Hangcen Zou

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PROFESSIONAL PROFILE

Fourth-year Ph.D. candidate with a focus in Statistical Modeling and Computational Methods. Presented talk on multiscale change point detection in Spatial Time Series at the 2024 Joint Statistical Meetings (largest global statistical conference). Three corporate internship experiences in machine learning and co-developed new algorithms using Python and SQL. Earned multiple awards for excellent scholarship in statistics and mathematics. Completing dissertation focused on modeling using real-world data: Gaussian Markov random field for irregularly sampled spatial data with large scale computations. President of graduate student organization and founder of Statistics Department seminar series.

EDUCATION

Washington University in St. Louis   St. Louis, United States
Ph.D. in Statistics   Expected Graduation: May 2027
M.A. in Statistics (cumulative GPA: 4.00/4.00)   Graduated in May 2024
B.A. (majors: Mathematics, Finance; minor: Computer Science; cumulative GPA: 3.95/4.00)   Graduated in May 2021

RESEARCH INTERESTS

Statistical modeling, computational methods, spatial statistics, high-dimensional data, time series, and change points detection

RESEARCH EXPERIENCE

Gaussian Markov Random Fields for Irregularly Sampled Spatial Data with Large Scale Computations
Washington University in St. Louis, Department of Statistics and Data Science   September 2023 – Present
Advisor: Debashis Mondal

Adaptive MOSUM: Testing for Multiscale Change Points in Spatial Time Series
Washington University in St. Louis, Department of Statistics and Data Science   December 2022 – Present
Advisor: Likai Chen   Collaborators: Jiaqi Li, Michel F. C. Haddad
- Presented at the 2024 Joint Statistical Meetings

Network-Level Automated Sleep Stage Change Detection for Brain fMRI Data
Washington University School of Medicine in St. Louis, Mallinckrodt Institute of Radiology   December 2022 – Present
Advisor: Muriah D. Wheelock   Collaborator: Jiaqi Li

Volatility Estimation on High Frequency Data with Wavelet Shrinkage and Threshold Variation
Washington University in St. Louis, Department of Mathematics and Statistics   February 2020 – May 2021
Advisor: José E. Figueroa-López
- Undergraduate honors thesis
- Presented at the 2020 Midstates Consortium for Math and Science Undergraduate Research Symposium

INTERNSHIP EXPERIENCE

SAS Institute   Cary, United States
Machine Learning Intern   May 2025 – Present
- Investigate statistical properties of the maximum mean discrepancy (MMD) method for detecting distributional shifts
- Develop and implement an efficient algorithm for kernel bandwidth selection in MMD, tailored for streaming data context
- Delivered presentations to diverse audience at key events, including the annual intern Expo and divisional summary meetings
- Completed formal training and certification in SAS programming for data access, exploration, preparation, and analysis

Yidu Technology Inc.   Shanghai, China
Data Scientist Intern   January 2022 – June 2022
- Retrieved substantial clinical data from a database containing more than 2.2 billion longitudinal healthcare records
- Designed and implemented logical frameworks to extract diagnosis, drug usage, and disease progression information about psoriasis, ankylosing spondylitis, and hypertrophic cardiomyopathy
- Automated the procedure of normalizing and classifying hospital division information by applying PrestoSQL and HQL

China Daas   Beijing, China
Data Analyst Intern   May 2019 – June 2019
- Updated weekly data to an industrial and commercial database with more than 60 million companies on record
- Streamlined the trademark-status identification process from scratch by consulting the specification and taking massive samples from competing products
- Co-developed new algorithms using PostgreSQL and Python to organize branch relationships, clean up invalid contact information, and standardize address information
- Conducted daily query work for prompt product support and weekly project reports for tracking work progress

LEADERSHIP EXPERIENCE

Chinese Students and Scholars Association   St. Louis, United States
President, Evet Chair   August 2022 – May 2024
- Oversaw a team of 58 members, managing operations including event planning, marketing, outreach, and fundraising activities
- Initiated official accounts establishment, online repository creation, organization rebranding, and constitution revising, resulting in enhanced digital presence and alignment with updated objectives
- Executed Mid-autumn and Spring festive celebrations, featuring reception, performances, and contests, consistently attracting more than 500 audience, promoting Chinese culture, and improving the organization's visibility and community engagement

WUSauce   St. Louis, United States
Head Choreographer, Training Chair, Treasurer   January 2018 – May 2021
- Managed team affairs related to choreographing, training, performing, and auditions
- Taught eight new team members salsa dance moves and trained the full team on dance skills and showmanship twice a week
- Co-organized an annual showcase with 10 dance teams and more than 200 audience members

AWARDS, HONORS & SCHOLARSHIPS
- Freiwald Scholarship (for undergraduate research in areas with substantial mathematical content)   February 2020 – May 2021
- Honors Program in Statistics (consisting of a challenging four-year curriculum and an honors thesis) August 2017 – May 2021
- Magna Cum Laude (undergraduate collegewide Latin Honors)   May 2021
- Highest Distinction in Mathematics (undergraduate department award)   May 2021
- Martin Silverstein Award in Mathematics (for undergraduate students with strengths in probability and statistics)   May 2021
- Mathematics Mentor Award (for undergraduate students with exceptional contribution as mentors)   May 2021
- Brian Blank Award in Mathematic (for distinguished undergraduate juniors majoring mathematics and statistics)   May 2020
- Dean's List (undergraduate collegewide award: Spring 2018, Fall 2018, Spring 2019, Fall 2019, Fall 2020, Spring 2021)

SKILLS
- Computer: R, SAS, Python, SQL, MATLAB, Java, HTML, JavaScript, and Microsoft Office Software
- Language: English and Mandarin