

# JIAE KIM

✉ kim.3887@osu.edu, 🔗 <https://fisher.osu.edu/people/kim.3887>

📍 2100 Neil Avenue, Columbus, Ohio 43210, USA

## EDUCATION

---

### Ph.D. in Statistics

Dec 2020

The Ohio State University, Department of Statistics

Advisors: Yoonkyung Lee, Steven N. MacEachern

Dissertation topics

- The Geometry of Nonlinear Embeddings in Kernel Discriminant Analysis (with Yoonkyung Lee)
- Detection of Common-variance Subspace and its Application to Classification (with Steven N. MacEachern)

### Masters of Mathematical Science

May 2015

The Ohio State University, Department of Mathematics

Advisor: Avner Friedman, Specialization: Mathematical Biosciences

- Thesis: Effects of Surfactant Proteins on Innate Immune System against Tuberculosis Infection

### Masters of Science in Mathematics, 5th year masters degree

Dec 2009

Ewha Womans University

Advisor: Yoonjin Lee

- Specialization: Algebraic Number Theory, Algebraic Coding Theory
- Thesis: Self-dual Code Construction over  $GF(p^k)$  and  $\mathbb{Z}_{p^k}$  via Diophantine Equations

### Bachelor of Science in Mathematics, Minor in Statistics

May 2008

Ewha Womans University, Dean's List Autumn 2006, Spring 2007, Autumn 2007, Spring 2008

## ACADEMIC POSITIONS

---

**Visiting Assistant Professor of Marketing**, Fisher College of Business, The Ohio State University

Aug 2022 - Current

**Visiting Assistant Professor**, Indiana University, Department of Statistics

Jan 2021 - Aug 2022

**Statistical Consultant**, Indiana University, Indiana Statistical Consulting Center

June 2021 - May 2022

## RESEARCH INTERESTS

---

Statistical learning and computational statistics with specific focus on classification, kernel methods, dimensionality reduction, high-dimensional problems, and their applications to quantitative marketing research.

## PUBLICATIONS

---

Jansen, Shae, Edith Apondi, Samuel O. Ayaya, Jiae Kim and Megan S. McHenry (2023) *Growth Anthropometrics as a Metric of Malnutrition Disparities Among Young Children Affected by HIV who are Orphaned Maternally, Paternally, or Totally in Western Kenya: A Retrospective Chart Review*, Global pediatric health, 10. (via Statistical Consulting)

Kim, Jiae. Yoonkyung Lee and Zhiyu Liang (2022) *The Geometry of Nonlinear Embeddings in Kernel Discriminant Analysis*, IEEE Transactions on Pattern Analysis & Machine Intelligence, vol. , no. 01, pp. 1-14, 5555.

MacEachern, Steve and Jiae Kim (2022) *Predictive Modelling and Judgement Post-Stratification*, Book Chapter: Recent Advances on Sampling Methods and Educational Statistics - In Honor of S. Lynne Stokes.

Kim, Jiae and Steve MacEachern (2021) *Forcing a Model to be Correct for Classification*, NeurIPS 2021 Workshops "Your Model is Wrong: Robustness and misspecification in probabilistic modeling"

## WORKING PAPERS

---

*The Geometry of Common Variance Space and its Application to Classification*, Kim, J., MacEachern, S.

*Nonlinear Embeddings in Multi-class Kernel Discriminant Analysis*, Kim, J.

*Archetypal Analysis and Product Line Design*, Liu, Y., Kurz, P., Allenby, G., Kim, J.

## PROFESSIONAL MEMBERSHIP AND SERVICE

---

Member of the American Statistical Association

Member of the Institute of Mathematical Statistics

Reviewer of a paper submitted to Chemometrics and Intelligent Laboratory Systems 2021

Reviewer of papers submitted to Journal of Nonparametric Statistics 2022

Reviewer of papers submitted to Journal of the Korean Statistical Society 2022, 2023

Reviewer of papers submitted to IEEE Transactions on Pattern Analysis & Machine Intelligence 2023

## PRESENTATIONS

---

*Hierarchical Dirichlet Process for Heterogeneity in Marketing*, Brownbag, The Ohio State University, Apr 2023

*On the Error Rates of Kernel Discriminant Analysis*, 2022 IMS New Researchers Conference, selected by the organizing committee, Aug 2022

*The Geometry of Nonlinear Embeddings in Kernel Discriminant Analysis and its Implementation*, Invitation to Seminar Series, Southern Methodist University, Online, March 2022

*Forcing a Model to be Correct for Classification*, NeurIPS 2021 Workshops: Your Model is Wrong: Robustness and misspecification in probabilistic modeling, Online, Dec 2021

*Detection of Common-variance Subspace and its Application to Classification*, The Joint Statistical Meetings, Denver, Colorado, USA, July 2019.

*Detection of common-variance subspace and its application to classification*, 12th International Conference on Bayesian Nonparametrics, Oxford, United Kingdom, June 2019.

*The Geometry of Feature Embeddings in Kernel Discriminant Analysis-Deterministic or Randomized*, 2019 Symposium on Data Science & Statistics, Bellevue, Washington, USA, May 2019.

*The Geometry of Nonlinear Embeddings in Discriminant Analysis with Gaussian Kernel*, Women in Statistics and Data Science Conference, Cincinnati, Ohio, USA, October 2018.

*Classification via Product Conditional Density Estimates: Blending LDA and QDA*, The Joint Statistical Meetings, Vancouver, Canada, August 2018.

*The Geometry of Nonlinear Embeddings in Discriminant Analysis with Gaussian Kernel*, Research Group in Statistical Learning and Data Mining, Columbus, OH, November 2017.

*The Geometry of Nonlinear Embeddings in Discriminant Analysis with Gaussian Kernel*, Statistics and Biostatistics Graduate Student Poster Session, Columbus, OH, September 2017.

*The Geometry of Nonlinear Embeddings in Discriminant Analysis with Gaussian Kernel*, The Joint Statistical Meetings, Baltimore, MD, August 2017.

*Self-dual Code Construction over  $GF(p^k)$  and  $\mathbb{Z}_{p^k}$  via Diophantine Equations*, The 7th KWMS International Conference for Women in Mathematics, Chungnam National University, South Korea, June 2010.

## TEACHING EXPERIENCE

---

**Visiting Assistant Professor of Marketing (The Ohio State University)**

BUSOBA 3333: Business Analytics - Applied Prescriptive Analytics

Spring 2023

BUSML 4210: Advanced Market Research and Analytics

Spring 2023

**Visiting Assistant Professor (Indiana University)**

STAT S301: Applied Statistical Methods for Business

Spring 2021, 2022, Autumn 2021

STAT S352: Data Modeling and Inference

Autumn 2021

**Lecturer (as a graduate teaching assistant at Ohio State)**

STAT 2450: Introduction to Statistical Analysis I

Summer 2020

STAT 4201: Introduction to Mathematical Statistics I

Spring 2020

STAT 3450: Basic Statistics for Engineers

Autumn 2018, Autumn 2019

STAT 1430: Statistics for the Business Sciences

Summer 2018

**Teaching Assistant (The Ohio State University)**

STAT 3202: Introduction to Statistical Inference for Data Analytics

Autumn 2017

STAT 6650: Discrete Data Analysis

Spring 2017

STAT 4201: Mathematical Statistics

Autumn 2016

STAT 1430: Elementary Statistics

Autumn 2015-Spring 2016

MATH 1172: Engineering Mathematics

Spring 2013, Spring 2015

MATH 2177: Mathematical Topics for Engineers

Autumn 2014

MATH 2153: Calculus III

Spring 2014

MATH 1151: Calculus I

Autumn 2012, Autumn 2013

**Grader (The Ohio State University)**

Algebra I,II, Partial Differential Equations, Linear Algebra.

Autumn 2011 - Spring 2012

**Teaching assistant (Ewha Womans University)**

Calculus II

Autumn 2009

Calculus I (Taught in English)

Spring 2009

Topology II (Taught in English)

Autumn 2008

**HONORS AND AWARDS**

Selected participants of IMS New Researchers Conference, Aug 2022

Thomas and Jean Powers Teaching Award, April 2020

Student and Early Career Travel Award, 2019 Symposium on Data Science and Statistics, May 2019

Graduate Research Assistantship, The Ohio State University. Supervisors: Yoonkyung Lee (Summer 2016, Spring 2017, Summer 2017), Steven N. MacEachern (Summer 2016, Summer 2017, Spring 2018, Summer 2019, Summer 2020)

Graduate Research Assistantship, Ewha Womans University. Supervisor: Yoonjin Lee (Autumn 2008, Autumn 2009)

**TECHNICAL SKILLS****Languages:** English, Korean**Programming:** Proficient: MATLAB, R, L<sup>A</sup>T<sub>E</sub>X

Familiar: C, C++, PYTHON

**REFERENCES**Professor Yoonkyung Lee, Department of Statistics, The Ohio State University, 1958 Neil Avenue Columbus, OH 43210, [yklee@stat.osu.edu](mailto:yklee@stat.osu.edu)Professor Steven N. MacEachern, Department of Statistics, The Ohio State University, 1958 Neil Avenue Columbus, OH 43210, [snm@stat.osu.edu](mailto:snm@stat.osu.edu)Professor Greg M. Allenby, Department of Marketing and Logistics, The Ohio State University, 2100 Neil Avenue, Columbus, Ohio 43210, [allenby.1@osu.edu](mailto:allenby.1@osu.edu)

## TEACHING REFERENCES

---

Professor Elizabeth Housworth, Department of Statistics, Indiana University, 901 E. 10th Street, IN 47408, *ehouswor@indiana.edu*

Professor Michelle Everson, Department of Statistics, The Ohio State University, 1958 Neil Avenue Columbus, OH 43210-1247, *everson.50@osu.edu*