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JIHYUN KIM

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EDUCATION

Korea University college of medicine	**Seoul, Korea**	**Sep 2021 – Aug 2023 (Expected)**

- Master of Science in Biomedical Sciences

Sookmyung Women's University	**Seoul, Korea**	**Mar 2016 – Feb 2021**

- Bachelor of Science in Statistics; Graduated with a Magna Cum Laude
- Semester high honors (Spring 2016); Leadership scholarship (Spring 2016)

Korea University	**Seoul, Korea**	**Sep 2019 – Dec 2019**

- Concentration in Mathematics (cross-registration)

RESEARCH INTERESTS

- Statistical genetics for analyzing bio bigdata produced by Next-generation sequencing (NGS)
- Polygenic risk scoring for predicting human disease
- Application of causal inference concept on biological sciences

RESEARCH EXPERIENCES

Under/Graduate Research Assistant	**Seoul, Korea**	**Dec 2020 – Present**

Department of Biomedical Sciences, Korea University college of medicine (Advisor: Jungmin Choi, Ph.D.)

- Spatial Transcriptomics: Performed computational analysis for exploration of tumor microenvironment. Analyzed immune and stromal cell changes as the cancer progresses in the spatiotemporal context by integrating single cell and spatially resolved transcriptomes.
- Single cell/Bulk RNA-sequencing: Identified genes and gene sets that were differentially expressed in specific disease mouse model and elucidated the molecular mechanisms behind the disease.

Undergraduate Research Assistant	**Seoul, Korea**	**May 2020 – Nov 2021**

Department of Statistics, Sookmyung Women's University (Minsun Song, Ph.D.)

- Polygenic Risk Score: Calculation of polygenic risk score (PRS) and found additive and multiplicative interaction between PRS and environment variables. Utilized statistical methods such as cross validation to build optimal model sets.
- Differential gene expression: Compared performance of Voom and DESeq2 method, which analyze differential gene expression, including batch effect estimates measured by svaseq, ruvseq in place of true batch variable.

Undergraduate Research Assistant	**Seoul, Korea**	**May 2020 – Jul 2020**

Department of Statistics, Sookmyung Women's University (Young-Geun Choi, Ph.D.)

- Contextual Bandit: Studied about the mathematical concepts of contextual bandit algorithms to develop personalized treatment policies that specify which type of treatment should be offered over time.

TEACHING EXPERIENCES

Spatial transcriptomics workshop	**Gangwon-do, Korea**	**Jan 2023**

Teaching Assistant, The 19th Korea Genome Organization

- Prepared for the lecture materials and classes to effectively deliver workshop concepts effectively.

Spatial transcriptomics workshop	**Online**	**Jan 2023**

Teaching Assistant, 2023 Bioinformatics and Machine learning

- Prepared for the lecture materials and classes to effectively deliver workshop concepts effectively. Recorded a video for online hands-on classes.

Sookmyung Unesco-ICT Education	**Jakarta, Indonesia**	**Jul 2017**

Teaching Assistant, Volunteer

- Organized activities to develop women leadership skill of UNAS University students and helped them learn Arduino, excel, power point presentation

AWARDS SCHOLARSHIP

- 1st place, The 19th Korea Genome Organization Winter Symposium, Jan 2023

- Recipient, Kwanjeong Educational Foundation Scholarship, Mar 2018 – Feb 2021 (4 semesters)
- Recipient, US-Korea WEST Exchange Program Scholarship, Jan 2020 – Mar 2020

PUBLICATIONS

- Zehentmeier S, Lim VY, Ma Y, Fossati J, Ito T, Jiang Y, Tumanov AV, Lee HJ, Dillinger L, Kim J, Csomos K, Walter JE, Choi J, Pereira JP. Dysregulated stem cell niches and altered lymphocyte recirculation cause B and T cell lymphopenia in WHIM syndrome. Sci Immunol. 2022 Sep 23;7(75):eabo3170. doi: 10.1126/sciimmunol.abo3170. Epub 2022 Sep 23. PMID: 36149943; PMCID: PMC9614684.
- Song M, Kwak S, Kim J. Risk prediction and interaction analysis using polygenic risk score of type 2 diabetes in Korean population. Scientific Reports. 2023. Submitted
- Kim J. Spatiotemporally resolved single-cell analyses delineate Early Esophagus Squamous Carcinogenesis. 2023. In manuscript.
- Ciliogenome repressors FOXN2 and FOXN3 maintain T cell quiescence. Science. 2022. Submitted

CONFERENCE PRESENTATION

Poster presentation   **Jeju Island, Korea**   **Oct 2022**
International Conference of the Genetics Society of Korea 2022
- Title: Spatiotemporally resolved single-cell analyses delineate Early Esophagus Squamous Carcinogenesis

Poster presentation   **Gangwon-do, Korea**   **Jan 2023**
The 19th Korea Genome Organization
- Title: Spatiotemporally resolved single-cell analyses delineate Early Esophagus Squamous Carcinogenesis

COURSEWORK/TECHNICAL SKILLS

- Statistics: Mathematical Statistics, Categorical Data Analysis, Statistical Methods For Linear Model, Inferential Statistics
- Mathematics: Stochastic processes, Numerical Analysis
- Biology: Biomedical Data Science Informatics 1, Principle of life
- Programming: R, Python, C. Computer skills: Amazon Web Service, Unix
- Certificates: SAS Advanced Programming for SAS9(2019), SPSS(Social Survey Analysis, 2019)

EXPERIENCES

Kwanjeong Educational Foundation   **Seoul, Korea**   **Sep 2018 – Aug 2019**
Vice student representative
- Organized events to improve relationship between students and student's insight on the academic research
- Organized volunteer activity to help disabled to perform orchestra concert held by Mapo-gu disabled general welfare center

Bigdata analysis student group   **Seoul, Korea**   **Jul 2017 – Oct 2018**
Vice president
- Organized weekly python programming session
- Participated in deep learning and machine learning seminar and gave a presentation about the concept of recurrent neural networks and long short-term memory models

Korea WEST Program   **Seattle, Washington**   **Jan 2020 – Mar 2020 (Early termination: Covid19**
Participant
- Selected into a joint competitive exchange and education program for professional development and English language training by South Korean Ministry of Education and the U.S. Department of State
- Completed an intensive English study course for two months

Bloomberg Academy, Bloomberg LP   **Hong Kong, SAR**   **Jun 2019**
Trainee
- Participated in Bloomberg a week-long program and was trained on Bloomberg terminal functionality such as world equity, real-time news
- Gave a presentation about 'Do we sell or buy the shares of Cathay Pacifc' as a team with using Bloomberg terminal

Korea University Social Service   **Seoul, Korea**   **Dec 2023**
Volunteer
- Prepare for the kits to support to people having difficulties

Seoul Companion   **Seoul, Korea**   **Mar 2019 – Jul 2019**

Mathematics teacher, Volunteer

- Provided mathematics classes to 5th grades of Cheong-pa Elementary school