Bumjun Park Ph.D. Student

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👤 Profile

Doctoral student in Biostatistics. Undergraduate statistics major with certificates in mathematics and economic analytics. Interests in spatial, environmental statistics, functional data analysis, and phylogenetic modeling. Proficient in R and Python, competent in SQL and Julia. Native speaker of Korean and English.

🎓 Education

University of Washington Sep 2023 – present
Ph. D. in Biostatistics Seattle, WA

University of Wisconsin-Madison Sep 2018 – May 2023
BS in Statistics, Cert. in Mathematics and Economic Analytics Madison, WI
  (GPA: 4.0/4.0)

Hankuk Academy of Foreign Studies Mar 2015 – Feb 2018
High School Diploma Yongin, South Korea
  (GPA: 4.0/4.0)

💼 Professional Experience

Research Assistant Sep 2023 – present
Professor Eardi Lila, Department of Biostatistics, University of Washington 🔗 Seattle, WA

- Worked on a team led by Professor Mahmud Mossa-Basha, Department of Radiology, UW-Medicine and studied novel statistical methods such as multivariate functional data analysis methods for predicting ischemic stroke.
- Investigated and developed quantitative models for reclassifying Embolic Strokes of Undetermined Source (ESUS) using cerebral vessel wall MRI data.

Data Analyst Sep 2022 – May 2023
Professor Jonathan Patz Lab, Nelson Institute for Environmental Studies, UW-Madison 🔗 Madison, WI

- Assisted researchers and graduate students at the Patz lab in preprocessing and processing data from projects in areas ranging from environmental policy, air quality, or epidemiology.
- Fitted statistical models such as spatial random forests to investigate the relationship between incidences of malaria prevalence in Kenya and vegetation coverage, insecticide-treated net distribution, precipitation, and livestock population.

Research Assistant   May 2022 – May 2023
Professor Chris Zahasky, Department of Geoscience,   Madison, WI
UW-Madison 🔗
- Implemented web-scraping algorithms to collect data of per-
  and polyfluoroalkyl substances (PFAS) concentration levels
  provided by the U.S. Air Force, Wisconsin Department of
  Natural Resources, and other state-level environmental
  agencies.
- Provided data visualizations of the geo-statistical data and
  built an Inhomogeneous Poisson Process model to predict PFAS
  concentration levels after adjusting for opportunistically
  sampled data.

Research Assistant   Feb 2022 – May 2023
Professor Stephen Gammie, Department of Integrative Biology,   Madison, WI
UW-Madison
- Collaborated with three other assistants to clean,
  preprocess, and analyze, RNA-sequencing gene expression data
  of mice with Alzheimer's disease, collected from multiple
  platforms to identify differentially expressed genes.
- Collected gene expressions data of Parkinson's disease and
  Alzheimer's disease patients, wrote and implemented
  programming methods to process the data, and fitted a
  machine learning classification model by identifying top-
  scoring differential gene pairs.

Aviation Control, Squadron Leader   Sep 2019 – Jul 2021
2nd Squadron, 31st Air Defense and Control, Republic of Korea   Osan, South Korea
Air Force
- Served as the squadron leader, leading and representing 20
  servicemen of the 2nd Control Squadron.
- Interpreted RADAR and GPS data and communicated with flight
  agencies to identify aircraft. Regularly presented and
  explained aviation data to other military officials and
  civilian pilots.

📖 Publications and Presentations

B. Park, H. Kang, W. Gnesda, and C. Zahasky. Groundwater   Mar 16, 2023
Contamination of Per- and Polyfluoroalkyl Substances in the
United States - Insights from an Ecological Sampling Bias
Correction Method
American Water Resources Association - Wisconsin Section,
Reconnecting with Wisconsin's Water and Water Scientists
  Poster presentation of research project displaying a PFAS
  contamination risk map, applying bias correction methods of
  observer biases in echological sampling.

B. Park, W. Gnesda, and C. Zahasky. Groundwater Contamination Nov 07, 2022
of Per- and Polyfluoroalkyl Substances in the United States ——
Insights from a Random Forest Model
Water@UW-Madison Fall Art & Poster Session
  Poster presentation of research project displaying a national
  risk map of PFAS contamination.

T. Leffler, R. Hoffman, B. Park, J. Patz. Malaria Risk and Forest Cover Change in Kenya: A Geospatial Analysis   Nov 02, 2022
Planetary Health Alliance Annual Meeting 2022
  Poster presentation inspecting the relationship between vegetation and Malaria in Kenya for which statistical analyses and visualizations were provided.

🎖 Awards

UW-Madison Undergraduate Scholarship for Summer Study   Apr 28, 2022

Wisconsin Alumni Association Korea Chapter (WAAK) Scholarship   Jun 27, 2018

Dean's List
  2018 Fall, 2019 Spring, 2021 Fall, 2022 Spring, 2022 Fall, 2023 Spring

🧠 Skills

R Programming   ● ● ● ● ●
Data visualization (ggplot2, plotly), processing (dplyr), Bioconductor packages(limma, GEOquery), R Markdown documenting, etc.

GIS   ● ● ● ● ○
Processing raster or vector data for geostatistical analyses such as Triangulated Irregular Network, and formatting the data for use in R or Python

Python Programming   ● ● ● ● ○
Data processing (pandas), visualization (seaborn), Uniform Manifold Approximation and Projection etc.

SQL   ● ● ○ ○ ○
Querying and joining relational databases

📄 Certificates

Certified Associate in Python Programming
🔗
Python Institute

📚 Courses

STAT512: Statistical Inference
  Fall 2023 / Instructor: Ema Perkovic

STAT513: Statistical Inference
  Winter 2024 / Instructor: Zaid Harchaoui

BIOST514: Biostatistics I
  Fall 2023 / Instructor: Ken Rice

BIOST515: Biostatistics II
  Winter 2024 / Instructor: Amy Willis

BIOST533: Theory of Linear Models
  Spring 2024 / Instructor: Richard Guo

BIOST540: Longitudinal and Multilevel Data Analysis
  Spring 2024 / Instructor: Gary Chan

BIOST555: Statistical Methods for Spatial Epidemiology
  Winter 2024 / Instructor: Jon Wakefield

BIOST561: Computational Skills for Biostatistics
  Spring 2024 / Instructor: Kevin Lin