Dawson Kinsman

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Education

Michigan State University 2024–Present
PhD in Computational Mathematics, Science and Engineering (Advisor: Danny Caballero) *East Lansing, MI*
- **Fellowships:** College of Engineering Distinguished Scholar Fellow, AI and Data enabled predictive Multiscale Modeling across STEM NSF Research Traineeship (AIDMM-NRT) Fellow
- **Certificates:** The Erdős Institute Data Science Boot Camp

University of Michigan-Dearborn GPA: 4.00/4.00
Master of Science in Applied and Computational Mathematics (Advisor: Thomas Fiore) *Dearborn, MI*
- **Awards:** Departmental Award for Excellence: Applied and Computational Mathematics

University of Michigan-Dearborn GPA: 3.99/4.00
Bachelor of Art in Mathematics, Applied Statistics *Dearborn, MI*
- **Certificates:** Practical Aspects of Computer Security
- **Awards:** Carl Rasmussen Award for Excellence: Applied Mathematics (2 years), Dean's List (8 semesters)

Experience

Graduate Research Assistant Aug 2024 – Present
Michigan State University *East Lansing, MI*
- Trained and tested Latent Dirichlet Allocation (LDA) models for a systematic literature review of education research abstracts. Contributed to construction of data cleaning and clustering pipeline for full papers and new test papers.

Volunteer Research Assistant Jan 2023 – Present
Computational Epidemiology Dispersed Volunteer Research Network *Remote*
- Created web-scraping tools in Python to systematically obtain Google search trends data related to ShotSpotter and policing.
- Conducted sentiment analysis research to analyze public sentiment on policing and ShotSpotter over time and from different metropolitan areas.

Traxen Jan 2024 – Aug 2024
Data Science Intern *Plymouth, MI*
- Led development and implementation of internal diagnostics to identify failing units and track their repairs. Automated the generation and dissemination of Excel reports to relevant teams.
- Contributed to constructing a new data processing pipeline reducing processing time by 30% while increasing the number of features generated.
- Create internal Streamlit dashboard connected to MongoDB database for daily diagnostics and pilot performance updates. Optimized NoSQL queries to reduce page load times and improve overall performance.
- Analyzed data to investigate correlations between fuel efficiency, driving conditions, and habits, and design features to best utilize these relationships in machine learning algorithms.

Student Research Assistant Jan 2022 – Jan 2024
University of Michigan – Dearborn *Dearborn, MI*
- Implemented topological data analysis (TDA) methods to analyze police shooting data. Prepared and revised TDA findings in a co-authored report submitted to PLOS One.
- Led statistical analysis of Detroit Police Department 911 calls open data to examine the effect of a gunshot acoustic-detection system (ShotSpotter) on policing and crime metrics for future policy considerations. Contributed to a public dashboard containing general ShotSpotter findings for the broader Detroit community.
- Implemented a new empirical Bayes method in R for a binary classification problem with a small sample size and high dimensional data. Prepared and revised manuscripts for submission to MDPI Genes.

Publications

- **Dawson Kinsman**, Zhi Zhang, Jian Hu, Gengxin Li. "New empirical Bayes models to analyze RNA-seq data from two different regions in hypophosphastasia disease study," MDPI Genes, 2024. https://doi.org/10.3390/genes15040407.
- **Dawson Kinsman** and Tian An Wong. "Proactive Policing as Reinforcement Learning," International Conference on Learning Representations (ICLR) Tiny Papers, 2023. Open Review.

In Preparation
- **Dawson Kinsman** and Tian An Wong. "The Homological Persistence of Police Violence: Analysis and Limitations," 2025.
- **Dawson Kinsman**, Hadi Chaaban, Divya Ramjee, Maimuna Majumder, Antonios Koumpias, and Tian An Wong. "Causal analysis of an acoustic gunshot detection system: Evidence from Detroit," 2025.

Technical Skills

Languages: Python, R, C++
Technologies: Microsoft Office, Jira, Pandas, NumPy, TensorFlow, LaTeX, GitHub
Concepts: Artificial Intelligence, Machine Learning, Neural Networks, APIs