Dawson Kinsman

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Education

Michigan State University   Expected 2029
PhD in Computational Mathematics, Science and Engineering   *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

University of Michigan-Dearborn
Master of Science in Applied and Computational Mathematics   *Dearborn, MI*
- **Awards:** Departmental Award for Excellence: Applied and Computational Mathematics (2 years)

University of Michigan-Dearborn
Bachelor of Art in Mathematics, Applied Statistics   *Dearborn, MI*
- **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 cluster analysis of education research abstracts. Contributed to construction of data cleaning and clustering pipeline for full papers and new test papers.

Student Research Assistant   Jan 2022 – Present
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.

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.

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 Revision
- **Dawson Kinsman** and Tian An Wong. "The Homological Persistence of Police Violence: Analysis and Limitations," PLOS ONE, 2022.

Technical Skills

Languages: C++, Python, R, Julia
Technologies: PySpark, Pandas, NumPy, TensorFlow, LaTeX
Concepts: Artificial Intelligence, Machine Learning, Neural Networks, API
Certifications: The Erdős Institute Data Science Boot Camp, UX Research Boot Camp, Software Engineering for Data Science