

ZEYU (JERRY) WEI

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RESEARCH INTERESTS

- Statistics: topological data analysis, nonparametric statistics
- Machine Learning: cluster analysis, manifold learning

EDUCATION

University of Washington, Seattle 09/2019 – Present
Ph.D. Student
Advisor: Yen-Chi Chen

University of Wisconsin – Madison 09/2015-05/2019
B.S.
Major in Statistics (Honor), Math (Honor), and Sociology (Concentration in Analysis and Research);
Certificate in Computer Science

RELEVANT COURSEWORK

Advanced Theory of Statistical Inference, Advanced Probability, Stochastic Modeling, Advanced Regression Methods, Statistical Learning Theory, Manifold Geometry
- Preliminary Exam: Sparse Subspace Clustering 06/2020
- Statistical Consulting: Project on mixed effect model 12/2020

HONORS AND AWARDS

R. Creighton Buck Scholarship 2019
Awarded to graduating math major who has completed the best capstone experience as determined by the awards committee in Department of Mathematics, University of Wisconsin-Madison

Phi Beta Kappa Honors Society Member 2018
inducted as Junior, 5%

3rd place in Midwest Undergraduate Data Analysis Competition 2017

RESEARCH EXPERIENCE

Department of Statistics University of Washington, Seattle 09/2019-present
Ph.D. student, Advisor: Yen-Chi Chen

- Working on a clustering framework that can deal with large-scale high-dimensional data with fast computation
- Proposed new density-based similarity measure that avoids curse of dimensionality
- Manuscript at <https://arxiv.org/abs/2104.10770> and R package at <https://github.com/JerryBubble/skeletonClus>

Undergrad Honor Thesis in Statistics

07/2018-05/2019

Advisor: Zhengjun Zhang

- Modeling maxima series with Autoregressive Conditional Fréchet (AcF) Model, which incorporates dynamic components into generalized extreme value model
- Conduct data experiments on S&P 500 constituents with AR(1) and GARCH(1,1) filters

Fields Undergraduate Summer Research Program

07/2018-08/2018

Advisor: Mark Chignell

- Used cluster-boosted regression to improve predictions and deidentify confidential data
- Carried out Monte Carlo Simulation experiments to determine distributional properties that influence the boosting effect in cluster-boosted regression
- Drafted scientific report *Effectiveness of Cluster-Boosted Regression*

UW Madison Summer School in Harmonic Analysis

05/2018-07/2018

Advisor: Tess Anderson

- Paper published on *Mathematische Annalen*
- Generalized the notion of distinct dyadic system Provided classification criteria for distinct grids

Wisconsin Policy Analysis Lab

01/2018-05/2018

Advisor: Jason Fletcher

- Wrote report *Change in Distance to Nearest Abortion Facility in Wisconsin Change in Distance to Nearest Abortion Facility in Wisconsin, 2010 to 2017*

National Council on Crime & Delinquency

2017.05-2017.08

Data Analyst Intern

- Managed oracle database and generated data analytics reports to help coordinate agencies working for child welfare and juvenile justice cases
- Worked on modularizing reports for system conversion

Data Analyst at BerbeeWalsh Department of Emergency Medicine

2017.02-2017.10

PI: Shah, Manish N.

- Performed database management for the study on *Paramedic Coached ED Care Transitions to Help Older Adults Maintain Their Health*

Applied Demography Research

2017.01-2017.05

Advisor: Katherine Curtis

- Conducted final project with the Applied Population Laboratory and wrote a report on *Health Insurance Coverage in Wisconsin*, analyzed at county level

TEACHING EXPERIENCE

University of Washington, Seattle

09/2019-present

Teaching Assistant, Department of Statistics

-STAT 390: Statistical Methods in Engineering and Science (with Caren Marzban, Fall 2020)

-STAT 221: Statistical Concepts and Methods for the Social Science (with William Brown, Summer 2020)

Zeyu (Jerry) Wei

-STAT 220: Statistical Reasoning (with William Brown, Winter 2020)
-STAT 311: Elements of Statistical Methods (with Ranjini Grove, Fall 2019; with Tamre Cardoso, Spring 2020)

PUBLICATIONS

Publications

Anderson, T.C., Hu, B., Jiang, L., Olson, C., Wei, Z. *On the translates of general dyadic systems on \mathbb{R}* . Math. Ann. 377, 911–933 (2020). <https://doi.org/10.1007/s00208-019-01951-z>

Technical Reports

Fletcher, J., Madden, J., Romell, E., & Wei, Z. (2018). *Change in Distance to Nearest Abortion Facility in Wisconsin Change in Distance to Nearest Abortion Facility in Wisconsin, 2010 to 2017*. <http://www.lafollette.wisc.edu/research-public-service/publications>

Preprint

- Wei, Z., Chen, Y. *Skeleton Clustering: Dimension-Free Density-based Clustering*, <https://arxiv.org/abs/2104.10770><https://arxiv.org/abs/2104.10770>

PRESENTATIONS

-*Skeleton Clustering*, UW Geometric Data Analysis Group, Feb 2021

-*Graph Laplacian and Linear Smoother*, UW Geometric Data Analysis Group, Feb 2020

-*Autoregressive Conditional Fréchet (AcF) Model*, Undergraduate Symposium at the University of Wisconsin-Madison, May 2019

-*On the translates of general dyadic systems on \mathbb{R}* , Undergraduate Mathematics Symposium, University of Illinois at Chicago, November 2018

SERVICES

Mentor for Directed Reading Program Project , UW SPA	12/2020-03/2021
Student Representative at Undergrad Statistics Committee , UW-Madison	09/2017-05/2019
Executive of the Undergraduate Statistics Club , UW-Madison President of the club since 05/2018	01/2017-05/2019
Organizer of UW-Madison Data Science Challenge 2018 The first data challenged in UW-Madison	11/2018

COMPUTER SKILLS AND LANGUAGES

Programming: Proficient in R, Python, Matlab. Familiar with Java, SQL, C++, Mathematica

Software: Proficient in Excel. Familiar with ArcGIS, SPSS, STATA, SAS

Languages: English, Chinese (native)

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