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 corruptions. My research lies in associated statistical learning theory and various interdisciplinary applications.

EDUCATION

Aug 2018 – May 2023 **Carnegie Mellon University**, Pittsburgh, PA
Ph.D. in Statistics & Data Science
Advisors: Sivaraman Balakrishnan & Larry Wasserman

Sep 2016 – Aug 2018 **Korea University**, Seoul, Korea
M.S. in Statistics
Thesis: Bayesian Hierarchical Time-Varying Mixed Effect Model | Advisor: Taeryon Choi

Mar 2010 – Aug 2016 **Korea University**, Seoul, Korea
B.S. in Industrial Management Engineering & B.Ec. in Statistics (Double Major)

RESEARCH EXPERIENCES

Jul 2020 – Present **Graduate Researcher, Carnegie Mellon University**
Developed robust inference methods for constructing batch and sequential confidence sets accounting for model misspecification and data corruption [5].

Jan 2019 – Jul 2021 **Advanced Data Analysis, Carnegie Mellon University**
- Constructed spatio-temporal heat transport field of global oceans from large-scale autonomous profiling float observations that are partially missing, heterogeneous, and sparsely distributed [6].
- Provided insight into climatological phenomena (El Niño) by collaborating with oceanographers.

Sep 2016 – Jul 2019 **Graduate Researcher, Korea University**
- Researched hierarchical Bayesian model representations and nonparametric mixture processes.
- Tailored methods to a meta-analysis in medical studies [1] and functional data analysis.
- Implemented and assessed model selection criteria for scalable Variational inference [2][4].
- Enhanced and reviewed the end-user application and built discipline-specific worked examples [3].

Jul 2016 – Dec 2016 **Research Assistant, NCSoft (NLP lab), Korea**
Extracted key features and importance affecting individual players' seasonal performance by analyzing Korea Baseball Championship historical data with a hierarchical Bayesian latent model.

PUBLICATIONS

[1] 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*.

[2] 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*.

[3] 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*.

[4] 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

[5] **Park, B.**, Balakrishnan, S. & Wasserman, L. (2021) Robust Projection Inference under Model Misspecification.

[6] **Park, B.**, Kuusela, M., Giglio, D. & Gray, A. (2021) Spatio-Temporal Local Interpolation of Global Ocean Heat Transport using Argo Floats: A Debiased Latent Gaussian Process Approach.
In revision at *Annals of Applied Statistics*

CONFERENCE PRESENTATIONS

Park, B., & Kuusela, M. (Aug., 2020) Spatio-Temporal Local Interpolation for Quantifying Global Ocean Heat Transport from Autonomous Observations. *Joint Statistical Meetings*.

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.

HONORS AND AWARDS

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.
Spring 2011 – Spring 2016	High Honors (with scholarship) by Korea University.

TEACHING EXPERIENCES

	Teaching Assistant, Carnegie Mellon University
Spring 22	Introduction to Statistical Inference
Summer 20, 21	Carnegie Mellon Sports Analytics Camp - Undergrad Research Experience program
Spring 20, 21	Advanced Methods for Data Analysis
Fall 19, 20	Probability and Mathematical Statistics
Summer 2019	Statistical Graphics and Visualization
Fall 2018	Statistical Computing
	Teaching Assistant, Korea University
Fall 2017	Mathematical Statistics, Research Methods II
Spring 2017	Statistical Computing Methods
Fall 2016	Elementary Computational Statistics

LANGUAGES

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