

Explorer Transportation Data Science Project

Michael Eniolade

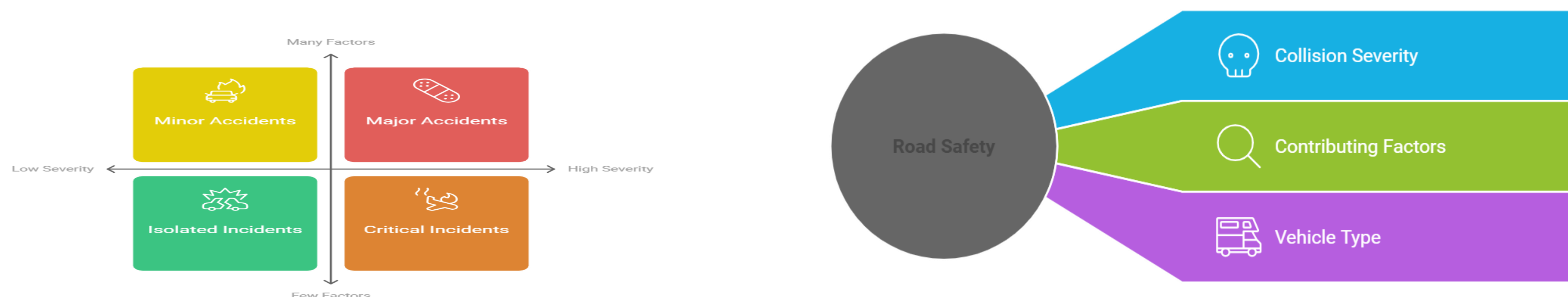
Department of Information Technology | University of the Cumberlands

Introduction

Objective: This research is to improve road safety through exploration of factors that contribute to motor vehicle crashes in New York.

Data Source: NYC OpenData Vehicle Collision dataset

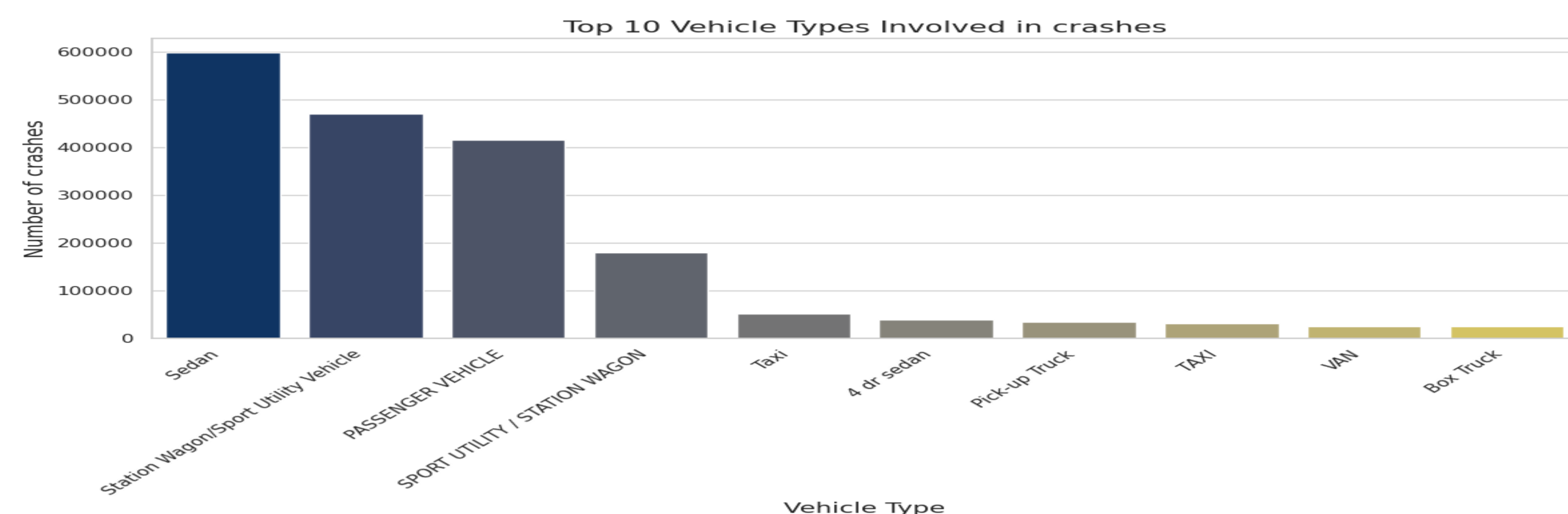
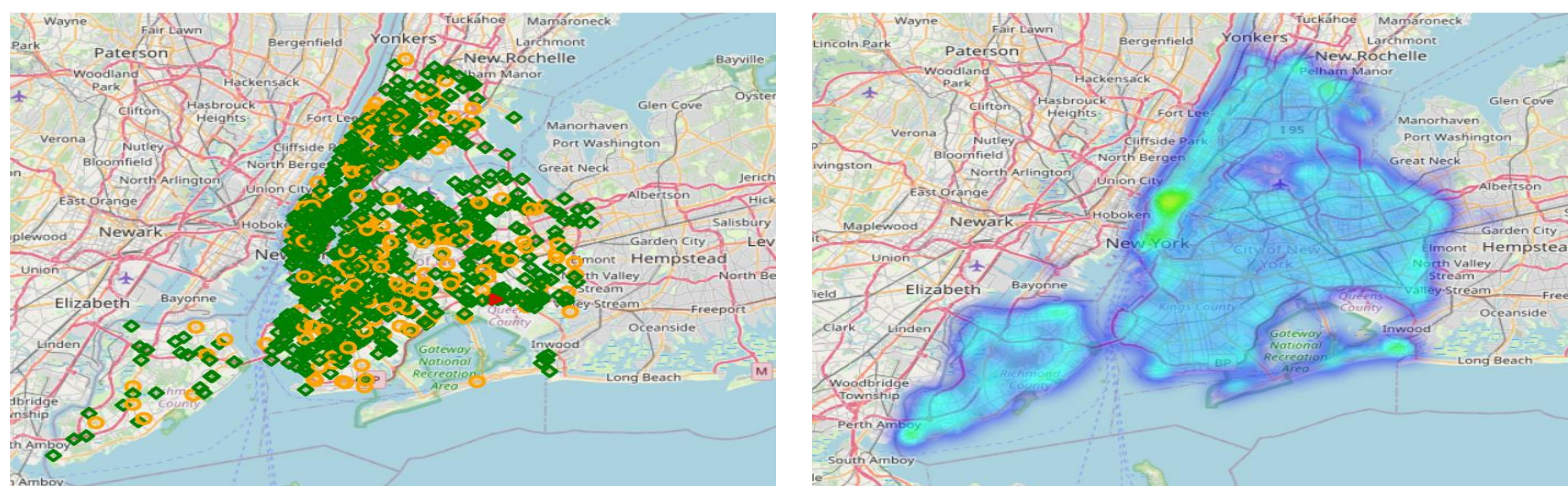
Key Research Questions: is collision severity predictable based on vehicle type and contributing factors? Can some collisions or contributing factors be particular to certain locations or contributing factors?



Methodology

Data Analysis: The study involves the use of machine learning models to predict collision severity, clustering with k-means to identify areas of high-risk, and time series analysis to identify high-risk areas especially in densely populated boroughs.

Geospatial Mapping: This was performed to identify high risk areas using maps for easier representation and understanding.



Results/Findings

It was predictively discovered that some collision severity is based on some vehicle types and driving behaviors. Clustering was used to identify profiles with high-risk behaviors and correlations with vehicle crashes. Times series analysis was used to identify seasonal variations especially during the COVID-19 lockdown. Lastly, geospatial analysis was used to identify the most accident-prone areas like Manhattan and Brooklyn.



Conclusion/Recommendation

In conclusion, this study provides data-driven recommendations for improving the safety of road in NYC through the identification of areas prone to vehicle collisions. This will help policymakers to implement safety laws to improve public safety. It is also recommended that the drivers are educated to focus on risky behaviors that could contribute to vehicle collision.

References

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Michael Eniolade
meniolade20593@ucumberlands.edu