

Kevin Christian Wibisono

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Research Interests

- Large language models (LLMs): In-context learning, self-attention.
- Causal inference: High-dimensional (e.g., text-based) treatments or outcomes, regression discontinuity designs.
- Applied machine learning: Sentiment analysis, reasoning of LLMs.

Computing Skills

- Proficient in Python (including Tensorflow, PyTorch, Pandas, Numpy and PySpark), R (including tidyverse), and SQL.

Education

University of Michigan

Ann Arbor, MI, USA

PH.D. IN STATISTICS (GPA: 4.00/4.00; ADVISOR: DR YIXIN WANG)

2021 - 2026 (expected)

- Received the *Rackham International Student Fellowship* for demonstrating exceptional academic and professional promise.
- Received one of the *International Biometric Society Eastern North American Region's Distinguished Student Paper Awards*.

Columbia University

New York, NY, USA

M.S. IN DATA SCIENCE (GPA: 4.00/4.00)

2019 - 2020

- Capstone project: *Improving Automatic Event Understanding Through Sequential and Non-sequential Deep Learning Architectures* (supervised by Yuval Marton, Ph.D. and Asad Basheer Sayeed, Ph.D.).

National University of Singapore

Singapore

B.SC. (FIRST CLASS HONORS) IN APPLIED MATHEMATICS AND STATISTICS (GPA: 4.90/5.00)

2015 - 2019

- Honors thesis: *Approximate Solutions to the Multivariate Behrens-Fisher Problem* (supervised by Zhang Jin-Ting, Ph.D.).
- Completed the *Special Programme in Mathematics*, a program specially designed for students with a strong passion and aptitude for mathematics.
- Received the *Ho Family Prize* as the best student in Applied Mathematics.

Publications

ACCEPTED

Wibisono, K. C. and Wang, Y. (2024). *From Unstructured Data to In-Context Learning: Exploring What Tasks Can Be Learned and When*. *Neural Information Processing Systems* (acceptance rate: 26%).

Ignaccolo, C., Wibisono, K. C., Plunz, R., and Sutto, M. (2024). *Tweeting During the Pandemic in New York City: Unveiling the Evolving NYC's Sentiment Landscape Through a Spatiotemporal Analysis of Geolocated Tweets*. *Journal of Urban Technology*.

Wibisono, K. C. and Wang, Y. (2023). *On the Role of Unstructured Training Data in Transformers' In-Context Learning Capabilities*. *NeurIPS Workshop on Mathematics of Modern Machine Learning*.

Wibisono, K. C. and Wang, Y. (2023). *Bidirectional Attention as a Mixture of Continuous Word Experts*. *Uncertainty in Artificial Intelligence* (acceptance rate: 31%).

SUBMITTED OR IN PREPARATION

Wibisono, K. C., Mukherjee, D., Banerjee, M., and Ritov, Y. *Estimation and Inference for the Average Treatment Effect in a Score-Explained Heterogeneous Treatment Effect Model*.

Wibisono, K. C. and Wang, Y. *Causal Inference with Text-Based Treatments and Outcomes*.

Wibisono, K. C. and Wang, Y. *Exponential Family Attention*.

Work Experience

Uber

Sunnyvale, CA, USA

PHD SOFTWARE ENGINEER INTERN (RIDER STRUCTURAL PRICING)

May - Aug 2024

- Applied causal inference techniques to analyze the paycheck effect and its impact on demand and price elasticity.
- Enhanced Uber's demand model by adding paycheck features, improving predictive performance and business metrics.
- Implemented and refined large language model-based data augmentation methods, achieving notable improvements in test AUC and accuracy based on experiments conducted on Uber's demand data.

Walmart (Sam's Club)

Bentonville, AR, USA

JUNIOR DATA SCIENTIST (FRAUD)

Feb - Jun 2021

- Improved fraud detection system via model stacking and feature engineering, reducing financial losses by around 30%.

DATA SCIENTIST INTERN (PRICING)

Jun - Aug 2020

- Developed item-scoring algorithms to inform strategic price investment decisions for each Sam's Club.
- Adapted and implemented natural language processing algorithms to improve item elasticity predictions.

Portcast

Singapore

DATA SCIENTIST INTERN

May - Aug 2018

- Devised methods to improve existing cargo demand forecasting models of leading shipping companies.
- Enhanced forecasting accuracy via market signal experimentation, reducing mean absolute percentage errors by 5 to 15%.

Centre for Social Development Asia, National University of Singapore

Singapore

RESEARCH INTERN

May - Aug 2017

- Collaborated with a multidisciplinary team of undergraduate students to analyze the state of charity governance in Singapore, resulting in the publication *An Overview of Charity Governance in Singapore*.

Traveloka

Jakarta, Indonesia

DATA ANALYST INTERN

May - Jul 2016

- Developed dashboards to summarize the effectiveness of organic searches in generating hotel sales.

Teaching and Mentorship Experience

RESEARCH MENTOR, University of Michigan

1. Undergraduate Research Program in Statistics (URPS)

Winter and Fall 2024

- Supervised three undergraduate students in a research project exploring large language models' geographical knowledge. Currently leading a follow-up project on the same topic.

GRADUATE STUDENT INSTRUCTOR, University of Michigan

1. STATS 306: Introduction to Statistical Computing (upper undergraduate level)

Fall 2023

- Designed and taught weekly lab sections (~40 students), held office hours, prepared and graded homework, and graded exams.

2. STATS 206: Introduction to Data Science (lower undergraduate level)

Fall 2022 and Winter 2023

- Taught weekly lab sections (~40 students), held office hours, and graded homework and exams.

3. STATS 415: Data Mining and Statistical Learning (upper undergraduate level)

Winter 2022

- Designed and taught weekly lab sections (~40 students), held office hours, and graded homework and exams.

4. STATS 250: Introduction to Statistics and Data Analysis (lower undergraduate level)

Fall 2022

- Taught weekly lab sections (~40 students), held office hours, and graded homework and exams.

TEACHING ASSISTANT, **Columbia University**

1. *INAF U6614: Data Analysis for Policy Research Using R* (graduate level) *Fall 2020*
 - Designed and taught weekly lab sections (~20 students), developed course website, held office hours, and graded homework and projects.
2. *CSOR W4231: Analysis of Algorithms* (upper undergraduate/graduate level) *Spring 2020*
 - Held office hours, and graded homework and exams.

TEACHING ASSISTANT, **National University of Singapore**

1. *MA1512: Differential Equations for Engineering* (lower undergraduate level) *AY 2018/19 Semester 2*
 - Designed and taught weekly tutorial classes (~60 students), and held office hours.
2. *MA1100: Fundamental Concepts of Mathematics* (lower undergraduate level) *AY 2018/19 Semester 1*
 - Designed and taught weekly tutorial classes (~60 students), held office hours, and graded exams.

Awards

- 2024 **ENAR Distinguished Student Paper Award**, International Biometric Society
- 2023 **Rackham International Student Fellowship**, University of Michigan
- 2020 **Top 1.5%**, Baidu and Xi'an Jiaotong University International Big Data Competition
- 2019 **Second Runner-Up**, Columbia University Data Science Hackathon
Ho Family Prize (Best Graduate in Applied Mathematics), National University of Singapore
- 2017 **Top 250**, William Lowell Putnam Mathematical Competition
First Runner-Up, ALMA College Mathematics Challenge
- 2015 **Undergraduate Scholarship (Full Funding)**, Singapore Ministry of Foreign Affairs
- 2014 **Silver Medal**, Asian Pacific Mathematics Olympiad
- 2013 **Bronze Medal**, International Mathematical Olympiad
Silver Medal, Asian Pacific Mathematics Olympiad
- 2009 **Satyalancana Wira Karya (Medal for Providing an Example of Meritorious Personality)**, Government of the Republic of Indonesia

Posters and Presentations

POSTERS

- 2024 **Neural Information Processing Systems (NeurIPS)**, Vancouver, BC, Canada
Midwest Speech and Language Days, Ann Arbor, MI, USA
Michigan Student Symposium for Interdisciplinary Statistical Science, Ann Arbor, MI, USA
NeurIPS Workshop on Mathematics of Modern Machine Learning, New Orleans, LA, USA
- 2023 **Michael Woodroffe Memorial Conference**, Ann Arbor, MI, USA
Uncertainty in Artificial Intelligence (UAI), Pittsburgh, PA, USA
ICSA Applied Statistics Symposium, Ann Arbor, MI, USA
Midwest Machine Learning Symposium, Chicago, IL, USA

PRESENTATIONS

- 2024 **Joint Statistical Meetings**, Portland, OR, USA
Michigan Student Symposium for Interdisciplinary Statistical Science, Ann Arbor, MI, USA
- 2023 **Joint Statistical Meetings**, Toronto, ON, Canada

Outreach and Professional Development

SERVICE AND OUTREACH

- 2023 **Neural Information Processing Systems**, Volunteer
ICSA Applied Statistics Symposium, Volunteer
- 2021 - 2022 **University of Michigan Indonesian Society**, Events Director
- 2020 **Columbia University Data Science Institute**, Student Ambassador and Mentor
- 2019 - 2020 **Columbia Indonesian Society**, Assistant Vice President of Training and Development

JOURNALS, CONFERENCES AND WORKSHOPS REFEREED

- 2024 **Cities**
Neural Information Processing Systems (NeurIPS)
ICML Workshop on In-Context Learning
ICML Workshop on Theoretical Foundations of Foundation Models
- 2023 - 2024 **Artificial Intelligence and Statistics (AISTATS)**