Beomjo Park, PhD

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PROFESSIONAL SUMMARY

Research-focused Data Scientist developing and implementing quantitative methodologies, from experiment and measurement design to statistical (causal) inference, for optimization and analysis of large-scale data in diverse applications.

EXPERIENCES

Data Scientist, Research, Google, Mountain View, CA

- Aug 2023 Present • Developed measurement and optimization frameworks for YouTube Ads creative generation and enhancement, achieving a balance between revenue uplift and serving resource costs.
- Design end-to-end diagnostic methods to identify and pinpoint systematic inefficiency at the most granular level within the YouTube Ads serving funnel.

Data Scientist Intern, Google, Mountain View, CA

- Quantified the causal mediation effect of Ad quality on user engagement by analyzing YouTube session data.
- Designed an improved counter metric accounting for the causal structure of user engagement.
- Selected as an outstanding intern presentation in YouTube Ads QUADS team.

Graduate Researcher, Carnegie Mellon University, Pittsburgh, PA

- Jan 2019 Aug 2023 • Developed robust universal inference methods for constructing batch and sequential confidence sets accounting for model misspecification, lack of regularity, and data contamination [6] [7]. Demonstrated the practical application of the methods in causal discovery using causal linear structural equation model.
- 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 a scientific insight into climatological phenomena by collaborating with domain scientists.

Graduate Researcher, Korea University, Seoul, Korea

- Researched hierarchical Bayesian model representations and nonparametric mixture processes.
- Tailored above 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].

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.

HONORS AND AWARDS

Student paper award by Statistical Learning and Data Science Section, American Statistical Association.	Aug 2023
Outstanding intern presentation by YouTube Ads QUADS team, Google.	Aug 2022
PhD TA of the year (2021-2022) by Dept. of Statistics, Carnegie Mellon University.	May 2022
SG graduate student paper presentation award (3 rd place) by the Korean Statistical Society.	Nov 2017
National Science Scholarship by Korea Student Aid Foundation.	Fall 2015
High Honors (with scholarship) by <i>Korea University</i> . Mar 2011 -	- Aug 2016

EDUCATION

Ph.D. in Statistics & Data Science, Carnegie Mellon University, Pittsburgh, PA	Aug 2018 – Aug 2023
M.Sc. in Statistics, Korea University, Seoul, Korea	Sep 2016 – Aug 2018
B.Sc. in Industrial Engineering & B.Ec. in Statistics, Korea University, Seoul, Korea	Mar 2010 – Aug 2016

May 2022 – Aug 2022

Sep 2016 – Jul 2019

Jul 2016 – Dec 2016

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. (2023+) Robust Universal Inference For Misspecified Models. Under Review. arXiv preprint

► 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^{\dagger} , Python, MATLAB, C++
0 0	[†] Current maintainer of bsamGP package on CRAN.