

Qualifications

- 2013–2018 **Doctor of Philosophy, Statistics**, *University of Maryland, Baltimore County (UMBC)*, Maryland, United States of America, *Dissertation*: Multiple Testing Procedures controlling False Discovery Rate with applications to genomic data.
- 2009–2012 **Master of Science, Statistics**, *University of Philippines, Diliman*, Quezon City, Philippines, *Thesis*: Nonparametric Modeling of Clustered Survival Data.
- 2005–2009 **Bachelor of Science, Statistics**, *University of Philippines, Diliman*, Quezon City, Philippines, *Cum Laude*.

Research Experience

- 2021–2026 **Postdoctoral Research Fellow**, *Biostatistics Group, Computer, Electrical, Mathematical Sciences, and Engineering (CEMSE) Division*, King Abdullah University of Science and Technology (KAUST), Thuwal, Kingdom of Saudi Arabia.
- 2021 **Lead Statistician**, *Biosurveillance through Whole Genome Sequencing of SARS-CoV-2 in the Philippines*, Philippine Genome Center, Quezon City, Philippines.
- 2019–2021 **Lead Statistician**, *Clinical Proteomics for Cancer Initiative: A proteomics-based discovery of non-small cell lung cancer biomarkers and drug targets in the Philippines*, Lung Center of the Philippines, Quezon City, Philippines.
- 2019 **Project Leader**, *Sustainable Development Goals Research for Disability Registration Framework*, Philippine Statistical Research and Training Institute and Philippine Statistics Authority, Quezon City, Philippines.

Teaching Experience

- 2023 **Head Teaching Assistant**, *King Abdullah University of Science and Technology (KAUST) Academy*, King Fahad Security College, Ministry of Interior, Riyadh, Kingdom of Saudi Arabia.
Course Taught: Applied Statistics and Data Analysis
- 2018–2021 **Associate Professor**, *School of Statistics*, University of Philippines, Diliman, Quezon City, Philippines.
Courses Taught: Parametric Statistical Inference, Introduction to Experimental Designs, Multiple Hypothesis Testing, Bayesian Analytics, Computational Statistics
- 2016–2018 **Instructor**, *Department of Mathematics and Statistics*, University of Maryland, Baltimore County, Maryland, United States of America.
Course Taught: Introduction to Probability and Statistics for Scientists and Engineers (Summer 2016, Summer 2017, Winter 2018, Summer 2018)
- 2013–2018 **Graduate Teaching Assistant**, *Department of Mathematics and Statistics*, University of Maryland, Baltimore County, Maryland, United States of America.
Courses Assisted: Statistics with Applications in the Biological Sciences, Introduction to Probability and Statistics for Scientists and Engineers, Introduction to Statistics for the Social Sciences, Applied Calculus, Calculus and Analytic Geometry

- 2012–2013 **Assistant Professor**, *School of Statistics*, University of Philippines, Diliman, Quezon City, Philippines.
Courses Taught: Elementary Statistics, Descriptive Statistics, Mathematics for Statistics
- 2011–2012 **Instructor**, *School of Statistics*, University of Philippines, Diliman, Quezon City, Philippines.
Courses Taught: Elementary Statistics, Descriptive Statistics, Mathematics for Statistics
- 2009–2011 **Instructor**, *Department of Physical Sciences and Mathematics*, *College of Arts and Sciences*, University of Philippines, Manila, Philippines.
Courses Taught: Elementary Statistics, College Algebra and Trigonometry, Introduction to Calculus, Fundamentals of Analysis

Publications

15. Seong, Y., **Gauran, I.**, Kim, H., Ombao, H., & Park, J. (2025) *Classification of Multivariate Functional Data with an application to ADHD fMRI Data*, *Journal of Applied Statistics (JAS)*, *Forthcoming*
14. Rafor, B., **Gauran, I.**, Ombao, H., Lansangan, J. R., & Barrios, E. (2025) *Analysis of experiments with high frequency time series responses and the implications for power and sample size*, *Scientific Reports*, 15(1), 1-25.
13. Toonsi, S., **Gauran, I.**, Ombao, H., Schofield, P., & Hoehndorf, R. (2024) *Causal relationships between diseases mined from the literature improve the use of polygenic risk scores*, *Bioinformatics*, 40(11), btae639.
12. **Gauran, I.**, Park, J., Rattsev, I., Peterson, T., Kann, M., & Park, D. (2022). *Bayesian Local False Discovery Rate for Sparse Count data with application to the discovery of hotspots in protein domains*, *The Annals of Applied Statistics*, 16(3), 1459 – 1475.
11. **Gauran, I.**, Xue, G., Chen, C., Ombao, H., & Yu, Z. (2022). *Ridge Penalization in High-Dimensional Testing with applications to Imaging Genetics*, *Frontiers in Neuroscience*, 16, 351.
10. Yap, J., & **Gauran, I.** (2022). *Bayesian Variable Selection using Knockoffs with applications to genomics*, *Computational Statistics*, 1 – 20.
9. Albao, D., Mercado, M., Lirio, A., Francisco, M., **Gauran, I.**, Melegrito, J., Wad-
 asen, K., Paz-Pacheco, E., Kim, S., Murphy, E., Santos-Acuin, C., David-Padilla, C.,
 Cutiongco-de la Paz, E., & Seielstad, M. (2019) *Methylation Changes in the Peripheral
 Blood of Filipinos with Type 2 Diabetes Suggest Spurious Transcription Initiation at
 TXNIP*, *Human Molecular Genetics*, 28(24), 4208 – 4218.
8. Park, J., & **Gauran, I.** (2019). *Testing the homogeneity of risk differences with sparse
 count data*, *Statistics*, 1 – 23.
7. **Gauran, I.**, Park, J., Lim, J., Park, D., Zylstra, J., Peterson, T., Kann, M. & Spouge, J.
 (2017). *Empirical Null Estimation using Zero – inflated discrete mixture distributions
 and its application to protein domain data*, *Biometrics*, 74(2), 458 – 471.
6. Peterson, T., **Gauran, I.**, Park, J., Park, D., & Kann, M. (2017). *Oncodomains: A
 protein domain-centric framework for analyzing rare variants in tumor samples*, *PLoS
 Computational Biology*, 13(4), p. e1005428.
5. **Gauran, I.**, & Barrios, E. (2017). *Nonparametric modeling of clustered customer
 survival data*, *Communications in Statistics-Simulation and Computation*, 46(1), 603 –
 618.
4. Nalica, A., & **Gauran, I.** (2014). *Modeling Clustered Survival Data with Cured Fraction*,
The Philippine Statistician, 63(2):1 – 8.

3. **Gauran, I.**, & Poblador, M. (2013). *Classification of Congenital Hypothyroidism using Artificial Neural Networks*, The Philippine Statistician, 62(2): 1 – 11.
2. **Gauran, I.** & Poblador, M. (2012). *Classification of Congenital Hypothyroidism in Newborn Screening Using Self-Organizing Maps*, The Philippine Statistician, 61(1): 55 – 68.
1. Poblador, M. & **Gauran, I.** (2012). *Sampling with Probability Proportional to Aggregate Size using Nonparametric Bootstrap in estimating the Total Production Area of Top Cereals and Root crops across Philippine Regions*, The Philippine Statistician, 61(1): 87 – 108.

Manuscripts submitted or under revision

1. **Gauran, I.**, Ombao, H., & Yu, Z. (2024) *Predictive Performance Test based on the Exhaustive Nested Cross-Validation for High-dimensional data*, Journal of Machine Learning Research (JMLR), arXiv:2408.03138
2. **Gauran, I.**, Reyes, P., Barrios, E. & Ombao, H. (2024) *Correlation-Adjusted Simultaneous Testing for Ultra High-dimensional Grouped Data*, Computational Statistics & Data Analysis (CSDA), arXiv:2408.15623

Manuscripts in preparation

1. **Gauran, I.**, Ombao, H., & Yu, Z. *High-dimensional Testing based on Nested Cross-validation in R*, Journal of Statistical Software
2. **Gauran, I.**, Ombao, H., & Yu, Z. *Cauchy Combination Test based on K-fold Cross-validation for High-dimensional data*, Journal of the Royal Statistical Society Series C: Applied Statistics
3. **Gauran, I.**, Ombao, H., & Yu, Z. *A Survey of Cross-Validation Procedures: Confidence Intervals and Hypothesis Testing Methods for Test Error Assessment*, International Statistical Review
4. **Gauran, I.**, Park, D., Ombao, H., & Park, J. *Empirical Null Estimation using Mixture Models for highly correlated data*, Neurolmage
5. Rafor, B., **Gauran, I.**, Ombao, H., Lansangan, J., & Barrios, E. *NeuroNSize: Optimizing Sample Size and Power for testing high-dimensional time series in case-control fMRI studies*, Journal of Statistical Software
6. Manapat, G., **Gauran, I.**, & Ombao, H. *Advancing Zero-Inflated Generalized Poisson Models: From Theory to Practice*

Certification

- 2021 **Online Higher Education Teaching Certificate**, Harvard University Derek Bok Center for Teaching and Learning, Massachusetts, United States of America.

Resource Speaker

- Feb 2025 **AMCS-Stat School Workshop**, Resource Speaker, KAUST, Kingdom of Saudi Arabia, Discussed methods in high-dimensional inference with applications to imaging genetics among top Saudi undergraduate students in mathematics and statistics.

- Nov 2023 **Experimental Design Statistical Workshop**, *Resource Speaker*, KAUST, Kingdom of Saudi Arabia, *Discussed classical concepts in linear models including linear regression, analysis of variance, analysis of covariance, among others.*
- Mar 2023, May 2023 **KAUST Academy Artificial Intelligence Training for the Ministry of Interior**, *Resource Speaker*, Riyadh, Kingdom of Saudi Arabia, *Discussed foundational concepts in probability and statistics including counting techniques, conditional probability and independence, discrete and continuous random variables, expectation and variance, among others.*
- Nov 2022 **High-dimensional Multiple Hypothesis Testing Seminar Series for AGH**, *Resource Speaker*, Krakow, Poland, *Discussed modern ideas in statistical theory by examining simultaneous testing problems in high-dimensional settings and other additional topics such as error rates, error rate controlling procedures, false discovery rates, q-values and knockoffs.*
- May 2022 **Meet the Postdocs video series for KAUST Global Branding and Communications**, *Postdoc Representative*, Thuwal, Kingdom of Saudi Arabia, *Discussed KAUST experience, current role and research, background, and global challenges pursued in the Biostatistics group.*
- Mar 2019 **Western Philippines University Research, Development and Extension Forum**, *Keynote Speaker*, WPU, Puerto Princesa, Palawan, Philippines, *Discussed recent advancements in reproducibility across scientific disciplines.*
- Nov 2018 **PhilHealth Studies Forum 2018**, *Panel Reactor*, Marco Polo Hotel, Ortigas, Manila, Philippines, *Discussed massive reforms in the Philippine health sector by reacting to the provisions of the Universal Health Care Bill before it was signed into law.*
- May 2018 **Advanced Statistical Programming with Rcpp at the US Census Bureau**, *Resource Speaker*, *Joint presentation with Dr. Andrew Raim and Dr. James Livsey*, Silver Hill, Maryland, United States of America, *Discussed fundamentals of using C++ and R together with Rcpp, examples in statistical applications, and some additional topics such as packages with Rcpp and object-oriented programming.*

Recent Presentations

- Mar 2024 **High-dimensional Predictive Performance Test based on the Exhaustive Nested Cross-Validation**, *2024 Eastern North American Region*, Baltimore Marriott Waterfront, Baltimore, Maryland, United States of America.
- Mar 2024 **Testing Homogeneity of Risk Differences and Dominance Effect Measures in Sparse Count Data Analysis**, *7th International Symposium on Biopharmaceutical Statistics*, Hilton Baltimore Inner Harbor, Baltimore, Maryland, United States of America.
- Dec 2023 **Exhaustive Nested Cross-Validation for High-dimensional Testing**, *2023 IMS International Conference on Statistics and Data Science (ICSIDS)*, Centro Cultural de Belém, Lisbon, Portugal.
- Dec 2023 **Predictive Performance Test based on the Exhaustive Nested Cross-Validation for High-dimensional data**, *16th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2023)*, HTW Berlin, University of Applied Sciences, Berlin, Germany.
- Dec 2023 **High-dimensional testing based on exhaustive nested cross-validation**, *3rd Symposium on Modern Statistical Methods: from Data to Knowledge*, AGH University of Science and Technology, Krakow, Poland.
- Dec 2023 **Bayesian Variable Selection using Knockoffs**, *AGH University of Science and Technology Research Seminar*, Department of Applied Mathematics, AGH, Krakow, Poland.

- Nov 2023 **CV-based Predictive Performance Test for High-dimensional data**, *Studencka Konferencja*, AGH University of Science and Technology, via Zoom.
- Nov 2023 **Exhaustive Nested Cross-Validation for High-dimensional Testing in Imaging Genetics**, *KAUST 2023 Workshop on Statistics*, King Abdullah University of Science and Technology, Kingdom of Saudi Arabia.
- Sep 2023 **High-Dimensional Testing in Imaging Genetics**, *Workshop on Advanced Statistical and Machine Learning Methods for Neuroimaging Data Analysis*, School of IT, Monash University Malaysia, via Zoom.
- Sep 2023 **Predictive Performance Test based on the Exhaustive Nested Cross-Validation for High-dimensional data**, *AMCS/STAT Graduate Seminar*, King Abdullah University of Science and Technology, Kingdom of Saudi Arabia.
- Aug 2023 **High-Dimensional Testing in Imaging Genetics**, *Seoul National University, Department of Statistics Graduate Seminar*, via Zoom.
- Jan 2023 **Ultrahigh dimensional data analysis**, *University of the Philippines School of Statistics Research Seminar*, via Zoom.
- Dec 2022 **Cross-Validation for High-dimensional Testing in Imaging Genetics**, *15th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2022)*, King's College London, United Kingdom.
- Dec 2022 **CV-based Predictive Performance Test in Imaging Genetics**, *IMS International Conference on Statistics and Data Science (ICSDS)*, Florence, Italy.
- Nov 2022 **Bayesian local false discovery rate for sparse count data with application to the discovery of hotspots in protein domains**, *AGH University of Science and Technology Research Seminar*, Department of Applied Mathematics, AGH, Krakow, Poland.
- Oct 2022 **CV-based High-dimensional testing in Imaging Genetics**, *Invited Paper Presentation in Computational Statistics*, 15th National Convention on Statistics, Metro Manila, Philippines.
- Aug 2022 **High-dimensional testing in Imaging Genetics**, *University of California, San Francisco Biostatistics Seminar*, Department of Epidemiology & Biostatistics, UCSF, California, United States of America.
- Aug 2022 **Optimal Ridge Penalization in High-Dimensional Testing**, *Joint Statistical Meetings*, Walter E. Washington Convention Center and Marriott Marquis, Washington DC, United States of America.
- June 2022 **Ridge Penalization in High-Dimensional Testing**, *Mathematical, Statistical, and Data Science Webinar Series: PAASE REC 9*, via Zoom.
- Mar 2022 **Ridge Penalization in High-Dimensional Testing with Applications to Imaging Genetics**, *2022 Eastern North American Region*, Marriott Marquis Hotel, Houston, Texas, United States of America.
- Oct 2021 **Registration of Persons with Disabilities in the Philippines: Monitoring and Realizing the Sustainable Development Goals**, *Philippine Statistical Research and Training Institute Research Forum*, via Zoom.
- June 2021 **Bayesian Variable Selection using Knockoffs with Applications to Drug Resistance**, *Mathematical, Statistical, and Data Science Webinar Series: PAASE REC 9*, via Zoom.

Awards Received

- 2020 **University of the Philippines Diliman Centennial Professorial Chair**, *Quezon City, Philippines*.

- 2019 **University of the Philippines Diliman Centennial Professorial Chair**, *Quezon City, Philippines.*
- 2019 **Outstanding Teacher**, *University of the Philippines Diliman, School of Statistics.*
- 2018 **Outstanding Teacher**, *University of the Philippines Diliman, School of Statistics.*
- 2017 **Probability and Statistics Day, Best in Oral Presentation**, *University of Maryland, Baltimore County.*
- 2015 **Outstanding Graduate Teaching Assistant in the Field of Statistics**, *University of Maryland, Baltimore County.*
- 2014 **Probability and Statistics Day, Second Place in Poster Competition**, *University of Maryland, Baltimore County.*
- 2013 **Jan Tinbergen Award for Outstanding Young Statistician**, *International Statistical Institute.*
- 2012 **Outstanding Teacher**, *University of the Philippines Diliman, School of Statistics.*
- 2011 **Outstanding Teacher**, *University of the Philippines Diliman, School of Statistics.*
- 2010 **Outstanding Teacher**, *University of the Philippines Manila, College of Arts and Sciences, Department of Physical Sciences and Mathematics.*

--- Mentoring

- 2023 **George Ringo S. Manapat**, *Characterization of the Zero-inflated Generalized Poisson (ZIGP) Fisher Information Matrix and Estimation of the ZIGP model for the data with missing values*, Master of Science in Statistics, School of Statistics, University of the Philippines, Diliman, Joint advisorship with Prof. Joseph Ryan Lansangan.
- 2022 **Patrick Wincy C. Reyes**, *Correlation-Adjusted Simultaneous Testing for High-dimensional Grouped Data in Epigenetics*, Master of Science in Statistics, School of Statistics, University of the Philippines, Diliman, Joint advisorship with Prof. Erniel Barrios.
- 2021 **Zainab Abdulkarim Homoud**, *Effects of Pharmacotherapy, Neurodevelopment, Sex and Structural Asymmetry on Regional Intrinsic Homotopic Connectivity in Youths with Attention Deficit Hyperactivity Disorder*, Master of Science in Bioengineering, King Abdullah University of Science and Technology, Assistance to Biostatistics Group Primary Investigator Prof. Hernando Ombao.
- 2020 **Sean Oliver M. Escalante**, *Improving Absolute Fit Evaluation in Cognitive Diagnosis Models using Multiple Hypothesis Testing*, Master of Science in Statistics, School of Statistics, University of the Philippines, Diliman, Joint advisorship with Dr. Kevin Carl Santos.
- 2020 **Jurel K. Yap**, *Bayesian Variable Selection using Knockoffs with Applications to Genomics*, Master of Science in Statistics, School of Statistics, University of the Philippines, Diliman, *1st Place: Best Graduate Student Paper Award during the 21st National Faculty-Student Conference on the Statistical Sciences.*

--- Affiliations to present

- 2022 – **Eastern North American Region of the International Biometrics Society.**
- 2021 – **Philippine-American Academy of Science and Engineering.**
- 2017 – **American Statistical Association.**
- 2012 – **Philippine Statistical Association.**

References

1. **Hernando Ombao**, Professor, Statistics Program, Computer, Electrical and Mathematical Science and Engineering (CEMSE) Division, King Abdullah University of Science and Technology (KAUST), hernando.ombao@kaust.edu.sa
2. **Zhaoxia Yu**, Professor, Department of Statistics, University of California, Irvine, zhaoxia@ics.uci.edu
3. **DoHwan Park**, Associate Professor, Department of Mathematics and Statistics, College of Natural and Mathematical Sciences, University of Maryland, Baltimore County (UMBC), dhpark@umbc.edu
4. **Junyong Park**, Professor, Department of Statistics, Seoul National University (SNU), junyongpark@snu.ac.kr
5. **Erniel Barrios**, Professor, Malaysia School of Business, Monash University, Erniel.Barrios@monash.edu