

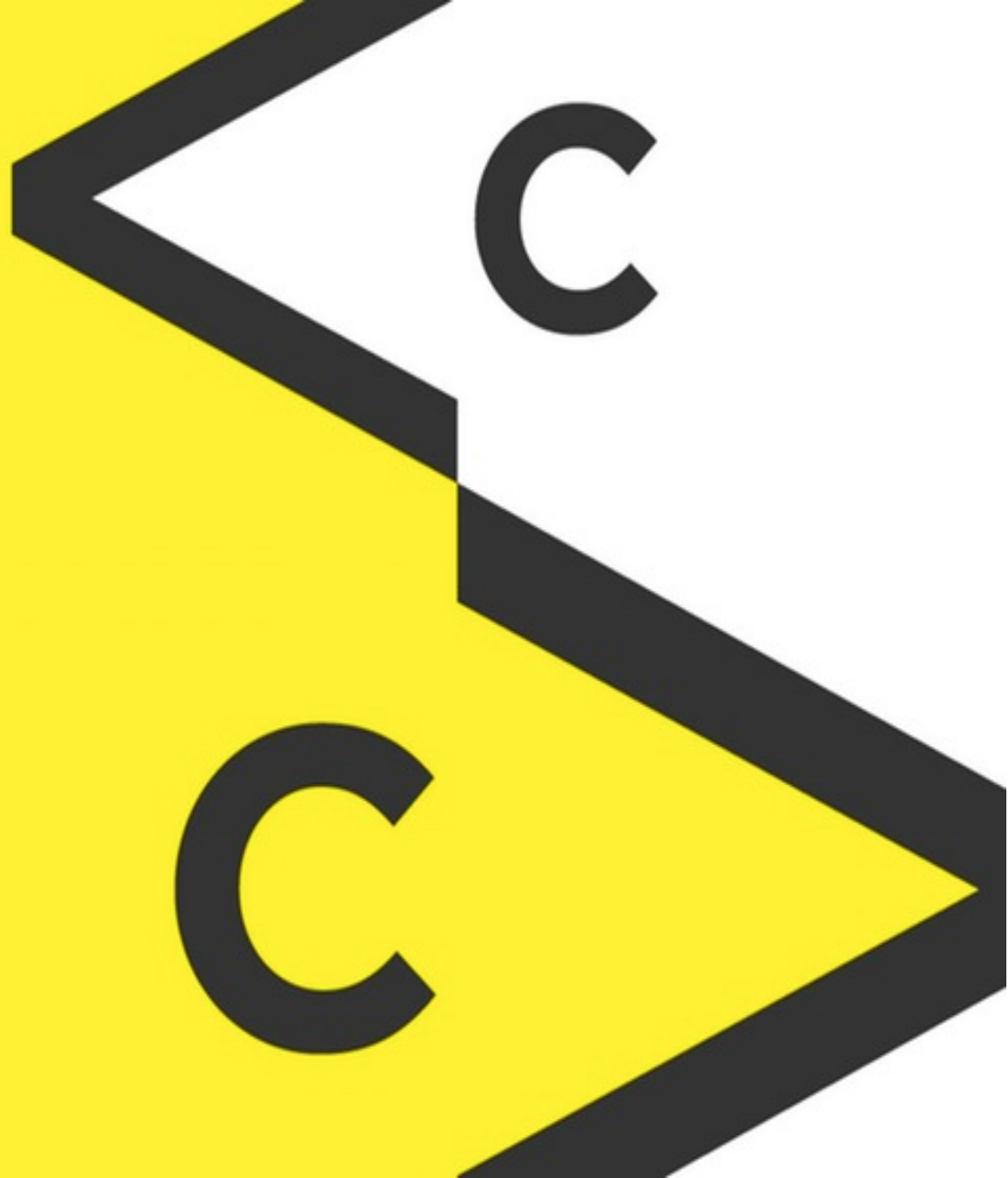
Best Stops of the Future Subway

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Introduction

- Mississauga might need a subway system in the future:
 - For convenience
 - For economical benefit
 - For stimulating growth and development
- Determining where the stops go is VITAL
- We propose a novel, real-time, automated technological solution



Motivation

- Making the data as well as the solution public
- Having historical trend as well as current data available
- Decisions can be made collectively by Mississauga residents
- Promote greater awareness and engagement with the Mississauga community

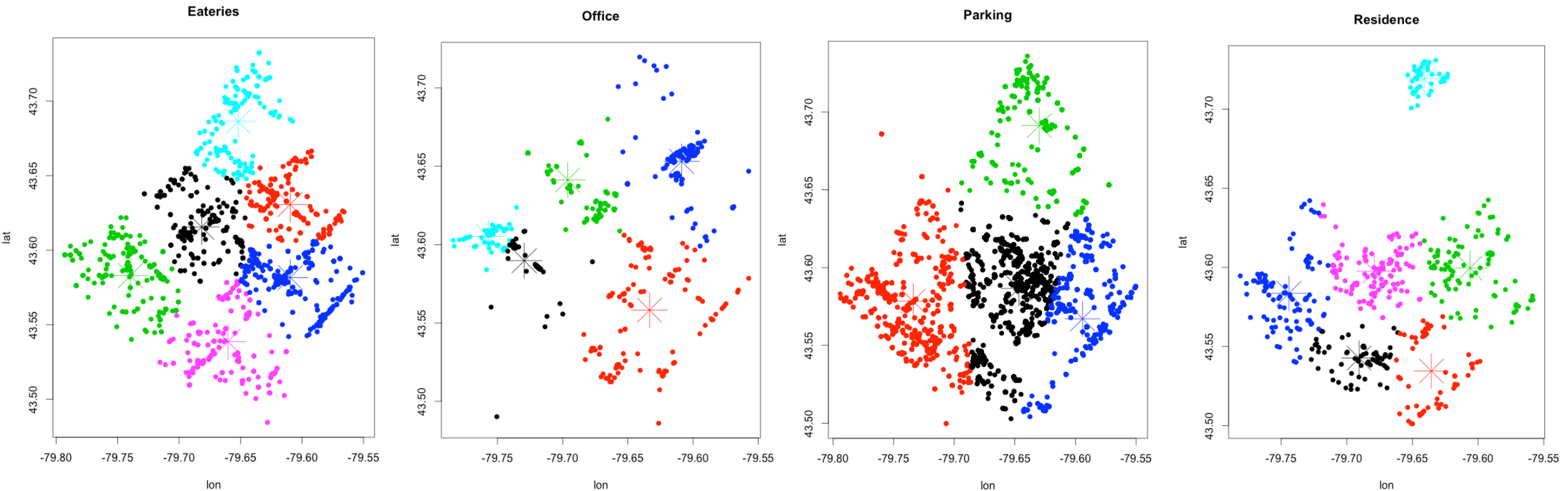


Approach - Data

- **Data we used (total of 6 data sources)**
 - Office building data
 - Residence data
 - Eateries data
 - Parking ticket data
- **Cleaning**
 - Used Google Map API to map street number + name / postal code to longitude and latitude values
 - Removed all entries with no-match/miss-match or missing data

Approach - Method

- K-mean clustering algorithm to find the center for each type of data

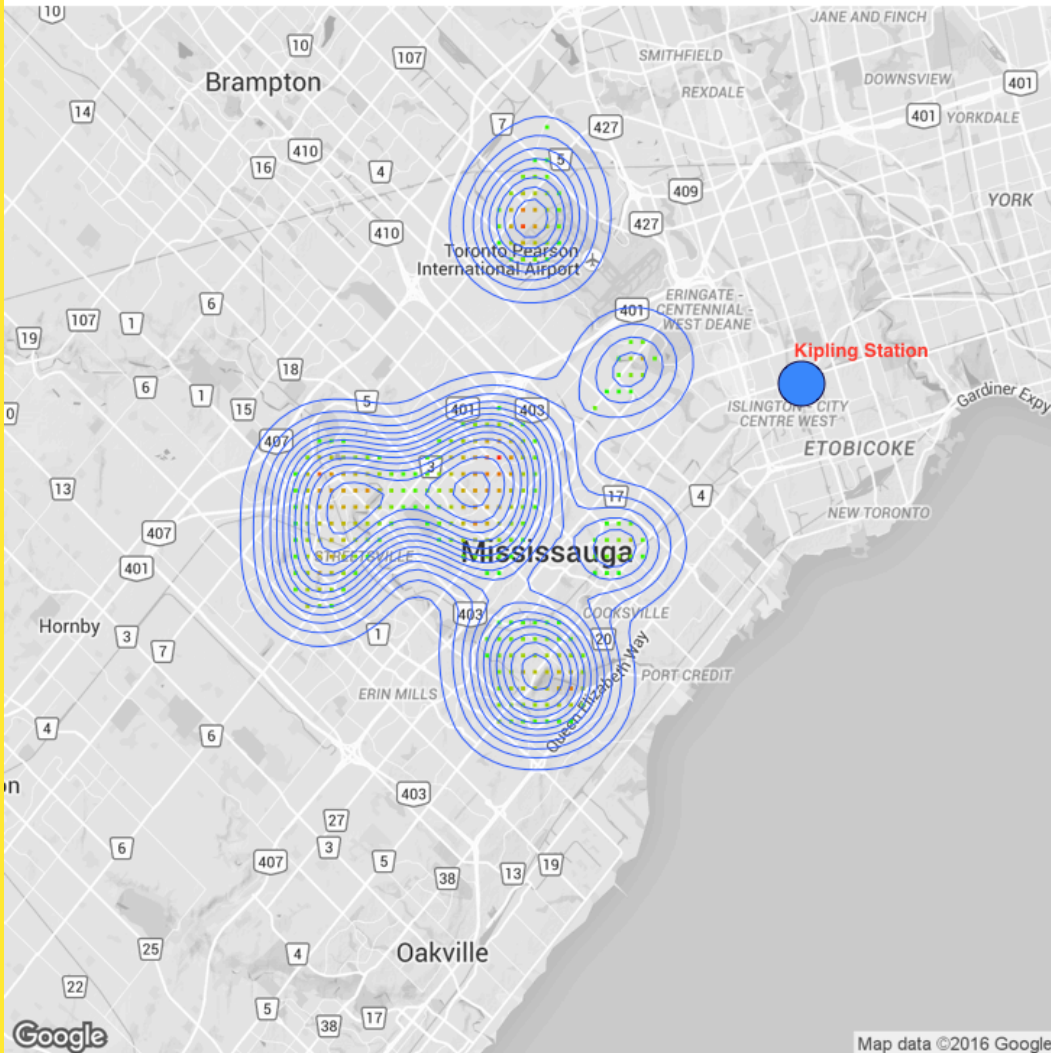




Approach – Score calculation

- Overlay all the cluster centers
- Assign importance score to each type of data
 - Office (8), residence (5), eateries (3), parking (2)
- A density score for a point in the city is calculated by: the importance score of the center type times the distance from the point to the center
 - Higher score -> busier area, more population
- Overlay the scores and a contour plot on the map of Mississauga

Approach – Map Visualization



- With a real-time map application (web), we can monitor the changes of city density centers ...
- By analyzing the trend, we can also identify the movement of city centers and plan for the future ...

Using Google Map API



Conclusion

- Novel approach to subway stations
- Real time update, historical trend and current data all publicly available
- More involvement and engagement of residents
- Can be improved with more complete census, local business, and traffic data