MANLIN ZHANG

⋄ +1 (608) 977-3648 ⋄ mzhang477@wisc.edu ⋄ Madison, WI

EDUCATION

Bachelor of Science in Mathematics, University of Wisconsin-Madison — Sept 2020 - May 2024

- **GPA**: 3.69/4.0
- **Relevant Coursework**: Abstract Algebra, Real Analysis, Data Science, Statistics, Probability Theory, Algorithms, Calculus
- **Honors**: Dean's List (consecutive three semesters)

PROFESSIONAL EXPERIENCE

Data Analyst and Operation Management Intern — Jun 2023 - Jul 2023

JD.com, Inc., Brand Business Department — *Beijing, China*

- Conducted data analysis in R Studio using multivariable linear regression and designed a standardized operating procedure
- Utilized MySQL to process data and performed data visualization for the daily and weekly reports
- Implement A/B Testing on the mobile app pages and conducted statistical analysis on each different testing pages and features
- Increased Unique Visitor (UV) sales on the mobile app page by 23.5% (YOY) and Gross Merchandise Volume (GMV) sales by 15%

Peer Mentor/Course Assistant — Sept 2022 - May 2023

Math Learning Center, University of Wisconsin-Madison — *Madison, WI*

- Provided tutorial assistance to students in MATH96: Preparatory Algebra and MATH113: Trigonometry during weekly lectures
- Guided students on Calculus courses homework problems and math theorems proofs at the Math Learning Center
- Participated meetings with course instructors to discuss the course structure and provided feedback of students
- Held office hour each week to answer students' questions and concerns on math and courses

RESEARCH EXPERIENCE

Interactive Touring Robot for Homebound Elderly — Oct 2023 - Now

People and Robots Laboratory, University of Wisconsin-Madison — *Advisor: Yaxin Hu*

- Utilized Raspberry Pi, Linux, and Python to construct and develop a touring robot which can be remotely controlled
- Designed an instruction protocol and user interface for homebound elderly to interact with the robot during the research session
- Developed scripts for the touring robots in Lake Mendota, Wisconsin, and monitored robot's activities through program logs
- Analyzed data collected from research sessions using qualitative methodologies (e.g. Thematic Analysis)

The Geometry of Voronoi Diagram in Disetel-Leader Graph — Sept 2023 - Now

University of Wisconsin-Madison — *Advisor: Prof. Tullia M. Dymarz*

- Constructed a 3D mathematical model illustrating Diestel-Leader Graph in Python.
- Developed an algorithm and computational techniques to generate interactions between nodes in DL (2,2) graph.
- Compared and contrasted the pattern in DL graph with Voronoi diagrams to discover its application on K-NN clustering algorithm.
- Conducted a comprehensive analysis of Voronoi cell behavior within the context of an infinite Diestel-Leader (DL) graph.

The Geometric Brownian Motion in Stock Forecasting and Analysis — Aug 2023 - Now

Cooperated with graduate students at Columbia University, HKU, and UW-Seattle — *Advisor: Ying-Jen Yang*

- Constructed Geometric Brownian Motion model on indexes (e.g. S&P500) in Python
- Analyzed indexes using Pearson Correlation Coefficient and Mutual information to observe the effect on different time scale
- Applied Time Series Analysis (ARIMA) on indexes and compare the patterns with Geometric Brownian Motion model
- Stimulated Sine wave on Pearson Correlation Coefficient and Mutual information graphs to examine the skewness of indexes

SKILLS

- Languages: Mandarin (Native), English (Fluent), Japanese (Fluent)
- Programming Skills: Python (Pandas, NumPy, Matplotlib, Sciki-Learn), R, MySQL, Linux, Raspberry Pi, Visual Studio Code, MATLAB, LaTeX