

Beomjo Park

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RESEARCH INTERESTS

I am broadly interested in robust statistical inference which could better accommodate the model misspecification and data corruption. My research lies in associated statistical learning theory and various interdisciplinary applications.

EDUCATION

- AUG 2018 – **Carnegie Mellon University**, Pittsburgh, PA
AUG 2023 Ph.D. in STATISTICS & DATA SCIENCE
(Co)Advisors: Sivaraman Balakrishnan & Larry Wasserman
- SEP 2016 – **Korea University**, Seoul, Korea
AUG 2018 M.Sc. in STATISTICS
Thesis: Bayesian Hierarchical Time-Varying Mixed Effect Model | Advisor: Taeryon Choi
- MAR 2010 – **Korea University**, Seoul, Korea
AUG 2016 B.Sc. in INDUSTRIAL MANAGEMENT ENGINEERING & B.Ec. in STATISTICS (Double Major)

RESEARCH EXPERIENCES

- MAY 2022 – **Data Scientist Intern, Google LLC**, Mountain View, CA
AUG 2022
 - Quantified the causal effect of Ad quality on user engagement by analyzing YouTube session data.
 - Proposed an improved counter metric accounting for the causal structure of user engagement.
- JUL 2020 – **Graduate Researcher, Carnegie Mellon University**
PRESENT
 - Developed universal inference methods for constructing batch and sequential confidence sets accounting for model misspecification and data corruption [6][7].
- JAN 2019 – **Graduate Researcher, Carnegie Mellon University**
JUL 2021
 - Constructed spatio-temporal heat transport field of global oceans from large-scale autonomous profiling float observations that are partially missing, heterogeneous, and sparsely distributed [1].
 - Delivered insight into climatological phenomena by collaborating with domain scientists.
- SEP 2016 – **Graduate Researcher, Korea University**
JUL 2019
 - Researched hierarchical Bayesian model representations and nonparametric mixture processes.
 - Tailored methods to a meta-analysis in medical studies [2] and functional data analysis.
 - Implemented and assessed model selection criteria for scalable Variational inference [3][5].
 - Enhanced and reviewed the end-user application and built discipline-specific worked examples [4].
- JUL 2016 – **Research Assistant, NCSOFT (NLP lab)**, Korea
DEC 2016
 - Extracted key features and importance affecting individual players' seasonal performance by analyzing Korea Baseball Championship historical data with a hierarchical Bayesian latent model.

HONORS AND AWARDS

- AUG 2023 Student paper award by Statistical Learning and Data Science Section, American Statistical Association.
- AUG 2022 Outstanding intern presentation by YouTube Ads QUADS team, Google LLC.
- MAY 2022 2021-2022 PhD TA of the year by Dept. of Statistics, Carnegie Mellon University.
- NOV 2017 SG graduate student paper presentation award (3rd place) by the Korean Statistical Society.
- FALL 2015 National Science Scholarship by Korea Student Aid Foundation.
- MAR 2011 –
AUG 2016 High Honors (with scholarship) by Korea University.

PUBLICATIONS

- [1] **Park, B.**, Kuusela, M., Giglio, D. & Gray, A. (2022) Spatio-Temporal Local Interpolation of Global Ocean Heat Transport using Argo Floats: A Debiased Latent Gaussian Process Approach. *Annals of Applied Statistics*
- [2] Jo, S., **Park, B.**, Chung, Y., Kim, J., Lee, E. & Choi, T. (2021) Bayesian semiparametric mixed effects models for meta-analysis of literature data: An application to cadmium toxicity studies. *Statistics In Medicine*.
- [3] Lim, D., **Park, B.**, Nott, D. J., Choi, T., & Xueue, W. (2020) Sparse signal shrinkage and outlier detection in high-dimensional quantile regression with variational Bayes. *Statistics and Its Interface*.
- [4] Jo, S., Choi, T., **Park, B.**, & Lenk, P.J. (2019) `bsamGP`: An R Package for Bayesian Spectral Analysis Models using Gaussian Process Priors. *Journal of Statistical Software*.
- [5] Ong, V. M., Mensah, K. M., Nott, D. J., Jo, S., **Park, B.**, & Choi, T. (2017) A variational Bayes approach to a semiparametric regression using Gaussian process priors. *Electric Journal of Statistics*.

PREPRINTS

- [6] **Park, B.**, Balakrishnan, S. & Wasserman, L. (2022) Robust Universal Inference.
▶ Winner of ASA Statistical Learning and Data Science Student Paper Award.
- [7] **Park, B.**, Balakrishnan, S. & Wasserman, L. (2023) Nonparametric Functional Estimation under Contamination.

CONFERENCE PRESENTATIONS

- Park, B.**, Balakrishnan, S. & Wasserman, L. (Aug. 2023) Robust Universal Inference. *JSM*, Toronto, Canada.
- Park, B.**, & Kuusela, M. (Aug. 2020) Spatio-Temporal Local Interpolation for Quantifying Global Ocean Heat Transport from Autonomous Observations. (Contributed Talk) *JSM*, virtual.
- Park, B.**, & Choi, T. (Jul. 2018) Bayesian Hierarchical Varying-coefficient Mixed Model. (Poster session) *The third East Asia Chapter of ISBA Conference*, Seoul, Korea.
- Park, B.**, & Choi, T. (Nov. 2017) Bayesian Multivariate Hierarchical Semiparametric Mixed Model with Gaussian Process Priors. *The Korean Statistical Society Autumn Conference*, Seoul, Korea.
▶ 3rd place on SG Graduate Student Paper Presentation Award.

TEACHING EXPERIENCES

- Teaching Assistant, Carnegie Mellon University**
- AUG 2018 – Carnegie Mellon Undergrad Research Experience program (Sports Analytics & Optum Camp),
JULY 2023 Introduction to Statistical Inference (head TA), Advanced Methods for Data Analysis (head TA), Probability and Mathematical Statistics (head TA), Statistical Graphics and Visualization, Statistical Computing.
- Teaching Assistant, Korea University**
- SEP 2016 – Mathematical Statistics, Research Methods II, Statistical Computing Methods,
AUG 2017 Elementary Computational Statistics.

LANGUAGES

- Languages: English (Proficient), Korean (Native)
Programming: R[†], Python, MATLAB, C++
‡ Current maintainer of `bsamGP` package on [CRAN](#).