Tianle (Steven) Chen

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EDUCATION

University of Wisconsin-Madison   Madison, WI
Bachelor of Science: **Mathematics**, **Statistics**   September 2021-December 2024
- GPA: **3.9**/4.0, Honors: **Dean's List** for 4 Semesters, **Successful Participant Award** for COMAP 2024(Advisor: Saverio Spagnolie)

PUBLICATION

- Chunmei Li, **Tianle Chen**, Huimin Chen, etc. Gender and racial/ethnic disparities of early-onset colorectal cancer by anatomical sites, histological types, and disease stages in the United States during 2001-2019

RESEARCH & ACADEMIC PROJECTS

Gender and Racial/Ethnic Disparities of Early-onset Colorectal Cancer by Anatomical Sites, Histological Types, and Disease Stages in the United States during 2001-2019   Remote
Research Assistant supervised by Shihua Wang from Ohio State University   June 2022-August 2023
- Extracted and prepared data from SEER*Stat for analysis, with a focus on early-onset colorectal cancer
- Conducted preliminary statistical calculations, including mean and variance, to understand data distributions
- Developed graphics to detect critical patterns and trends
- Utilized SAS software for statistical analysis, evaluating data using p-values
- Helped identify crucial areas for further research and discussion in thesis development

Regression Model Design for Human Bodyfat Prediction   Madison, WI
Group Project supervised by Prof. Hyunseung Kang   September 2023 – November 2023
- Imported dataset into RStudio and detected outliers using Cook's distance, leverage point, and IQR analysis
- Assessed dataset normality, homoskedasticity, and linearity using qqplot and residual plot
- Explored regression models, including Simple Linear Regression (SLR) and Multiple Linear Regressions (MLRs)
- Conducted literature review to identify and incorporate predictors that balance robust prediction capabilities with simplicity for practical daily use
- Performed F-test to evaluate and compare regression models and select the most effective ones
- Achieved a high-performing final model with an R-square exceeding 0.7 and (RMSE) of 4.08

Numerical Study of Kakeya Maximal Inequalities   Madison, WI
Research Project supervised by Prof. Terrence Harris and Graduate Student Kaiyi Huang   September 2024 – Present
- Research at Madison Experimental Mathematics Lab with 3 credit
- Conducted an in-depth review of the Kakeya maximal function conjecture, emphasizing its mathematical foundations and existing literature in both 2D and 3D scenarios
- Designed and implemented numerical simulations for 3D tubes with random orientations and positions, utilizing spatial hashing techniques for efficient overlap detection. Adapted methodologies for 2D to validate techniques and refine algorithms based on resolved conjecture cases
- Developed strategies to systematically vary tube configurations and density to test the conjecture's robustness, employing optimization algorithms to seek potential counterexamples that challenge the 3/2 exponent hypothesis
- Complemented numerical findings with theoretical insights, exploring analytical approaches to bridge 2D results to 3D conjectures and enhance understanding of underlying geometric principles
- Leveraged high-level mathematical software (MATLAB) and Python libraries (NumPy, SciPy, Matplotlib) alongside CGAL for complex geometric computations
- Ensured comprehensive documentation and testing of all methods, maintaining rigorous standards to verify simulation accuracy against known theoretical outcomes

Algebra/Probability (Directed Reading Program)   Madison, WI
Participant   February 2024 – May 2024
- Explored advanced mathematical concepts under the guidance of a graduate student mentor, focusing on the Free Central Limit Theorem (FCLT) from "Lectures on the Combinatorics of Free Probability"
- Acquired knowledge beyond the standard curriculum, delving into non-commutative algebra and its probability space
- Presented findings on FCLT in the final program presentations

Stars and Planets Data Analyzation Madison, WI
Group Project November 2023
- Used Python and Jupyter Notebook to process JSON and CSV data into structured data frames and developed functions to handle missing data
- Created graphs such as scatter plots and pie charts for data visualization and analysis of astronomical data
- Applied astrophysical formulas to identify potential habitable planets and predict star and planet characteristics

Wordle Game Madison, WI
Individual Project May 2022
- Utilized Java programming language in IntelliJ to develop a Beginner-level wordle game
- Implemented techniques including ArrayList management, pseudorandom number generation, and robust error-handling mechanisms to guarantee seamless user interaction and error-free gameplay experience

PROFESSIONAL EXPERIENCE

Outlier AI. Remote
Undergraduate Intern April 2024-present
- Evaluate and modify responses generated by AI models for given Math problems
- Using Math-solving and LaTeX skills to optimize the model response, and improve the model

China Mobile Sichuan Corp. Chengdu, China
Marketing Analyst May 2023 – June 2023
- Analyzed carrier service marketing data for personal cellular phone plans using advanced Excel techniques
- Conducted data analysis to identify market trends, customer preferences, and pricing strategies, optimizing cellular phone plans and maximizing customer satisfaction
- Collaborated with cross-functional teams to implement data-driven price adjustments and promotional campaigns

EXTRACURRICULAR ACTIVITIES

Burkard Lab, UW-Madison Department of Medicine Madison, WI
Lab Assistant January 2023 – May 2023
- Maintained the functioning of Burkard Lab by providing support to lab operations
- Gained hands-on experience in various general lab techniques, including autoclaving, restocking materials for breast cancer research, and preparing chemical solutions and buffers

UnityPoint-Meriter Madison, WI
Clinical Shadowing Assistant October 2022 – December 2022
- Shadowed a UW-Health Professor specializing in colon & rectum surgery
- Participated in clinical settings, closely observing and assisting the surgeon during patient consultations, gaining practical communication skills with patients, physicians, and rotating medical students

McBurney Disability Resource Center, UW-Madison Madison, WI
Notetaker June 2022 – July 2022
- Provided notetaking support for the History 130 course, assisting students with learning disabilities
- Utilized advanced techniques within Windows Word to format and enhance notes, adhering to specific guidelines to optimize readability and utility for students with diverse learning needs

ADDITIONAL INFORMATION

Technical: Python, R/RStudio, SAS, SQL, LaTex, Microsoft Office, Java, VB/VBScript, HTML
Certificate: Basic Life Support Provider (eCard Code: 235411670163, American Heart Association, Dec 2022-Dec 2024)
Languages: English (Fluent), Chinese (Native), German (Beginner)