

# Byungho Lee

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## Academic Experience

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### Michigan State University, MI, US

**Ph.D. in Computer Science and Engineering (CSE)**

**Aug. 2022 – 2025**

**Ph.D. in Ecology, Evolution, and Behavior (EEB) program**

- Advisor: Dr. Kevin J. Liu
- Research Area: Statistical Inference & Learning in Phylogenetics & Phylogenomics
- Teaching Assistant: Data Structure, Algorithms, Big Data Analysis, Machine Learning, AI

### Stony Brook University, NY, US

**M.S. in Applied Mathematics and Statistics**

Sep. 2020 – May 2022

- Established solid backgrounds on Statistics / Biostatistics
- Interdisciplinary Studies on: Machine Learning / Computer Vision

### Stony Brook University, NY, US

**B.S. in Applied Mathematics and Statistics**

Jan. 2019 – Dec. 2020

- Advisor: Dr. Hongshik Ahn
- Research Area: Statistical Analysis on multiple regression models

### Stony Brook University, NY, US

**B.S. in Technological Systems Management**

Mar. 2014 – Jan. 2019

- Teaching Assistant: Applied Calculus, Computer Science Principles (Python)

## Research Experience

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### Liu Lab, MSU

*Research Assistant under Dr. Kevin Liu*

**Aug. 2022 – 2025**

- Focus on developing new algorithm in biomolecular (genomic) sequence analysis
- Study statistical improvement on the phylogenetic support estimation

### Biostatistics Research Lab, SUNY Korea

*Research Assistant under Dr. Koh*

Jan. 2022 – Aug. 2022

- Understand and analyze Ecologically and Taxonomically on human microbiome data
- Manage and apply Survival Analysis in the team

### Dpt. of Applied Mathematics and Statistics, SUNY Korea

June 2021 – Aug. 2021

*Graduate Research Assistant under Dr. Cao*

- Assist and study Mathematics in Machine Learning

### Dpt. of Applied Mathematics and Statistics, Stony Brook University

*Undergraduate Research Student under Dr. Hongshik Ahn*

Jan. 2020 – May 2020

- Studied, applied, and evaluated multiplied Theoretical Statistics
- Analyzed and predicted effects on Heart Failure with multiple regression models on the Kansas City Cardiomyopathy Questionnaire data

## Journal and Conference Publications

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1. J. Zheng, W. Wang, **B. Lee**, and K. J. Liu, "RAWR v1.0: a software suite for phylogenetic support estimation and other sequence-aware RAndom Walk Resampling tasks", to appear in F1000Research.
2. **B. Lee** and K. J. Liu, "A Statistical Optimization Technique to Inform Statistical Resampling Assessments of Phylogenetic Reconstruction Reliability," 2024 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), Lisbon, Portugal, 2024, pp. 6701-6709, doi: 10.1109/BIBM62325.2024.10822795.
3. Kolba, N., **Lee, B.**, Tannous, H., Bilfinger, T., & Shroyer, A. (2023). Preoperative mental illness and postoperative atrial fibrillation in cardiac surgery patients: Identifying a vulnerable population. *Journal of Clinical and Translational Science*, 7(1), E15. doi:10.1017/cts.2022.493
4. Gu, W.; Koh, H.; Jang, H.; **Lee, B.**; Kang, B. MiSurv: An Integrative Web Cloud Platform for User-Friendly Microbiome Data Analysis with Survival Responses. *Microbiol. Spectr.* **2023**, *10*, e05059-22.

## Accepted Manuscripts / Preprints

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## Reviewed Journals/Conferences

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ACM BCB 2023

ISBRA 2023

IEEE BIBM 2024

## Fellowships/Scholarships

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EEB 2022 Graduate Recruitment Fellowship

EEB 2023 Graduate Summer Fellowship

## Work Experience

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### **Biostatistics Lab, SUNY Korea**

Jan. 2022 – Aug. 2022

Research Intern

- Develop an Integrative Web Cloud Platform for Microbiome Data Analysis with Survival Responses

### **Cancer Center, Stony Brook Medicine**

Feb. 2022 – May 2022

Senior Research Aide

- Statistical analysis on Prostate Cancer Data from SPARCS (NY Gov)

### **Artillery, Republic of Korea**

Sergeant, Fire Direction Center (FDC)

Apr. 2017 – Jan. 2019

- Served as Vertical-Horizontal Control Operator (VCO & HCO), Computer (COM)
- Various statistical operations and calculations manually and automatically
- Various statistical analyses on data from cumulative gunnery exercise results
- Educating successors on theoretical backgrounds, formulas, and tactical skills

## Projects

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### **Dpt. of Computer Science and Engineering, Michigan State University**

Aug. 2023 – Dec. 2023

- Statistical Large Language Model on evaluating AI-generated texts

### **Dpt. of Applied Mathematics and Statistics, Stony Brook University**

Aug. 2021 – Dec. 2021

- Machine Learning Project on Transfer Learning from Computer Vision

Jan. 2020 – May 2020

- Regression Analysis Project on predicting environmental and genetic effects based on paper by Caspi et al.

Sep. 2020 – Dec. 2020

- Regression Analysis Project using R
- Failure & Survival Data Analysis Projects on leukemia data using R

Jan. 2021 – May 2021

- Categorical Data Analysis Project on Titanic Data
- R package project based on the paper by Professor Pei Fen Kuan

## Software/Analytic Skills

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**Python, R, Java, SAS,**

**Statistical / Phylogenomic / Comparative Genetic Analysis**

## Certificate

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**Advanced Graduate Certificate in Data & Computational Science, Stony Brook University**

**AWS Academy Cloud Foundations, AWS Academy Graduate**