

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

## RESEARCH EXPERIENCES

- JUL 2020 – **Graduate Researcher, Carnegie Mellon University**  
PRESENT Developed robust inference methods for constructing batch and sequential confidence sets accounting for model misspecification and data corruption [5].
- JAN 2019 – **Advanced Data Analysis, 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 [6].
  - Provided insight into climatological phenomena (El Niño) by collaborating with oceanographers.
- 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 [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 – **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.

## 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

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- [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

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- 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. (Nov., 2017) Bayesian Multivariate Hierarchical Semiparametric Mixed Model with Gaussian Process Priors. *The Korean Statistical Society Autumn Conference*, Seoul, Korea.  
► 3<sup>rd</sup> place on SG graduate student paper presentation award.

## HONORS AND AWARDS

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|------------------------------|---|
| NOV 2017                     | SG graduate student paper presentation award (3 <sup>rd</sup> place) by the Korean Statistical Society. |
| FALL 2015                    | National Science Scholarship by Korea Student Aid Foundation.   |
| SPRING 2011 –<br>SPRING 2016 | High Honors (with scholarship) by Korea University.   |

## TEACHING EXPERIENCES

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- |               | Teaching Assistant  |                             |
|---------------|---|-----------------------------|
| SUMMER 20, 21 | Carnegie Mellon Sports Analytics Camp - Undergrad Research Experience program |                             |
| SPRING 20, 21 | Advanced Methods for Data Analysis  | Instructor: Ann Lee         |
| FALL 19, 20   | Probability and Mathematical Statistics                                       | Instructor: Valerie Ventura |
| SUMMER 2019   | Statistical Graphics and Visualization  | Instructor: Robin Dunn      |
| SPRING 2019   | Probability and Mathematical Statistics                                       | Instructor: Jing Lei        |
| FALL 2018     | Statistical Computing   | Instructor: Ryan Tibshirani |
|               | <i>Carnegie Mellon University</i>   |                             |
| FALL 2017     | Mathematical Statistics, Research Methods II                                  | Instructor: Taeryon Choi    |
| SPRING 2017   | Statistical Computing Methods   | Instructor: Taeryon Choi    |
| FALL 2016     | Elementary Computational Statistics   | Instructor: Seonghwan Kim   |
|               | <i>Korea University</i>   |                             |

## LANGUAGES

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