Comparing Neighborhoods of New York City and Toronto

# Introduction

Given the current rate of greenhouse gas emissions (GGEs), the global average temperature might hit 2 degrees Celsius above pre-industrial levels within 15 years, a threshold that will likely cause serious harm (Mann, 2014). The transportation sector is the largest culprit of GGEs and stands for over a fourth of emissions (EPA, n.d.).

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| Pie chart of total U.S. greenhouse gas emissions by economic sector in 2017. 27 percent is from electricity, 28 percent is from transportation, 22 percent is from industry, 12 percent is from commercial and residential, and 10 percent is from agriculture. |
| Figure 1: Pie chart of US GGEs by sector (EPA, n.d.). |

A place for improvement could be business-related travels, for instance real estate scouting. Is there a way to assess a neighborhood in one city that is analogous to a neighborhood in another city? And if so, to which accuracy? Building such a model could be useful to real estate investors who cannot or does not want to travel but would still like to assess the neighborhood and its characteristics.

# Data

I will use the New York data we used in week 3 and the Toronto dataset in week 4. Then I will use Foursquare to get data on nearby venues. Features will include different venues in the close distance to each neighborhood, e.g. Yoga Studio, ATM, Lebanese Restaurant.

# Methodology

I will use K-means classifier to group the neighborhoods in both cities into clusters. Thus, I can use these clusters to find similar neighborhoods. In addition, I can use the data on number of venue types as a sorting key. I.e. I can find a similar neighborhood in the other city with a specific requirement to nearby venues.

# Results

# Discussion

# Conclusion

# References

EPA. (n.d.). Sources of Greenhouse Gas Emissions. *United States Environmental Protection Agency*.  
<https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>

Mann, M. E. (2014). Earth Will Cross the Climate Danger Threshold by 2036. *Scientific American*.  
<https://www.scientificamerican.com/article/earth-will-cross-the-climate-danger-threshold-by-2036/>