Driving During Quarantine

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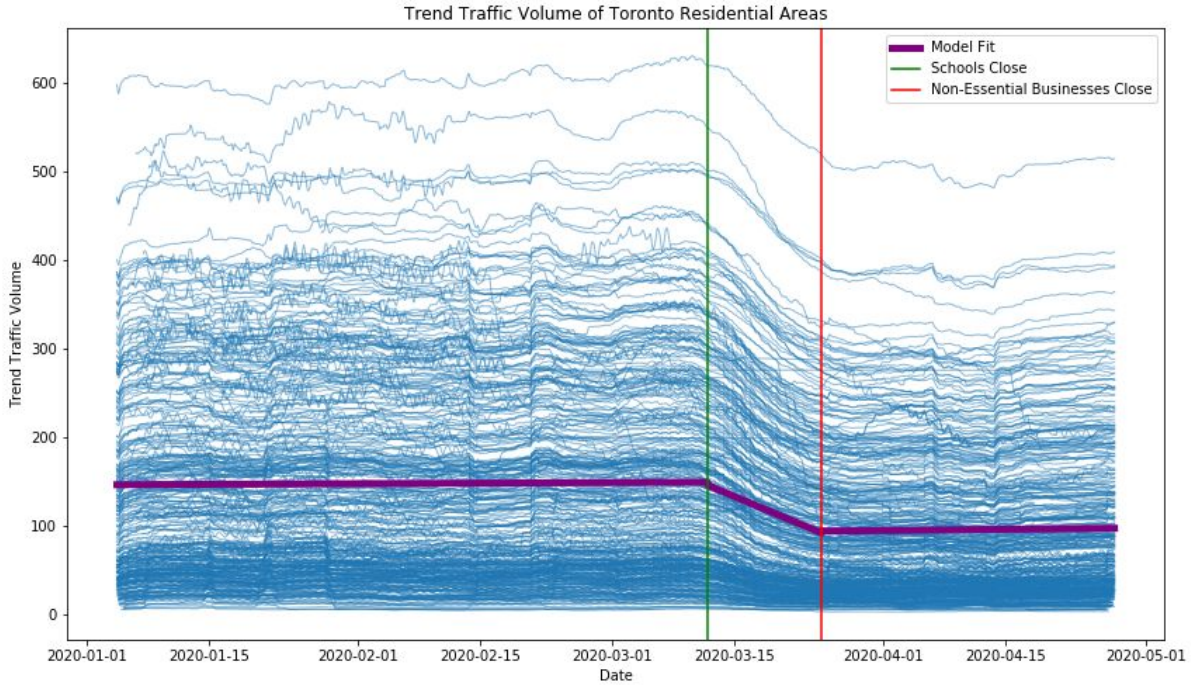
Toronto Traffic Before and During Quarantine: By Speed of Vehicle and Hour of Day

- March 12: Schools close
- March 25: All non-essential businesses close
- Before Quarantine: Before March 12
- During Quarantine: After March 25
- Volume decreases:
  - during school drop off and pickup hours
  - in the middle of the day, unrelated to school
- hence representative of regular residential area traffic

(Figure 1)

Regression Model on Traffic Data: A Significant Decrease in Hourly Traffic

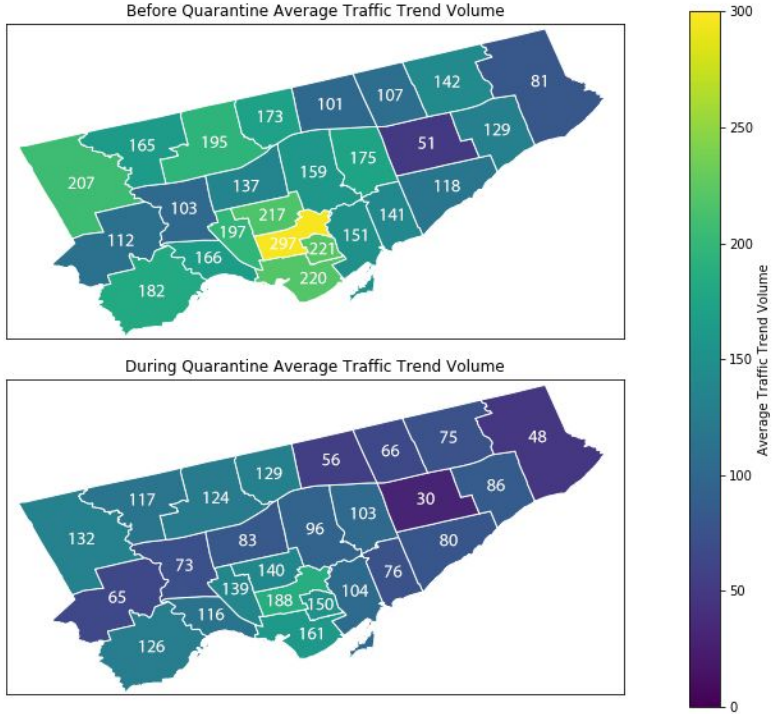


(Figure 2)

- Summed up volume across all speeds to get total volume each hour
- Used seasonal decomposition to extract the trend volume at each location
- Fit a linear mixed model on the trend data with factors:
  - Hoarding Season (from March 12 to March 25)
  - Quarantine (after March 25)
  - Datetime (and interactions with 2 indicators above)
  - Random Effect: sign_id of each location
- Model predicts a significant decrease in traffic volume for residential areas in Toronto of around 56 vehicles per hour with a p-value smaller than 0.001

Average Hourly Traffic Volume By Ward

- Each ward experienced a decrease in average traffic volume
- Overall, traffic volume in Toronto has decreased in residential areas from the time quarantine was announced
- The decrease in volume is relatively constant across all areas, average 56 vehicles per hour, instead of all decreasing to the same threshold
- In wards where there is higher average traffic volume, more action needs to be taken to encourage social distancing



(Figure 3)