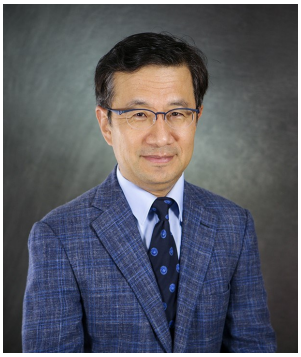
Korean International Statistical Society

Volume 19, Issue 1

March 31st, 2024

KISS Newsletter

President's Corner



Jae-Kwang Kim
President
jkim@iastate.edu

Dear Members and Officers of the Korean International Statistical Society (KISS),

As we step into a new year, I find myself reflecting on the past year with immense gratitude and pride. Serving as the President of KISS has been an incredibly rewarding journey, one that has been made possible by the unwavering dedication and contributions of our officers and members. I would like to extend my heartfelt thanks to each one of you, with a special mention to those who participated in our workshops and the annual meeting.

This year brings with it exciting developments for KISS. I am thrilled to announce the renovation of our homepage, a change we believe will enhance our communication and engagement with members. Furthermore, in a significant step towards fostering collaboration and expanding our reach, KISS will be partnering with the Korean Statistical Society (KSS). We have organized five KISS invited sessions with 20 speakers at the summer KSS conference, which will be held during July 4th to July 6th at Sungkyunkwan University in Seoul, Korea. This collaboration promises to bring forth positive outcomes for both societies. I encourage as many of our members as possible to participate in this conference and contribute to its success.

Looking ahead, we are excited about our annual meeting at the Joint Statistical Meetings (JSM) in Portland. Following the success of last year's meeting in Toronto, which saw a remarkable turnout of 88 members, we anticipate an even larger gathering this year. The annual meeting is a cornerstone of our society's activities, offering a platform for sharing knowledge, networking, and fostering collaborations. If you wish to speak at the annual meeting, please let me know.

Serving as an officer of KISS is a unique and enriching experience, offering unparalleled opportunities for professional and personal growth. As we look to the future, we are seeking volunteers to join the team of officers working alongside our new President, Mi-Ok Kim, from next year. I strongly believe that your time and commitment as a KISS officer will be eventually paid off.

In closing, I want to express my deepest appreciation for your continued membership and support of KISS. Your involvement is the foundation of our community's strength and success. As we move forward, I wish you all the best in your professional endeavors this year.

Together, let's make this year another milestone in the history of KISS.

Warm regards,

Jae-kwang Kim

President, Korean International Statistical Society

KISS Newsletter

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2023-2024

We are seeking members interested in serving as KISS officers, who are passionate about enhancing our community.

KISS Officers' Reports

Financial Report

As of Dec 31, 2023, KISS's balance is $13,924.21 with the net increase of $1,181.32 during Year 2023. The total income of $9,196 includes donation of $5,600 ($3,000 from Statistics Korea, $1,000 from Statistical Ground, Co., $1,100 from Dr. Jae-Kwang Kim, and $500 from Dr. Ji-Hyun Lee), new lifetime membership fee of $2,400, regular/joint membership fee of $660, and KISS summer school fee of $530. The total expense of $8,015 includes JSM annual meeting relating cost of $3,499, web-maintenance and communication cost of $1,214, students awards of $2,700, and miscellaneous fee of $602.

Membership Directors' Report

Total membership: 179 (Lifetime: 78, Annual: 22, Students: 26, KSS co-members: 52, Spouse member : 1)

KISS hosted a session for students pursuing statistics graduate degrees in the U.S. (통계 대학원 유학설명회)
The session was successfully held on Jan 24th virtually with about 60 participants, three panelists, and one moderator. Here are the list of the panelists and the moderator.

Panelists Dr. Jae Kwang Kim, Iowa State University
Dr. Won Chang, University of Cincinnati
Dr. Youjin Lee, Brown University
Moderator: Ph.D. Student Jin Hyung Lee, George Mason University

The panelists were invited to have discussions on the following topics:

- Why do you want to study in the U.S. and pursue a graduate degree in Statistics?
- What are the possible career paths after graduation?
- What were the hardest things you ran into while studying in the U.S.?
- What were the most helpful/encouraging things?
- How can I prepare for applications for graduate schools?
- As an admission committee member/reference letter writer, what are the most important aspects of an application?

After about 60 minutes of discussion on these topics, students asked questions— most of them are asking for more detailed advice on how to prepare for graduate admissions.

Communications Director Report

1. Workshop for Biostatistics career in Academia on 9/15/2023
   This workshop was tailored for students interested in pursuing a career in Biostatistics academia and offers a unique opportunity to learn from and interact with senior biostatisticians from various fields. Our esteemed panelists included:
   Dr. Dongjun Chung - Ohio State University
   Dr. Grace Hong - National Institutes of Health
   Dr. Zhezhen Jin - Columbia University
   Dr. Mi-Ok Kim - UC San Francisco
   Dr. Summer Han - Stanford University (moderator)

2. New KISS website
The KISS is working on updating the new KISS website. It will be announced soon.

Program Chair Report

The 2023 Joint Statistical Meeting (JSM) was held between August 5-10 in Toronto, Canada. KISS sponsored the following sessions.

3 Topic-contributed Sessions

Outstanding Student Paper Awards - Korean International Statistical Society (Organizer/Chair: MinJae Lee, University of Texas Southwestern)

- A Bayesian Convolutional Neural Network-based Generalized Linear Model (Yeseul Jeon, Yonsei University)
- Adjusting for Gene-specific Covariates to Improve False Discovery Rate Estimation in RNA-seq Analysis (Hyeongseon Jeon, Ohio State University)
- Causal Exposure-response Curve Estimation using Generalized Propensity Score Matching in Cohorts with Geographically-varying Study Eligibility Thresholds (Jenny Lee, Harvard University)
- Fast Compartment Model Calibration using Annealed and Transformed Variational Inference (DongKyu Cho, Yonsei University)
- Improving Estimation Efficiency for Left-truncated Competing Risks Regression under the Case-cohort Design (Xi Fang, Medical College of Wisconsin)

Design, Calibration and Uncertainty Quantification of Computer Models (Organizers: Won Chang, University of Cincinnati and Youngdeok Hwang, Baruch College, City University of New York)

- A Dimension-reduced Particle-based Approach for Calibrating a Hydrologic Model for Inland Flooding (Seiyon Lee, George Mason University)
- Adaptive Experiment Design for Contour Estimation From Complex Computer Codes with Both Quantitative and Qualitative Inputs (Chunfang Lin, Queen's University)
- An Efficient Gaussian Process Model for Computer Experiments with Tensor Output (Xinwei Deng, Virginia Tech)
- Bayesian Model Calibration and Sensitivity Analysis for Oscillating Biological Experiments (Youngdeok Hwang, Baruch College, City University of New York)
- Deep Learning-based Uncertainty Quantification for Mathematical Models (Won Chang, University of Cincinnati)

Statistical Methods for Design, Data Analysis, and Application of Spatial Transcriptomics Experiments (Organizer/Chair: Dongjun Chung, Ohio State University)

- Statistical power analysis framework for spatial transcriptomics experiments (Juan Xie, The Ohio State University)
- A hybrid machine learning and regression method for cell type deconvolution of spatial barcoding-based transcriptomic data (Xiting Yan, Yale University)
- Statistical Analysis of Sub-cellular mRNA Localization for Spatial Transcriptomics (Jade Wang, University of Michigan)
- SpatialView: An interactive web application for visualization of multiple samples in spatial transcriptomics experiments (Lingxin Cheng, University of Wisconsin-Madison)

Contributed Poster Session

Korean International Statistical Society (Chair: Jacob Bien, University of Southern California)

- Statistical power analysis framework for spatial transcriptomics experiments (Juan Xie, The Ohio State University
- A new algorithm to find the MLE of Erlang mixtures (KyeongA Yang)
- A Study on Market Size Estimation Method Using Korean Standard Industrial Statistical Classification (Ji Hui Kim)
- Adaptive Gaussian-based oversampling method for imbalanced data depending on the local class overlap (SeungJee Yang)
- Comparative studies of missingness in both covariates and outcome (Hyeri Lee)
- Health Data Science to Understand Cancer Patients' Survival and Survivorship Issues (Hyunsoon Cho)

KISS Officers' Reports

Contributed Paper Session
Recent advances in statistical methods for handling high-dimensional/complex data (Organizer/Chair: MinJae Lee, University of Texas Southwestern)

- Sparse semiparametric discriminant analysis for high-dimensional zero-inflated data (Hee Cheol Chung, UNC Charlotte)
- Regional quantile regression on high dimensional data with FDR control (Sang Kyu Lee, Michigan State University)
- Tolerance Interval Estimations for Dichotomized Variables Derived from Continuous Measurements (Jeongsook Kim, FDA/CDER)
- Fold change network using public gene expression data for early drug development (Kyungin Kim, Sanofi)
- A unified loss function framework for heterogeneous treatment effect estimation (Michael Gorczyca, University of Pittsburgh)
- Application of Statistical Machine Learning Methods to Minimum Cardinality Set Covering Problem (Myung Soon Song, Kutztown University of Pennsylvania)
- KOMPUTE: Imputing summary statistics of missing phenotypes in high-throughput model organism data (Donghyung Lee, Miami University)

The 2023 Summer Conference of the Korean Statistical Society (KSS) was held between June 29- July 1 at Pukyong National University, Busan, Korea. KISS sponsored two sessions.

Session 1: Advanced Statistical Approaches to Handling Complex Data (Organizer: MinJae Lee, University of Texas Southwestern; Chair: Jong-Min Kim, University of Minnesota-Morris)

- Predictive model degrees of freedom in linear regression (Yoonkyung Lee, Ohio State University)
- Unsupervised learning of longitudinal data (Hyunkeun Cho, University of Iowa)
- Multiple imputation and synthetic data generation under unequal probability sampling (Hang Joon Kim, University of Cincinnati)
- Scalable test of statistical significance for Protein-DNA binding changes with insertion and deletion of bases in the genome (Sunyoung Shin, POSTECH, South Korea)

Session 2: Recent Advances in Robust Estimation and Modeling (Organizer: MinJae Lee, University of Texas Southwestern; Chair: Jong-Min Kim, University of Minnesota-Morris)

- Closed-form and bias-corrected estimators for the bivariate gamma distribution (Jun Zhao, Ningbo University, China)
- On the exploration of regression dependence structures in multidimensional contingency tables with ordinal response variables (Daeyoung Kim, University of Massachusetts Amherst)
- Change point detection for the intraday volatility using functional ARCH and conditional Copula (Jong-Min Kim, University of Minnesota-Morris, USA)

IISA 2023 (annual conference of the International Indian Statistical Association) was held between June 1-4 at Colorado School of Mines, Golden, CO. KISS sponsored three sessions.

Session 1: Memorial Session for Dalho Kim (Organizer/Chair: Gyuhyeong Goh, Kansas State University)

- Closed-form and bias-corrected estimators for the bivariate gamma distribution (Jun Zhao, Ningbo University, China)
- Density Divergence (Malay Ghosh, University of Florida)
- A Bayesian framework for image analysis in aging studies (Namhee Kim, Rush University Medical Center)
- Bayesian Predictive Inference for Small Areas Using a Non-Probability Sample with Supplemental Information (Balgobin Nandram, Worcester Polytechnic Institute)

Program Chair Report

Session 2: Recent advances in survey sampling (Organizer/Chair**:** Jae-kwang Kim, Iowa State University)

- An application of modern data integration methods (Jay Breidt, NORC)
- On a modified deep neural network based mass imputation for data integration (Sixia Chen, University of Oklahoma Health Sciences Center)
- Semiparametric adaptive estimation under informative sampling (Kosuke Morikawa, Osaka University)

Session 3: Model-based statistical learning: Method and applications (Organizer: Gyuhyeong Goh, Kansas State University; Chair**:** Jae-kwang Kim, Iowa State University)

- Bayesian modeling for aggregate ordinal outcomes with imprecise categories (Yeongjin Gwon, University of Nebraska Medical Center)
- Model selection in data integration (Takumi Saegusa, University of Maryland)
- Bayesian model-based synthetic control methods (Gyuhyeong Goh, Kansas State University)

International Day of Women in Statistics and Data Science (IDWSDS) was held virtually for 24 hours on October 10. KISS organized and sponsored the following session:

Invited session:

- Recent Developments in Multivariate Regression (Yeonhee Park, University of Wisconsin-Madison)

KISS Webinar Series (2023)

Speaker	Title
Dr. Hyunseung Kang *UW Madison*	Assumption-Lean Analysis of Cluster Randomized Trials in Infectious Diseases for Intent-to-Treat Effects and Network Effects
Dr. Noori Hyun Kaiser *Permanente Washington Health Research*	An augmented likelihood approach that incorporates error-prone auxiliary data into a survival analysis
Dr. Youjin Lee *Brown University*	Policy effect evaluation, spillover effects, and causal inference
Dr. Dongjun Chung *Ohio State University*	Statistical Problems and Approaches for Spatial Genomic Data Analysis
Dr. Dong Yun Kim *NIH*	A fully sequential event rate monitoring method in a clinical trial
Dr. Yongchan Kown *Columbia University*	Data Valuation: Shapley Value and Beyond
Dr. Chan Park *University of Pennsylvania*	A Universal Difference-in-Differences Approach for Causal Inference
Dr. Seonjoo Lee *Columbia University and New York state psychiatric Institute*	Longitudinal Canonical Correlation Analysis

KISS Events in 2023

KISS Annual Meeting at JSM

The 2023 KISS Annual Meeting was held at the JSM on August 7th, 2022 in Toronto, Canada.

1.Dr. Ji-Hyun Lee (ASA-president-Elect, the University of Florida) gave an invited talk and Hello from Korea session was held by Jeong Hoon Jang (Yonsei University)

2.President Jae kwang Kim reported the membership and finance status (as of June 30th 2023);

3.Five recipients received student travel awards.

4.Recognition of past KISS officers.

5.The KISS Annual Meeting attendees had networking over delicious refreshments sponsored by Statistics Korea.

6.Adjourn

KISS Christmas Party

The KISS Christmas Party was held on December 14th virtually. Thanks to Seonjin Kim's excellent Job as as MC was greatly appreciated. President Jae-Kwang made a substantial donation for a gift. Thanks to the party planners Seon-Jin, Mi-Ok, Jin Hyung and Soyoung!

Members' News

Dr. Sung Duk Kim, received 2023 SPAIG Award

Dr. Sung Duk Kim, staff scientist at NIH won the SPAIG award. Please find the interview in the Member's Profile section (page 12 - 14) to learn more about him.

Ph.D. Student SangKyu Lee received ASA SIE 2024 Early Career Award

Predoctoral Fellow Sangkyu lee at NIH was honored with the 2024 Early Career Award by the section on Statistics in Epidemiology (SIE) of the American Statistical Association

Awardees at JSM 2023

Congratulations to the KISS Outstanding Student Award recipients! Please see the Member's Profile section

- DongKyu Cho, Yonsei University
- Hyeongseon Jeon, Iowa State University
- Jenny Lee, Harvard University
- Xi Fang, Medical College of Wisconsin
- Yeseul Jeon, Yonsei University

Upcoming Meetings

2024 Korean Statistical Society (KSS) Summer Conference

The 2024 KSS Summer Conference will be held at Sungkyunkwan University (성균관대학교), Seoul from July 4th to July 6th, 2024. KISS-sponsored sessions will be announced in timely manner.

2024 Joint Statistical Meetings (JSM)

The 2024 JSM will be held in Portland, Oregon between August 4th - 8th, 2024. KISS-sponsored sessions will be announced in timely manner.

KISS Board of Directors Meeting

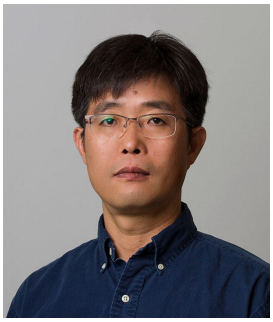
5-7 PM (PT), 04/AUG/2024 (Sun)

KISS Annual Meeting

6-8 PM (PT), 05/AUG/2024 (Mon) * Foods and Beverages will be available from 5:30 PM.

Member's Profile

Sung Duk Kim, 2023 SPAIG Awardee



Dr. Sung Duk Kim
Staff Scientist at NIH

Please introduce yourself to KISSers.

Thank you for having me. I am happy to share my insights from my career with the KISSers. I have been working as a staff scientist in the Biostatistics Branch at the Division of Cancer Epidemiology and Genetics in the National Cancer Institute since September 2016. I previously served as a staff scientist in the Biostatistics and Bioinformatics Branch in the Division of Intramural Population Health Research at the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development. Prior to joining the National Institutes of Health, I spent three years as a postdoctoral fellow at the Department of Statistics of the University of Connecticut. I received a Ph.D. in statistics from the Pusan National University, Korea, in 2004.

How do you get the SPAIG award? What has been the biggest point of winning this award do you think?

The SPAIG award from the American Statistical Association is given to collaborations between organizations in academe, industry, and government that resulted in great contributions to the field of statistics with real-world applications. Nominees can apply by March 1 on their website. During the 14-year-long partnership between UNC, Merck, and NCI, innovative methods for analysis were developed based on datasets from clinical trials conducted by Merck. Along with the involvement of graduate students, this collaboration has resulted in many publications in top statistical journals. Some of the ideas have inspired a few of my projects in biomedical areas. Our collaboration has provided us with unique opportunities for our professional growth, development, and novel collaborative research. This has been a win-win situation for all of us involved.

What was the most challenging thing you've experienced as a statistician?

The most challenging thing for me has been finding statistically interesting motivations from data. In collaborations, scientists with other scientific backgrounds have provided relevant problems in their fields from which I find statistically interesting problems. To solve these problems, I develop new statistical methods. It is important that the methods have practical applications in statistics as well as other fields.

What is your current research area/problems?

My research areas of most interest are Bayesian methods, longitudinal data analysis, high-dimensional data analysis, multivariate meta-analysis, and chemical mixture analysis.

How did you become interested in that research area?

My research areas are related to my current projects. One of my projects is about investigating the relationship between smoking status, amount longitudinal pattern, and lung cancer incidence. It is well established that smoking cessation and the reduction in the amount of smoking both reduce cancer risk, but the effects of different temporal patterns of smoking on cancer risk is less understood. Further, another project is about estimating the effect size distribution of high-dimensional genomic features for survival traits and their total contribution. In an ongoing collaboration between UNC, Merck, NCI, and UConn, multivariate (network) meta-analysis methods are being developed to improve efficiency of drug development so that safe and effective medicines can reach people faster.

What is your future research plan?

I am interested in broadening the scope of my current research to further develop methods for high-dimensional biomarker data and complex environmental exposure data. Identifying a larger number of biomarkers is still a challenging problem. I would like to continue developing novel methods for 'omics data' with complicated structures that are often highly correlated, highly skewed, or heteroscedastic. To understand relationships between chemical exposure and disease incidence, I want to keep working on new approaches for estimating chemical mixture interactions in risk assessment.

Why did you join the statistics profession?

I have always been interested in math. When I was selecting my major for college, statistics seemed exciting because it was a relatively new area for me. I minored in computer engineering, which was interesting to me for similar reasons. I later realized

that my background in computer engineering could be helpful for a career in statistics. Through my bachelor's and Ph.D., I became fascinated with the idea of testing hypotheses and deriving truths hidden within the data.

What is your favorite part of being a statistician?

One time, I had been working on a project for over five years because the statistical problem was especially difficult. When I finally found a solution, my collaborators and I were very excited. The finding was later published in a top journal. Thinking about how the practical applications could benefit the public made me happy. These moments are refreshing for me.

What was the best career advice you had?

My mentors have emphasized the importance of discussion and communication with collaborators. Brainstorming is essential. Even now, my collaborators and I spend a lot of time brainstorming motivations and methods for every project. We always open our door to each other and talk any time about the projects.

What skills are most important for the next generation of statistical professionals?

The most important skill is critical thinking, in my opinion. That means being curious and asking "what," "why," and "how." My minor in computer engineering has been very useful in terms of programming and computational skills, especially for Bayesian methods.

How did you become a KISS member?

When I was a post-doc, my mentor recommended joining the International Chinese Statistical Association in 2004. I saw the members helping each other and working together within their community, and I felt that Korean statisticians would also benefit from having their own society in the United States. I then joined the KISS.

Could you provide one piece of advice that you wish you had known at each stage of your career: as a graduate student, during your post-doc, and in your first job as statistician?

To the graduate student: take as many classes and gain as many experiences as possible.

To the post-doc: cultivate good relationships with the mentors who will guide you throughout the beginning of your career, and seek new, challenging research areas.

To those in their first job as a statistician: do not be afraid of exploring new areas, including those that were not encountered during school; communicate with your collaborators and mentors.

Personal Questions

How do you like to spend your free time away from work?

I enjoy hiking with my wife on mountain trails near my home. There are a variety of paths, one of which has a small mineral spring. They have raspberries in the warmer seasons. It is quiet and a great place to relax.

How do you manage stressful circumstances?

I first get through high-pressure situations, then find outlets to release stress. For example, I usually work out in my home gym, eat delicious foods, and talk with loved ones. I try to calm myself by listening to gospel songs and going to church.

MBTI has been a huge trend in Korea. What is your MBTI?

My MBTI is INFJ. I am very introverted. Public speaking is difficult for me, and I enjoy contemplating in solitude. The 'N' in my personality type shows my imagination, which often comes into play when brainstorming innovative solutions. I tend to be emotional or sentimental; I let my cats sit on my legs for long periods of time. Lastly, I am very careful and make plans to be sure that everything is right.

Member's Profile

Sung Duk Kim, 2023 SPAIG AWARD Awardee - Continued

Where is your favorite place in town?

I love going to H-Mart in Frederick, Maryland. It is near my home, and my family and I often get jajangmyeon and jjamppong. They taste similar to what I had in Korea.

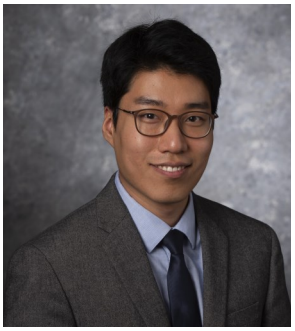
How do you live a productive life?

My morning and evening routines help prepare me for different times of the day. I also try not to waste time by keeping my work and play separate. When I work, I fully focus on work; the same is true for play. I usually do most of my work at night since there are less distractions. Exercising gives me the energy to complete tasks and maintain my mindset.

What are the perks for being a statistician?

My research in statistics allows me to engage with a variety of scientific fields. I can work in any field that I am interested in, such as biology, economics, engineering, and so on. In addition, scientific findings often benefit wide demographics of people. For example, my recent findings illustrate the benefits of reducing smoking quantified in a prospective cohort study.

Chul Moon, KISS Career Development Awardee



Please introduce yourself to KISSers.

My name is Chul Moon. I hold an undergraduate degree in Industrial Management Engineering from POSTECH and a master's degree in economics. I completed my Ph.D. in Statistics at the University of Georgia in 2018 under the guidance of Dr. Nicole A. Lazar. Currently, I am an Assistant Professor in the Department of Statistics and Data Science at Southern Methodist University.

What is your current research area/problems?

I am currently working on two major research areas: statistical shape analysis based on topology and geometry and empirical likelihood methods. In the former, I focus on developing statistical inference and machine learning methods for topological and geometric data analysis with applications to medical, forensic, and geology image data. For the latter, I have developed an empirical likelihood method for Bayesian variable selection, ranked set sampling, and system lifetime data.

What is your future research plan?

I plan to develop statistical learning models in interdisciplinary areas, such as improving accuracy of continuous human cognitive empathy data by functional and geometric data analysis and developing topology-aware deep learning and mathematical modeling for biological systems.

What is your favorite part of being a statistician?

The most rewarding part of being a statistician is that my work could lead to impactful discoveries in various domains. In an increasingly data-driven world, statisticians have the opportunity to contribute significantly to societal, organizational, and technological advancements by providing evidence-based insights.

What skills are most important for the next generation of statistical professionals?

I consider adaptability to be the key skill for future statistical professionals. The rapid evolution of statistics and data science is driven by the surge in data availability, technological enhancements such as computing power and big data platforms, and progress in ML and AI technologies. Thus, being receptive to learning and embracing new techniques and solutions is essential.

How did you become a KISS member?

I first became acquainted with KISS during my attendance at JSM in 2017 and joined as a member.

Could you provide one piece of advice that you wish you had known at each stage of your career: as a graduate student, during your post-doc, and in your first year as an assistant professor?

I believe the advice I received might not be universally applicable. Rather, I suggest reaching out to individuals you admire, who are one or two steps ahead of you, even if your interaction was limited to a single meeting at a conference. In general, excellent mentors are willing to provide assistance.

How do you like to spend your free time away from work?

In my free time away from work, I enjoy dedicating time to home improvement projects, cooking, and baking, often accompanied by music and podcasts.

How do you live a productive life?

I cannot say that I am living an extremely productive life, but I don't let the less productive days get me down. I celebrate the productive moments and the small accomplishments along the way.

Member's Profile

Young geun Kim, KISS Career Development Awardee

Please introduce yourself to KISSers.
Hi, KISSers! I am a data scientist specializing in advanced techniques for analyzing biomedical data. Currently, I serve as a postdoctoral fellow in the Department of Biostatistics and the Department of Psychiatry at Columbia University under the mentorship of Dr. Ying Liu. My educational background includes a triple bachelor's degree in Industrial Engineering, Statistics, and Mathematical Sciences and a Ph.D. in Statistics, advised by Dr. Myunghee Cho Paik at Seoul National University.

What is your current research area/problems?
My current research focuses on developing efficient dimension-reduction tools for multi-modal biomedical data and elucidating complex biological systems through these reduced dimensions.

How did you become interested in that research area?
During my postdoctoral training, I had the opportunity to analyze large-scale, multi-site biomedical data. I discovered that their high-dimensional and multi-modal nature presents significant challenges that hinder advancements in enhancing public health.

What is your future research plan?
I plan to study deep generative models for multi-modal, multi-site data and examine the effects of exposures on the relationship between biomedical data and behavioral measures.

Why did you join the statistics profession?
I took a data mining lecture during my undergraduate studies. I was drawn to how statistical models can provide insights into complicated data, which led me to major in Statistics.

What was the best career advice you had?
Enjoy the process. Sometimes, the tunnel may seem too long but find joy in the journey of becoming the researcher you have dreamed of.

What skills are most important for the next generation of statistical professionals?
I want to emphasize fundamentals. The next generation must deeply understand how larger sample sizes can improve inferences in their problems, recognize exceptions to this principle, and develop solutions for such exceptions. It is crucial to hone skills that enable the practical application of these foundational concepts to the data they encounter.

How did you become a KISS member?
I learned about KISS through friends who participated in the Joint Statistical Meetings (JSM) last year, and I joined KISS while organizing an invited session for this year's JSM.

Could you provide one piece of advice that you wish you had known at each stage of your career: as a graduate student, during your post-doc, and in your first year as an assistant professor?
Think and work like the individuals you aspire to become in your next career stage. Aim to make those around you perceive you as someone who already operates at that level.

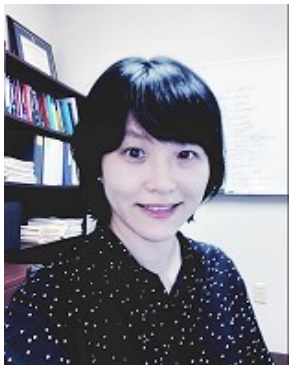
How do you manage stressful circumstances?
I typically assess my habits about stress levels and evaluate my condition. When faced with difficult situations, I make it a point to confront and honestly express my feelings while ensuring I do not linger in that state for too long.

How do you live a productive life?
I focus on prioritizing tasks that must be done over those that would be good to do, and I seek regular feedback from collaborators, even on drafts that are not fully completed.

What are the perks for being a statistician?
Statisticians are aware that their lots of uncertain trials can ultimately converge towards definitive goals.

MinJae Lee, KISS Mid-Career Awardee

Please introduce yourself to KISSers.



First of all, I would like to express my sincere gratitude to the award committee. I am humbled by the recognition. I am an Associate Professor of Biostatistics at Peter O'Donnell Jr. School of Public Health, the University of Texas Southwestern Medical Center (UTSW). I am also affiliated with Harold C. Simmons Comprehensive Cancer Center at UTSW, serving as the Chair of Population Science Protocol Review and Monitoring Committee.

What is your current research area/problems?

My career focus centers around developing and applying innovative statistical methods to solve challenges and issues found in everyday research settings. I have gained extensive experience working at multidisciplinary research units of academic medical centers, collaborating with a large team of clinicians, scientists, epidemiologists, and statisticians of various specialties. I have also been leading my independent methodological research that focuses on the development of new statistical methods/ design and data analysis tools in biomedical/clinical studies.

How did you become interested in that research area?

During my PhD program, as a graduate student researcher I was able to participate in research studies/projects aimed at improving the accuracy of predictive biomarker modeling that requires applications of advanced statistical methods. This experience has led to the development of several new statistical methods that can address various measurement issues and related statistical challenges in analyzing disease biomarker data.

What is your future research plan?

Since currently less is known about how best to address and reduce health disparities, I would like to develop innovative statistical approaches to addressing challenges inherent in developing and implementing cancer prevention and control interventions to overcome cancer disparities in increasingly diverse at-risk populations. Advanced approaches, conducted in the design, implementation, and analysis phase, can reduce the need for more costly, less-accurate methods, thereby improving precision prevention for diverse populations at risk of cancer or related diseases.

Why did you join the statistics profession?

I enjoy collaborative work because I work on a variety of research issues in various environments and learn other researchers' perspectives. Given my integral role on the collaborative projects, I have identified areas requiring methodologic development that will allow me to address clinically relevant questions. I am not just developing new statistical methods for the sake of developing methods, but rather I enjoy providing the statistical tools needed to move the fields forward. This milieu draws attention to statistical issues/challenges and sparks my interest in developing solutions with my statistical expertise.

What was the best career advice you had?

Be active in professional societies. Participate in conferences, programs, services. Do not wait for people to reach out to you, seek out help and guidance when necessary.

What skills are most important for the next generation of statistical professionals?

As statisticians, collaboration with multidisciplinary investigative teams becomes essential to a broad spectrum of research fields. It is important to communicate effectively with experts in vastly different fields.

How did you become a KISS member?

I believe it was 2011 ENAR Spring Meeting, held in Miani, FL. I met up with a couple of wonderful Korean statisticians who introduced me to KISS. I attended KISS annual event at Joint Statistical Meetings (JSM) since then. I appreciate great activities that KISS provides for networking opportunities.

Member's Profile

Dong Jun Chung, KISS Mid-Career Awardee

Please introduce yourself to KISSers.

I am currently an Associate Professor in the Department of Biomedical Informatics at the Ohio State University. My other roles include a faculty in the Biostatistics PhD program, the Director of the Biomedical Informatics Shared Resources, and a faculty in the Immuno-Oncology Informatics Group at the Pelotonia Institute for Immuno-Oncology. I received my Ph.D. degree in Statistics from the University of Wisconsin-Madison under the mentorship of Dr. Sunduz Keles, and my postdoctoral training in Biostatistics at Yale University under the mentorship of Dr. Hongyu Zhao.

What is your current research area/problems?

Biostatistics in a broad sense, and specifically statistical genomics and genetics, which aim to develop statistical models for effective analysis of genomic and genetic data. Specifically, I have focused on developing statistical methods to improve prediction accuracy and interpretability by integrating heterogeneous types of data. Two key topics I have been working on recently include: (i) developing statistical models for analysis of recently emerging spatial genomics data, which generates high-dimensional genomic measurements with information on their spatial locations on the tissue; and (ii) developing statistical models to integrate genome-wide association analysis (GWAS) data for multiple diseases, along with biomedical big data such as publicly available data or text mining data. From the statistical point of view, I especially focus on Bayesian approaches because they provide a natural and flexible framework to integrate different types of measurements (e.g., continuous, count, categorical, and binary) across multiple layers, while also allowing us to incorporate various prior knowledge that is available from the expert knowledge or previous literature.

How did you become interested in that research area?

I started to work on these types of problems during my graduate training in the 2000s. Originally I was interested in machine learning, which was popular at that time, but I wanted to work on problems that have contexts in the real world. The 2000s was also the time that molecular biology started to receive significant attention due to the Human Genome Project and the availability of microarrays. I thought that there should be lots of things that need to be done in that direction. So I started to work on statistical models and machine learning approaches in the context of genomic and genetic data, and that led me to where I am now. This starting point also made my current approach of data-driven research. Since then, about two decades have passed by and I think that I made the right choice at that time and I still enjoy a lot what I am doing. Moreover, as more research is done, researchers have found that there are more problems to solve (actually there is much more to solve than what was already solved). So still there are so many things to do and these days I started to be curious about how much I can do until I retire.

What is your future research plan?

During the next decade, novel types of spatial genomic data will keep emerging. From the statistical point of view, I believe we will have high-dimensional data collected spatially and temporally in 3D space, and there will be multiple of them, which are correlated with each other. The emergence of these new types of data will lead to lots of interesting problems to solve. A long history of spatial statistics and statistical learning research in statistics will remain powerful for this research. On the other hand, one privilege I have is the fact that I am working at the intersection of statistics and biomedical studies. Given this, when I think about the next 20 to 30 years, I also hope to help people more directly with my research and expertise in biostatistics and bioinformatics, e.g., helping develop novel treatments and biomarkers for cancer patients, and diagnosis and treatments for underrepresented groups.

Member's Profile

Dong Jun Chung, KISS Mid-Career Awardee—Continued

What is your favorite part of being a statistician?

Essentially any scientific field requires statistics and, as a result, there are lots of opportunities for statisticians to work with researchers in diverse fields to solve interesting problems. In my case, I work a lot with immuno-oncologists who are developing novel treatments to cure cancer by modifying the immune system in our body. It is fascinating to see that a tumor is cured with new treatments in animal studies and new clinical trials with real cancer patients start based on these findings. I work with them also to understand sex- and race-based differences in cancer risk and response to treatments, which is still significantly under-investigated. I have also been involved in other interesting studies to understand what happens at the molecular level during opioid addiction, and those to develop a new COVID-19 treatment and investigate the impacts of the COVID-19 vaccine for cancer patients during the COVID-19 pandemic. Previously, statisticians were often middle authors who only implemented data analyses, but these days they do more leading roles, e.g., I was one of the corresponding authors for the paper published in Science Immunology, and the first author of the paper published in Molecular Cell. I believe that this will be more common in the future as the data science becomes more important.

What was the best career advice you had?

In my subfield, we write research grants like NIH as the leading person (PI) regularly. In my early days as an Assistant Professor, one senior professor said to me "The only grants you cannot get are the ones you did not apply for." Of course, grant writing can be a pressure. But at the same time, there are lots of opportunities out there and when one is open to these, he/she might have a higher chance to grab these opportunities. Of course, this does not mean that one needs to be distracted by pursuing too many directions. However, in my case, having a more open mind and investigating different opportunities helped me come up with new ideas. Moreover, those efforts made lots of synergy down the road, i.e., they looked very different in the beginning but it turned out that they are all connected. I think this can be true not only for grant writing but also for research in general, i.e., being patient, never giving up, keeping trying, not closing eyes and ears, listening to others, and being open and humble but confident.

What skills are most important for the next generation of statistical professionals?

In general, I think data science will become more diverse and there will be various types of data science in the future, like the huge diversity in biomedical sciences and engineering. Moreover, I think that the improvement of various computing tools will make implementing data analyses even easier than now. With this in mind, I believe that it will be important to find out what makes you unique and distinguishable from others in the data science field. For example, with the more availability of convenient data analysis tools, ones with strong mathematical and statistical understanding can have more strength, analogous to that while everyone in the world uses so many semiconductors every day without recognizing it, there are only a small number of people who can design them. On the other hand, deeper domain knowledge combined with a strong statistical background could be another way to make yourself more unique, e.g., understanding immunology in my case.

How do you manage stressful circumstances?

I like the saying "Please allow me to have the bravery to accept what I cannot change, and the bravery to change what I can change." On one hand, there are often stressful situations from time to time. I think that in these cases, the key is to recognize and solve the issue as soon as possible. The longer I ignored them, the more painful they were down the road. Another important point is to figure out what is the real problem and who can help solve it. On the other hand, sometimes it is also important to accept that there are things I cannot change and just need to go through. If so, I try to accept it as soon as possible, have patience and wait, and take some rest (which is also very important), until it is over.

MBTI has been a huge trend in Korea. What is your MBTI?

My MBTI is INTJ.

Call for Papers

Communications for Statistical Applications and Methods

Communications for Statistical Applications and Methods (CSAM) is an official journal of the Korean Statistical Society and Korean International Statistical Society beginning in 2013. It is an open-access journal and contains original articles dedicated to applied research in various fields of statistics and probability, or contributing to applied statistics through innovative data analysis and interpretation. Articles dealing with statistical education and tutorials are also welcomed. In particular, we are interested in your wonderful ideas for special issues. Please contact one of the editors if you have an idea for a special issue.

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We encourage all KSS and KISS members to submit papers via CSAM to reach this goal in the near future.

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