Sungmin Ji

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Research interests
Statistical modeling in Ecological and Evolutionary biology, Statistical methods with high-dimensional variables.

Education

University of Arizona   Tucson, AZ, US

Ph.D. in Statistics   Aug. 2023 – Current

Sungkyunkwan University   Seoul, ROK
M.S. in Statistics   Mar. 2021 – Feb. 2023
Advisor: Dr. Seyoung Park (ishspsy@skku.edu) (website)

Korea University   Seoul, ROK
B.S. in Biotechnology and [1]Ecological and Evolutionary Biology
[2]Mar. 2012 – Feb. 2020

Publications

Forthcoming

Ji, S.. Instar determination by constrained gaussian mixture models according to Dyar's rule. preprint

Published
Nguyen, H. Q., Kim, E., Bae, Y., Chae, S., **Ji, S.**, Heo, J., … Jang, Y. (2022). An effective method for accurate nymphal-stage delimitation of the cicada Hyalessa fuscata. *Journal of Asia-Pacific Entomology*, 25(3), 101952. doi

Ji, S., Sung, M., Kim, J., Park, J., Kim, H., and An, K. (2020). Fish distribution and community characteristics of agricultural waterways in the southern region of Korean watersheds. *Korean Journal of Environmental Biology*, 38(1), 146-159. doi

Nguyen, H. Q., Serret, H., Bae, Y., **Ji, S.**, Chae, S., Kim, Y. I., … Jang, Y. (2020). Not all cicadas increase thermal tolerance in response to a temperature gradient in metropolitan Seoul. *Scientific reports*, 10(1), 1-12. doi

Research experience
Novel statistical methods for high-dimensional complex data analysis
Jan. 2022 – Feb. 2023

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[1]Double Major with the student designing program: coursework on a specific topic designed by a student and his mentor
[2]Including a leave of absence due to military service in the ROK Navy (May 2014 – Apr. 2016)

Mentor: Dr. Seyoung Park (Sungkyunkwan University)
High-dimensional data analysis with structural assumptions for modeling multivariate drug sensitivity data.

Department of Physiology, Ajou University Medical Center
<div align="right">Dec. 2020 – Feb. 2021</div>

Mentor: Dr. Hyun Goo Woo (Ajou University) (hg@ajou.ac.kr)
Uploading data (Next-generation Sequencing Data) on the Bio-data platform of the ROK, collecting CCI (Cell-Cell Interactions in the tumor microenvironment) data by searching the literature.

2018 Wildlife Research Programs at **The Biodiversity Foundation**
<div align="right">Sep. 2017 – Sep. 2018</div>

Grants: 3,000,000 KRW ($ 2,500)
Mentor: Dr. Kwang Guk An (Chungnam University) (kgan@cnu.ac.kr)
Experiment design, fieldwork, and data analysis about freshwater fish in agricultural waterways.

Biodiversity and Ecology Laboratory   May 2017 – Jan. 2018
Mentor: Dr. Yeon Jae Bae (Korea University) (yjbae@korea.ac.kr)
Fieldwork and data analysis of benthic macroinvertebrates in World cup park (Outsourced by Seoul Metropolitan Government).

Animal Communication Laboratory   Jan. 2014 – Mar. 2014
<div align="right">Jun. 2016 – Feb. 2017</div>

Mentor: Dr. Yi Kweon Jang (Ewha Womans University) (jangy@ewha.ac.kr)
Fieldwork and animal behavior experiments on the tree frog project (Studying the distribution and behavior of free frog species).
Fieldwork, animal behavior experiments, and molecular biology works on the cicada project (Studying the association of the thermal tolerance of cicadas and urban heat islands).

Presentations

Poster: Constrained Gaussian Mixture Models for Instar Determination and Hypothesis Testing in Accordance with Brooks-Dyar's Rule   Jul. 2024
The Joint Annual Meeting of the Korean Society for Mathematical Biology and the Society for Mathematical Biology 2024, Konkuk University, Seoul, Republic of Korea

Poster: Multivariate single index models for predicting multidimensional drug responses   Oct. 2022
2022 Annual Conference of Korean Society for Bioinformatics, KAIST, Daejeon, Republic of Korea

Poster: Fish community structure of the agricultural waterways and their role as fish habitat   Feb. 2019

2019 Conference of Korea Ecological and Environmental Science, Seoul National University, Seoul, Republic of Korea

Honors and scholarships

$600 GIDP Cater Travel Award by GIDP Administration Office and the GIDP Advisory Council at University of Arizona (Fund for attending *Joint annual meeting of the Korean Society for Mathematical Biology and the Society for Mathematical Biology, June 30-July 5, 2024*) 2024

Outstanding Poster Award by *2022 Annual Conference of Korean Society for Bioinformatics* 2022

Excellence Award in the Poster presentation by *2019 Conference of Korea Ecological and Environmental Science* 2019

Students' Honor in the Fall semester by Korea University 2018

Skills

Programming

Proficient in: R and Julia
Familiar with: SAS, Python, and Matlab.

Professional memberships

Korea University Society of Ecology Apr. 2017 – Dec. 2018

Voluntary student activities, educating about fieldwork and identification of freshwater fishes, executive of club activities.

Other interests

playing piano, cooking, underwater diving.