 2019 |
| Travel Award for Industrial Math/Stat Modeling Workshop. | The Statistical and Applied Mathematical Sciences Institute (SAMSI). | 2019 |
| Dean's Distinguished University Fellowship. | Covers 1st, 2nd, and final year. The most prestigious fellowship (at the time) awarded by the Graduate School at The Ohio State University. | 2015 |
| Undergraduate Researcher of the Year. | Awarded annually to a handful of undergraduates by the Maryland Center for Undergraduate Research, University of Maryland. | 2014 |

Publications


Peer-reviewed journal articles

- ▷ **H., A.**, Chan, C., and Ma, L. *A tree perspective on stick-breaking models in covariate-dependent mixtures.* 2024 Bayesian Analysis, to appear.
- ▷ **H., A.**, Santner, T.J., Sun, Y., and Pratola, M.T. *Using BART to Perform Pareto Optimization and Quantify its Uncertainties.* 2022 Technometrics, Special Issue on Industry 4.0
- ▷ **H., A.**, Pratola, M.T., and Santner, T.J. *Assessing variable activity for Bayesian regression trees.* 2021 Reliability Engineering & Safety System, Special Issue on Sensitivity Analysis of Model Outputs

Preprints and technical reports

- ▷ Luo, H., H., A., , and Ma, L. *Efficient Decision Trees for Tensor Regressions*. Submitted. 
- ▷ H., A., Ma, L., and Szabó, B.T. *Sampling depth trade-off in function estimation under a two-level design*. Submitted. 
- ▷ H., A. and Pratola, M.T. *Estimating Shapley Effects in Big-Data Emulation and Regression Settings using Bayesian Additive Regression Trees*. Submitted. 
- ▷ Arokiasamy, D., Damiano, L., Dao, M., Gailliot, S., H., A., Kesawan, R., Xu, Y., Kaufeld, K., Dorn, M.F., Reich, B., Guan, Y. *Hurricane Strikes Again! Forecasting Power Outages for Tropical Cyclones*.
2019 SAMSI Industrial Mathematical & Statistical Modeling Workshop 

Open source projects

- ▷ Contributed to the Open Bayesian Trees (OpenBT) project. 

Presentations

- ▷ Invited talk – *Sampling depth trade-off in function estimation under a two-level design*.
2024 Bayesian Nonparametrics Networking Workshop. Singapore.
- ▷ Talk – *Tree stick-breaking priors for covariate-dependent mixture models*.
2024 IMS-NUS Workshop on Interpretable Inference via Principled BNP Approaches in Biomedical Research and Beyond. Singapore.
- ▷ Contributed poster – *Sampling depth trade-off in function estimation under a two-level design*.
2024 World Meeting of the International Society for Bayesian Analysis. Venice, Italy.
- ▷ Seminar talk – *Sampling depth trade-off in function estimation under a two-level design*.
2024 Department of Decision Sciences, Bocconi University. Milano, Italy.
- ▷ Contributed talk – *Sampling depth trade-off in function estimation under a two-level design*.
2023 j-ISBA Bayesian Young Statisticians Meeting. Online.
- ▷ Contributed talk – *Assessing variable activity for Bayesian regression trees*.
2023 Fall Technical Conference. Raleigh, NC.
- ▷ Invited talk – *Posterior contraction rates for a BART-based estimator of Shapley effects*.
2023 Joint Statistical Meetings. Toronto, Canada.
- ▷ Contributed talk – *Tree stick-breaking priors for covariate-dependent mixture models*.
2022 13th Conference on Bayesian Nonparametrics (BNP13). Puerto Varas, Chile.
- ▷ Invited talk – *Using BART to Perform Pareto Optimization and Quantify its Uncertainties*.
2022 Fall Technical Conference. Park City, UT.
- ▷ Invited talk – *Using BART to Perform Pareto Optimization and Quantify its Uncertainties*.
2022 World Meeting of the International Society for Bayesian Analysis. Montréal, Canada.
- ▷ Contributed poster – *Tree stick-breaking priors for covariate-dependent mixture models*.
2022 World Meeting of the International Society for Bayesian Analysis. Montréal, Canada.
- ▷ Contributed talk – *Using BART for Multiobjective Optimization of Multiple Noisy Objectives*.
2021 Quality and Productivity Research Conference. Tallahassee, FL.
- ▷ Contributed talk – *Assessing variable activity for Bayesian regression trees*. Moved online due to COVID-19.
2021 World Meeting of the International Society for Bayesian Analysis.
- ▷ Talk – *A flexible regression model for flow cytometry data*.
2021 Duke Center for Human Systems Immunology (CHSI) Virtual Symposium. Durham, NC.
- ▷ Contributed talk – *Assessing variable activity for Bayesian regression trees*. Moved online due to COVID-19.
2020 13th International Conference of the ERCIM WG on Computational and Methodological Statistics.
- ▷ Contributed talk – *Assessing variable activity for Bayesian regression trees*. Moved online due to COVID-19.
2020 Joint Statistical Meetings. Philadelphia, PA.
- ▷ Contributed talk – *Assessing variable activity for Bayesian regression trees*. Cancelled due to COVID-19.
2020 Spring Research Conference, Oakland University. Rochester, MI.
- ▷ Contributed poster – *Comparing Variance-Based and Count Methods for Assessing Variable Activity in BART*
2019 Joint Statistical Meetings. Denver, CO.

- ▷ Talk – *Increasing Solar Cell Efficiency with a Spin-Coated Layer of Quantum Dots in PLMA*.
2015 Team Thesis Conference, University of Maryland. College Park, MD.
- ▷ Talk – *Transcription Factors and Cascade Network*.
2014 Summer Undergraduate Research Symposium, Virginia Tech. Blacksburg, VA.
- ▷ Contributed talk – *No-Analog Communities in Space and Time*.
2013 NIMBioS Undergraduate Conference, University of Tennessee. Knoxville, TN.

Applied Research Experience

| | |
|--|-----------|
| SAMSI Industrial Math/Stat Modeling Workshop for Graduate Students | 2019 |
| North Carolina State University. Raleigh, NC | |
| NSF Research Experiences for Undergraduates | 2014 |
| Biocomplexity Institute of Virginia Tech. Blacksburg, VA. | |
| Bill Fagan Lab, Undergraduate research assistant University of Maryland. College Park, MD. | 2013-2014 |
| Munday Lab, Gemstone Honors Program University of Maryland. College Park, MD. | 2012-2015 |

Teaching

Reference: (SP)=Spring (AU)=Autumn e.g. (SP19)=Spring 2019

The Ohio State University

| | |
|--|---------------------------|
| BUSMGT 7256: Tools for Data Analysis | Co-instructor (SP19) |
| This course is designed to introduce students to commonly used software programs in data science and improve students' problem solving skills and logical thought processes. Students will be exposed to R, SAS, and SPSS. | |
| STAT 5760: Statistical Consulting Support from the SCS | Teaching assistant (SP18) |
| Graduate or undergraduate students enrolled in this course will work with a graduate student consultant employed by the Statistical Consulting Service (SCS) for the purpose of making progress on their thesis or dissertation. | |
| STAT 6301: Probability for Statistical Inference | Grader (AU17) |
| Introduction to probability, random variables, and distribution theory; intended primarily for students in Master of Applied Statistics (MAS) degree program. | |
| STAT 5302: Intermediate Data Analysis II | Grader (AU17) |
| The second course in a two-semester sequence in data analysis covering simple linear regression (inference, model diagnostics), multiple regression models, variable selection, model selection, two-way ANOVA, mixed effects model. | |

Service to Profession

Referee for

| | |
|---|----------------|
| Journal of Machine Learning Research | 2024 |
| Complex & Intelligent Systems | 2024 × 3 |
| Journal of Computational and Graphical Statistics | 2022, 2024 |
| Journal of the American Statistical Association | 2022, 2023 × 2 |

Service to Scientific Societies

| | |
|--|------|
| Reviewer for ASA-SBSS student paper competition | 2024 |
| Scientific committee for j-ISBA Bayesian Young Statisticians Meeting | 2023 |
| Ad hoc committee on junior awards and support offered by ISBA | 2021 |

Service to Department / University

| | |
|--|------------|
| Judge for ASA DataFest at Duke | 2023, 2024 |
| Presented research to prospective graduate students at Grad Info Day at Ohio State | 2020 |

| | |
|--|------------|
| Panelist of the funding and internship session for Grad Info Day at Ohio State | 2018, 2019 |
| Volunteered at math booth for Maryland Day | 2014, 2015 |
| President of Pi Mu Epsilon Math Honor Society, University of Maryland chapter | 2013-2014 |

Miscellaneous

| | |
|---|------|
| Mentor for 2nd Community College DataFest | 2023 |
|---|------|