

WORKSHOP: SUSTENTABILIDADE E INCLUSÃO SOCIAL NA GESTÃO DE  
TRANSPORTES PÚBLICOS: TÉCNICAS DE APOIO À DECISÃO

# UTILIZAÇÃO DE REDES SOCIAIS PARA SUPORTE À GESTÃO DA MOBILIDADE

14 DE DEZEMBRO DE 2021

**FCT**  
Fundação  
para a Ciência  
e a Tecnologia

**COMPETE**  
2020

**PORTUGAL**  
2020



UNIÃO EUROPEIA  
Fundo Europeu  
de Desenvolvimento Regional

(PTDC/ECI-TRA/32053/2017 and POCI-01-0145-FEDER-032053)



TÂNIA FONTES

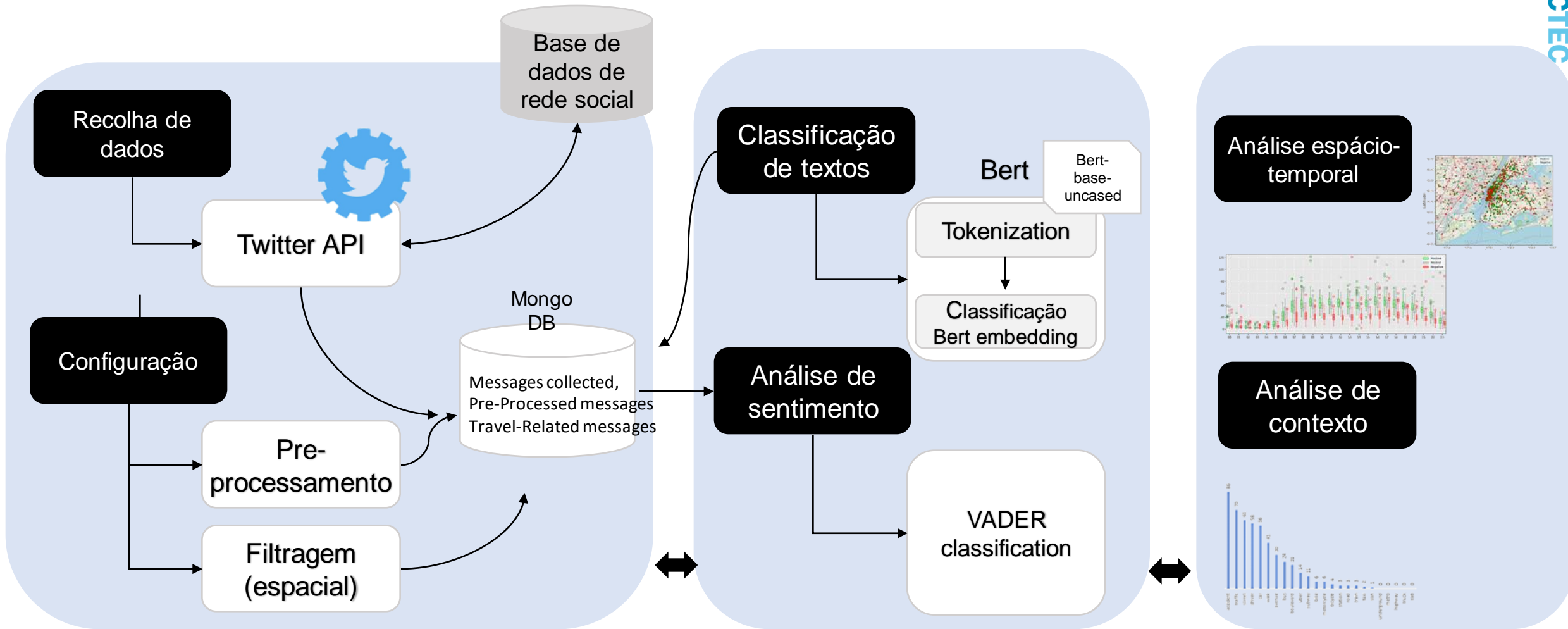
# ENQUADRAMENTO

- 50,6% da população total do mundo usa redes social
- Cerca de metade do tempo que as pessoas passam diariamente usando telefones móveis (~ 3,7 h) são gastos em aplicações sociais e de comunicação
- Mensagens / fotos / vídeos transacionados diariamente: WhatsApp (55 bilhões), Instagram (9,5 bilhões), Twitter (500 milhões), Weibo (100 milhões), WeChat (38 bilhões).
- Em 2050, projeta-se que 68% da população mundial seja urbana



A maioria dos dados fornecidos pelas redes sociais é gerada por utilizadores urbanos

# METODOLOGIA

















(i) Recolha de dados e configuração do sistema

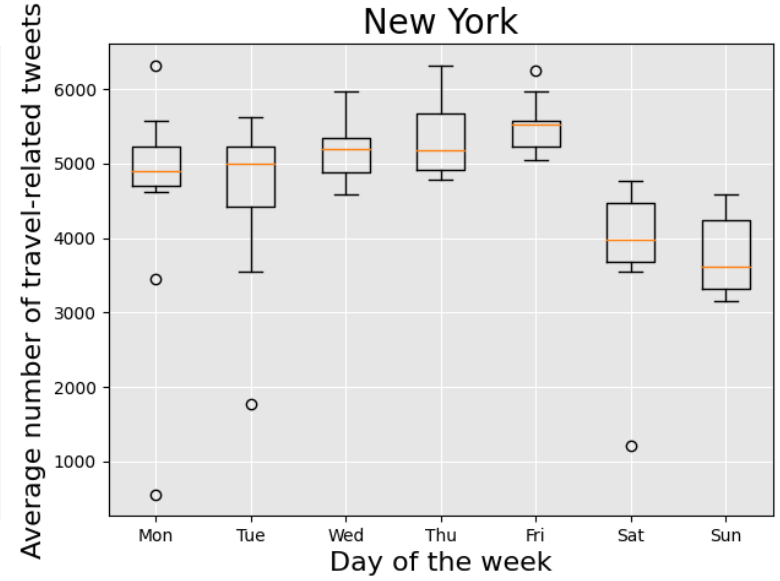
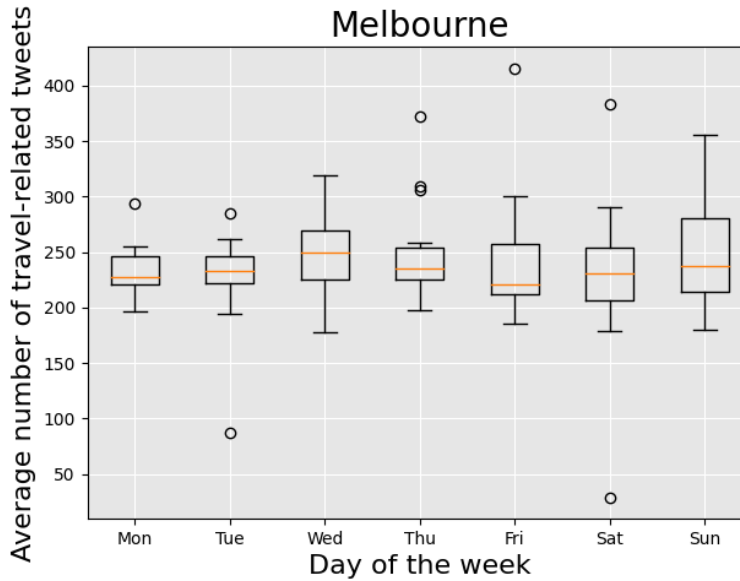
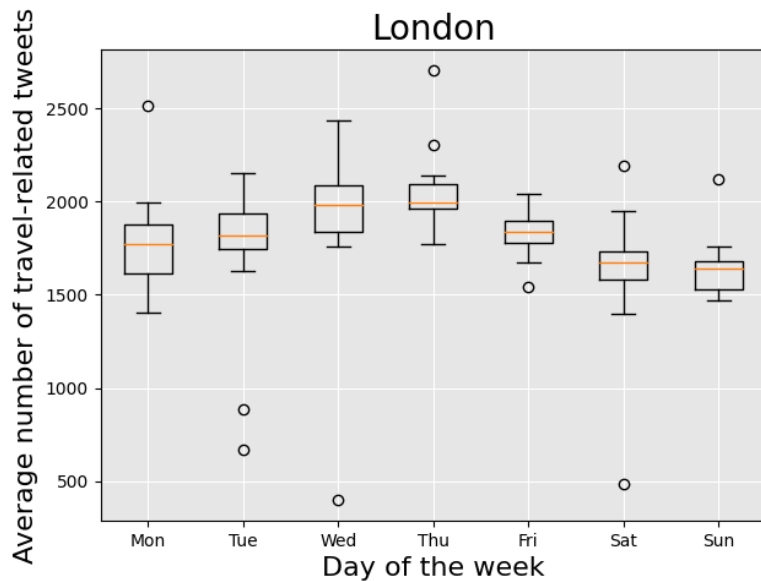
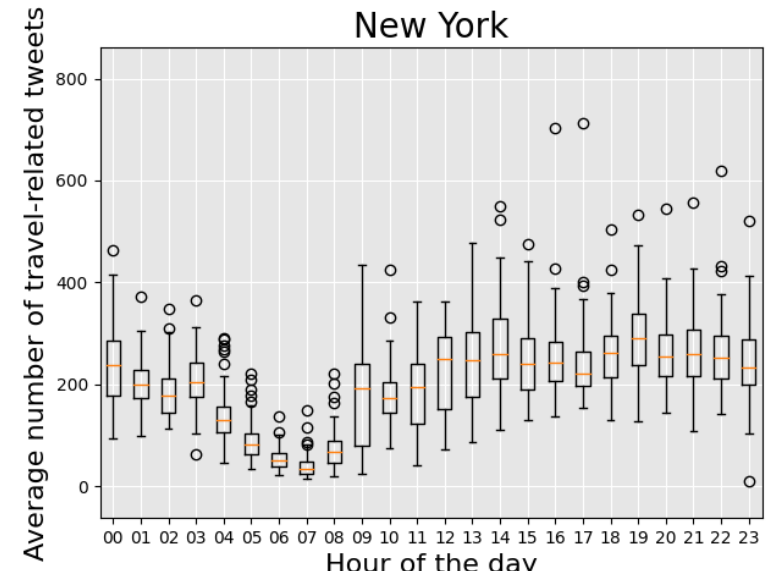
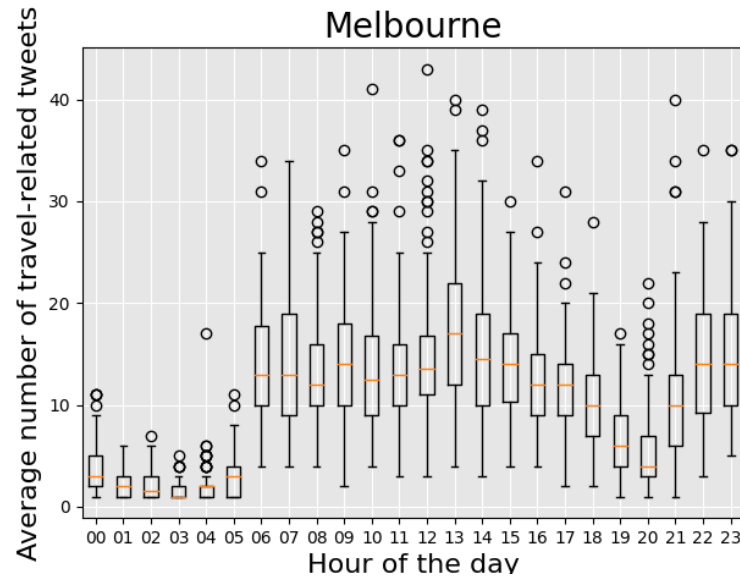
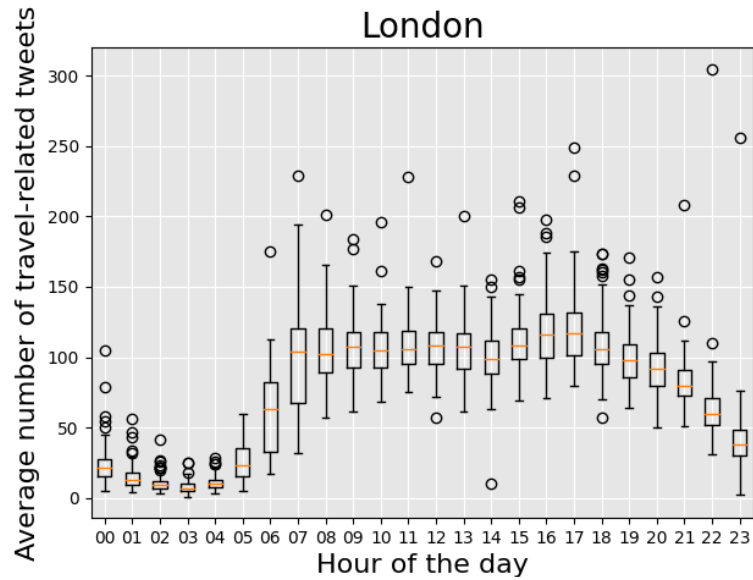
(ii) Análise de dados

(iii) Agregação/ visualização

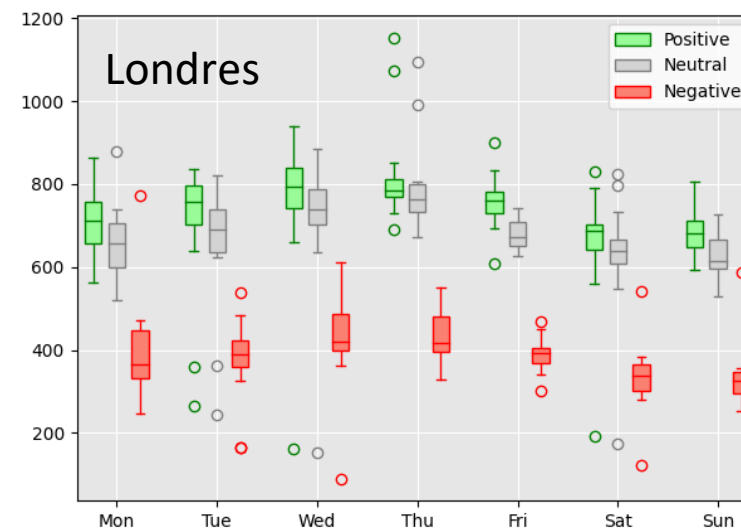
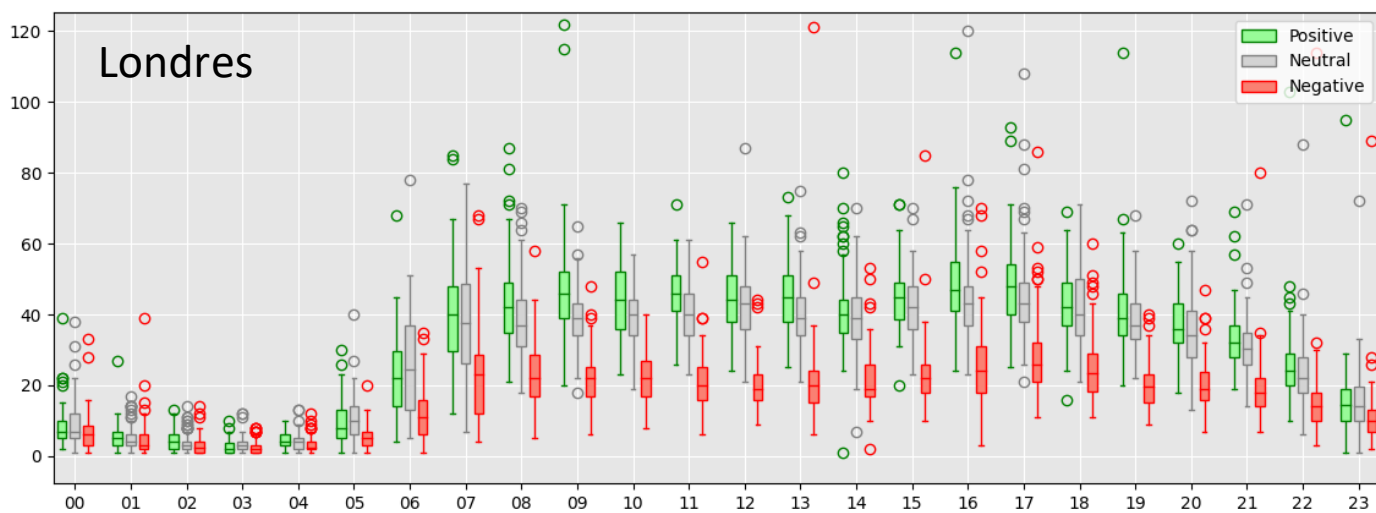
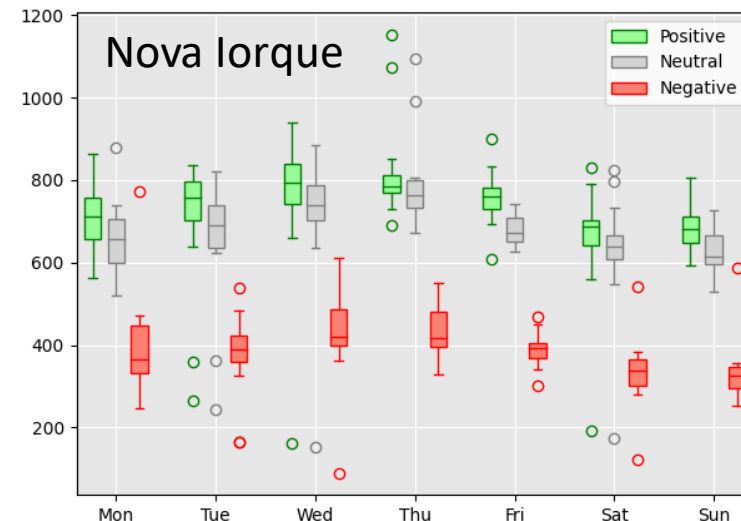
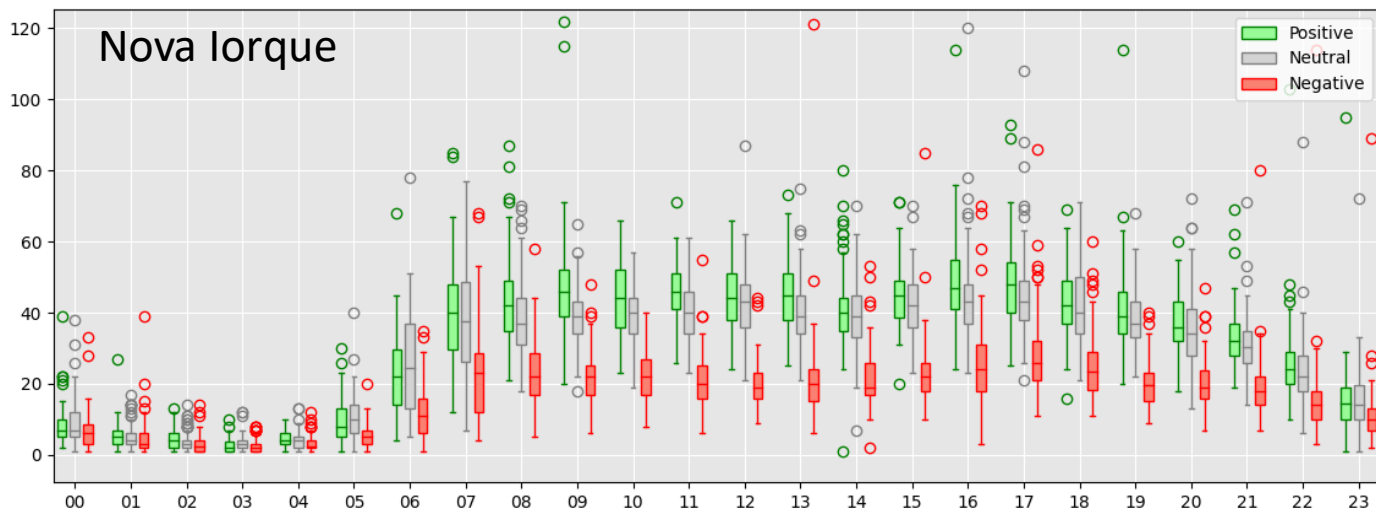
# CASOS DE ESTUDO

|                                       | Nova Iorque                                                                                                                                                           | Londres                                                                                                                                                                                                                                                                                                                                          | Melbourne                                                                                                                                                                |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Area (km<sup>2</sup>)</b>          | 784                                                                                                                                                                                                                                                      | 1,572                                                                                                                                                                                                                                                                                                                                                                                                                               | 9,990                                                                                                                                                                                                                                                       |
| <b>População</b>                      | 8.6 M                                                                                                                                                                                                                                                    | 8.1 M                                                                                                                                                                                                                                                                                                                                                                                                                               | 4.4 M                                                                                                                                                                                                                                                       |
| <b>Principais meios de transporte</b> |    |      |    |
| <b>Clima</b>                          | Húmido subtropical                                                                                                                                                                                                                                       | Temperado oceânico                                                                                                                                                                                                                                                                                                                                                                                                                  | Temperado oceânico                                                                                                                                                                                                                                          |
| <b>Idioma</b>                         | EN                                                                                                                                                                                                                                                       | EN                                                                                                                                                                                                                                                                                                                                                                                                                                  | EN                                                                                                                                                                                                                                                          |

# ANÁLISE DE FLUXOS

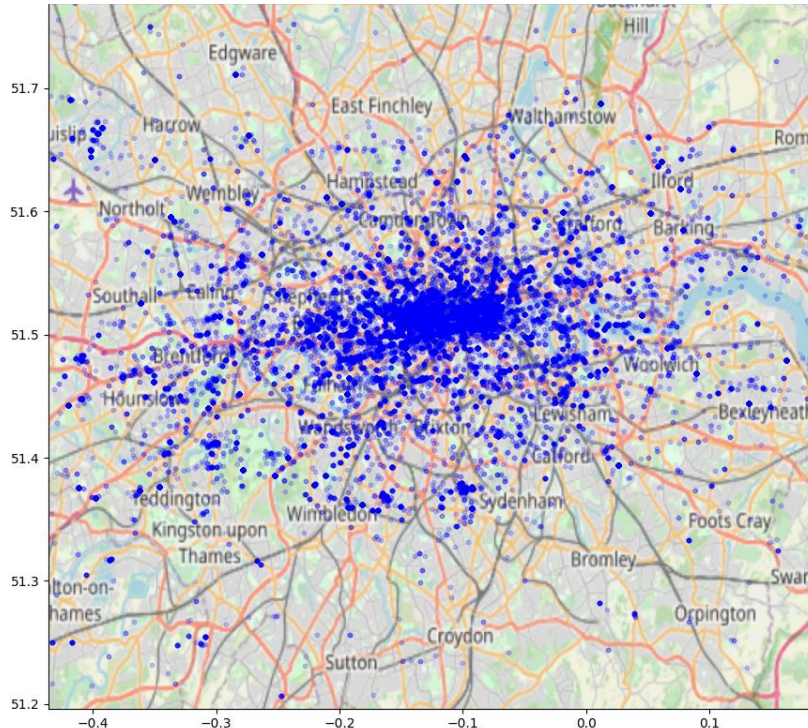


# ANÁLISE TEMPORAL

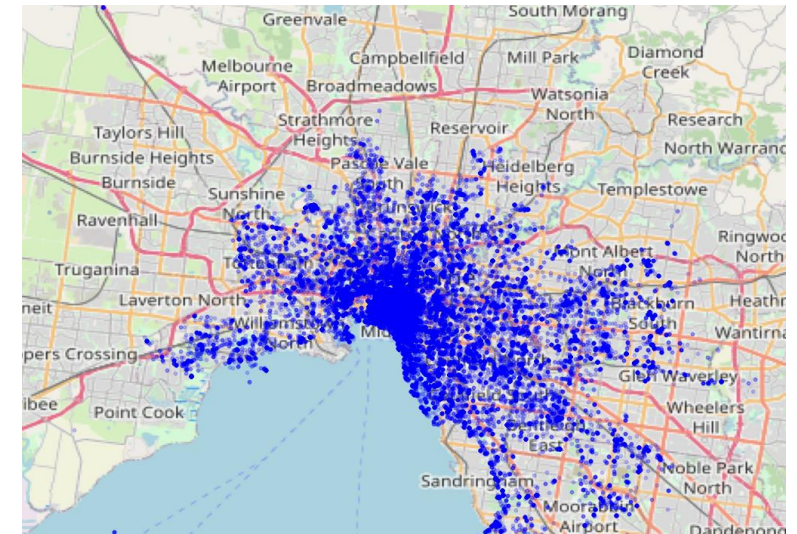
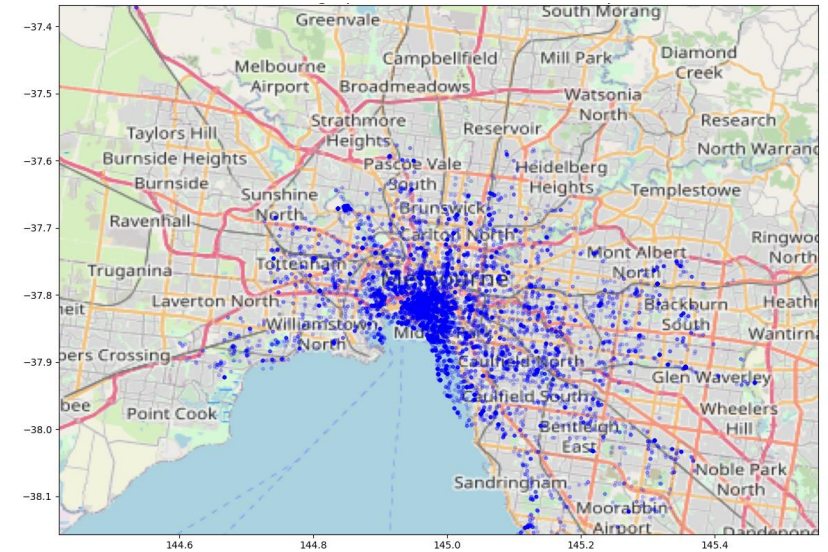
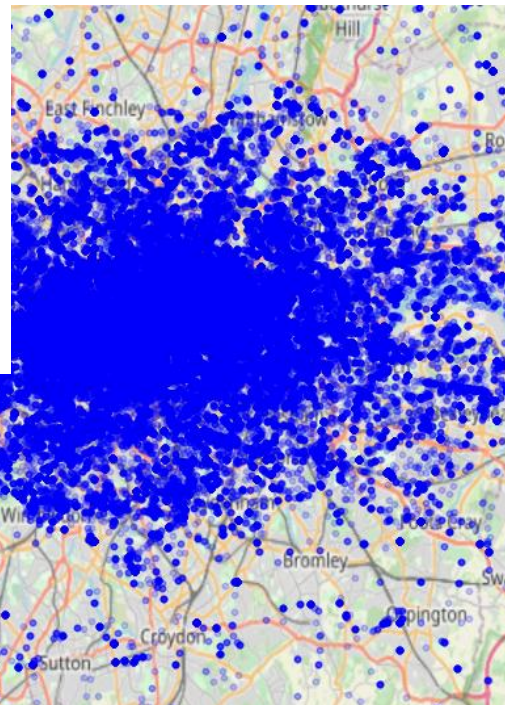


# ANÁLISE ESPACIAL

Melbourne

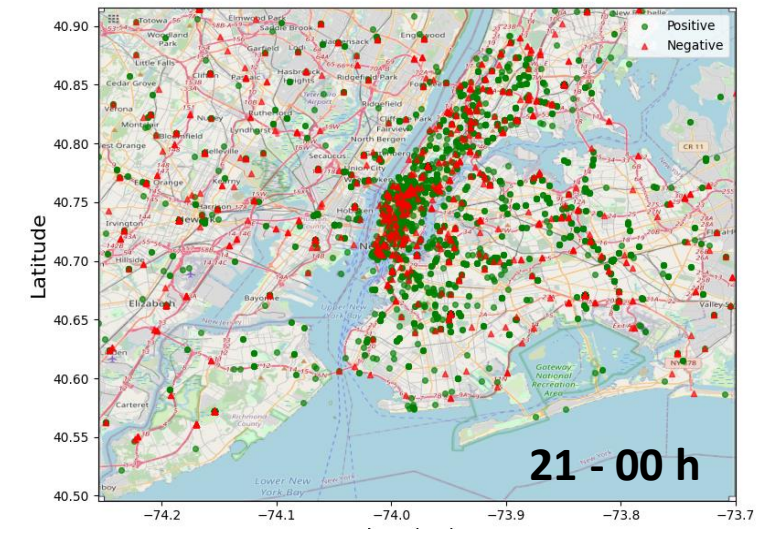
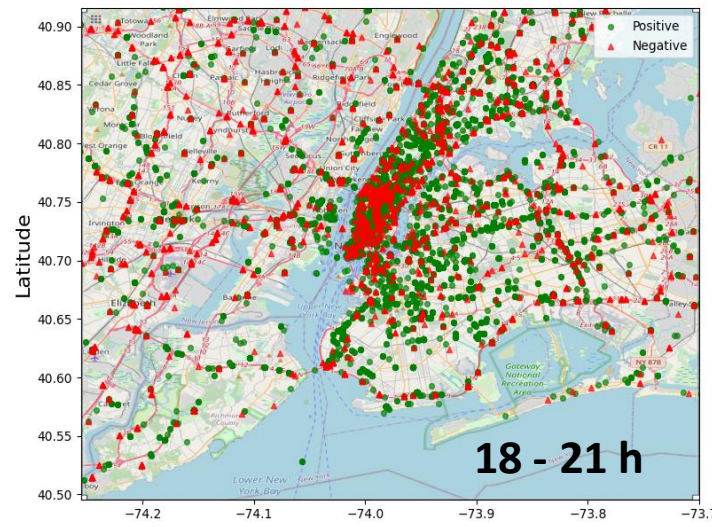
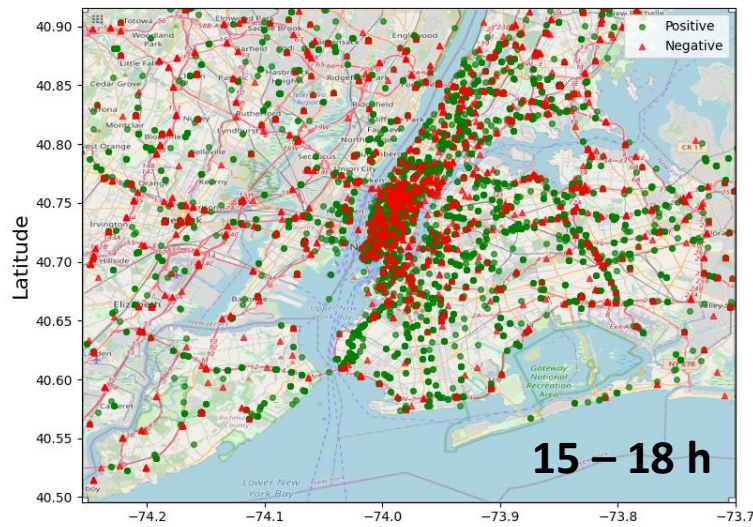
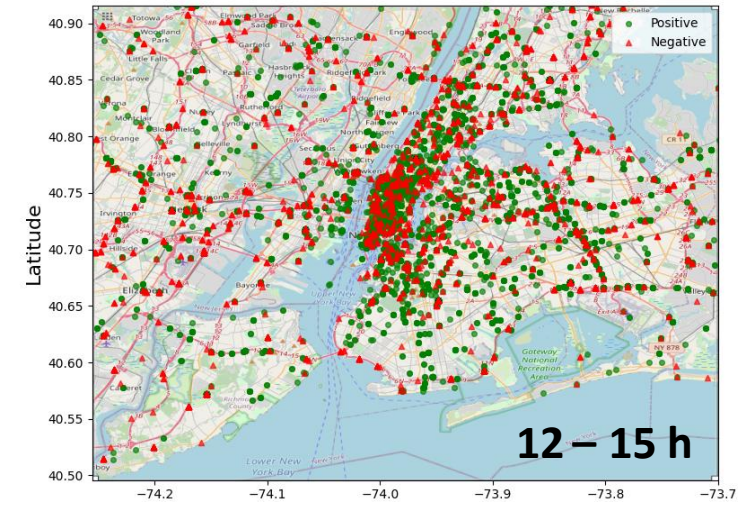
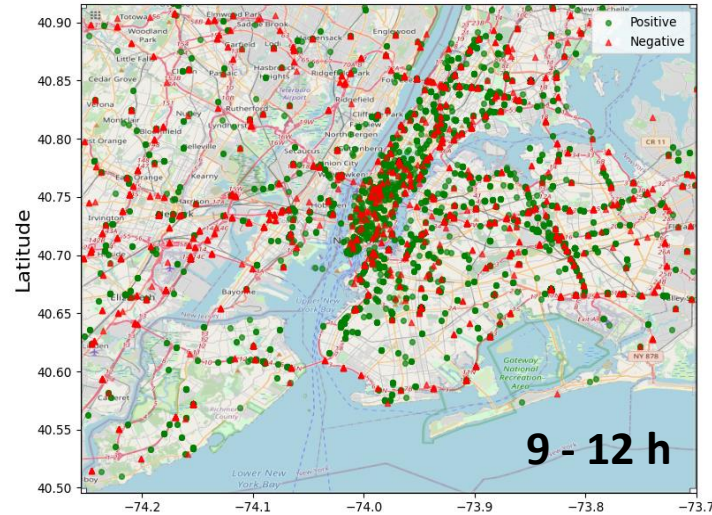


Londres



# ANÁLISE ESPACIAL

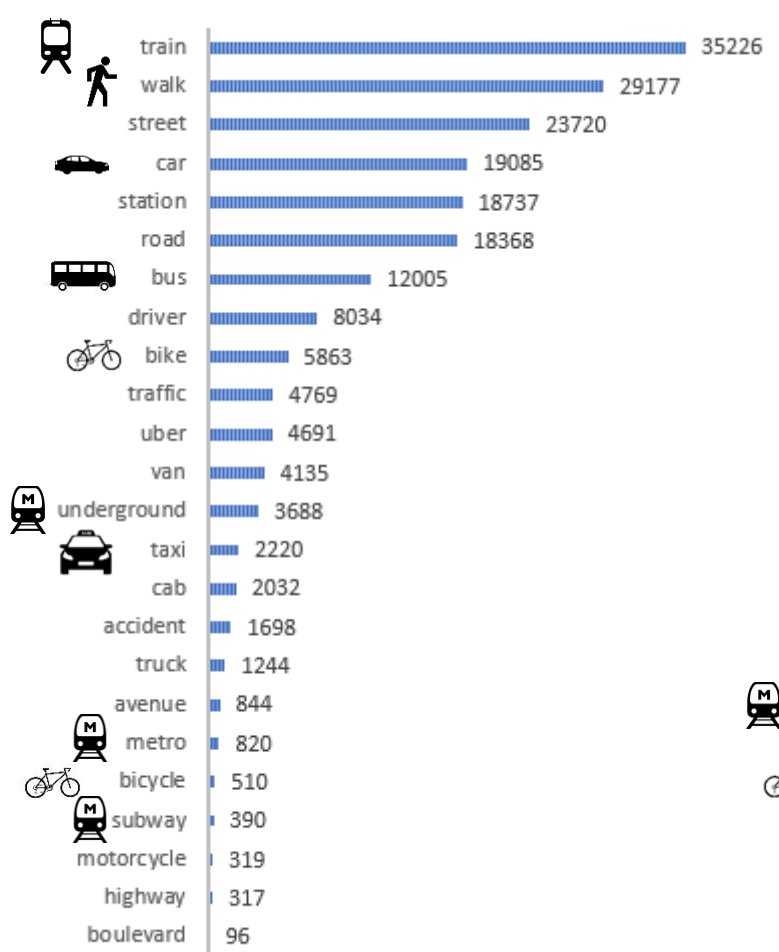
Nova Iorque, 17/5/2017





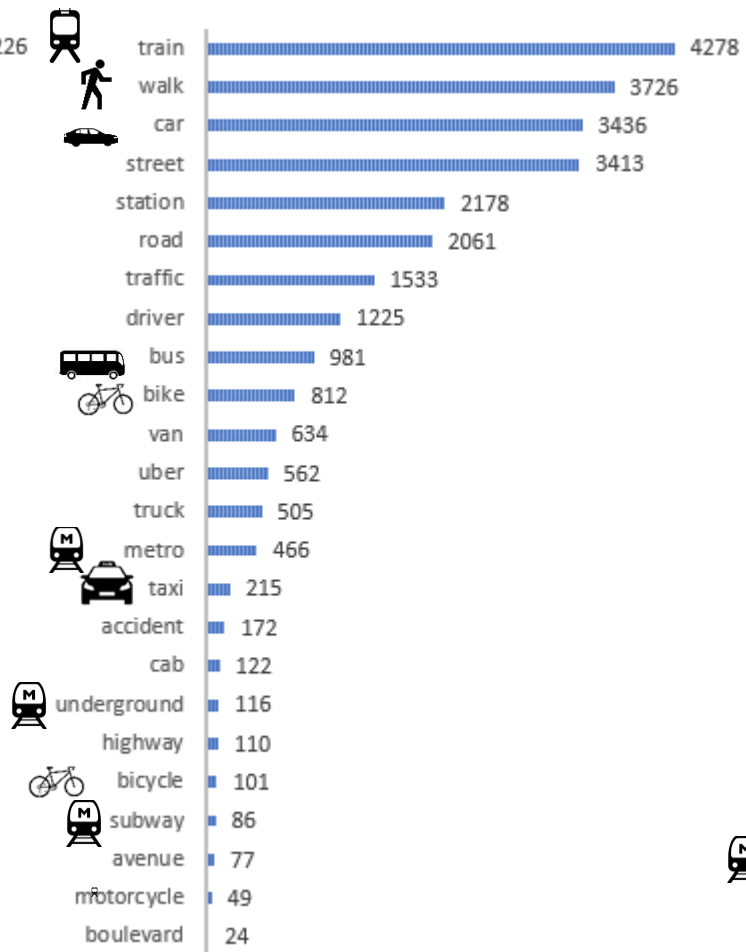
# ANÁLISE DE CONTEXTO

London



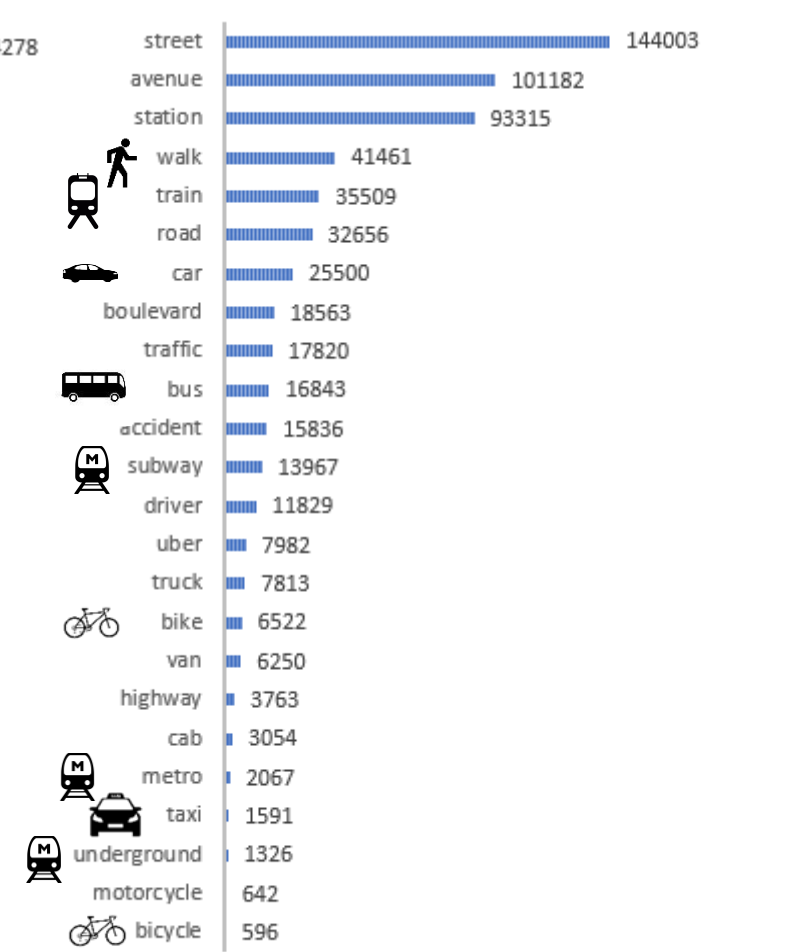
Contagem de palavras

Melbourne

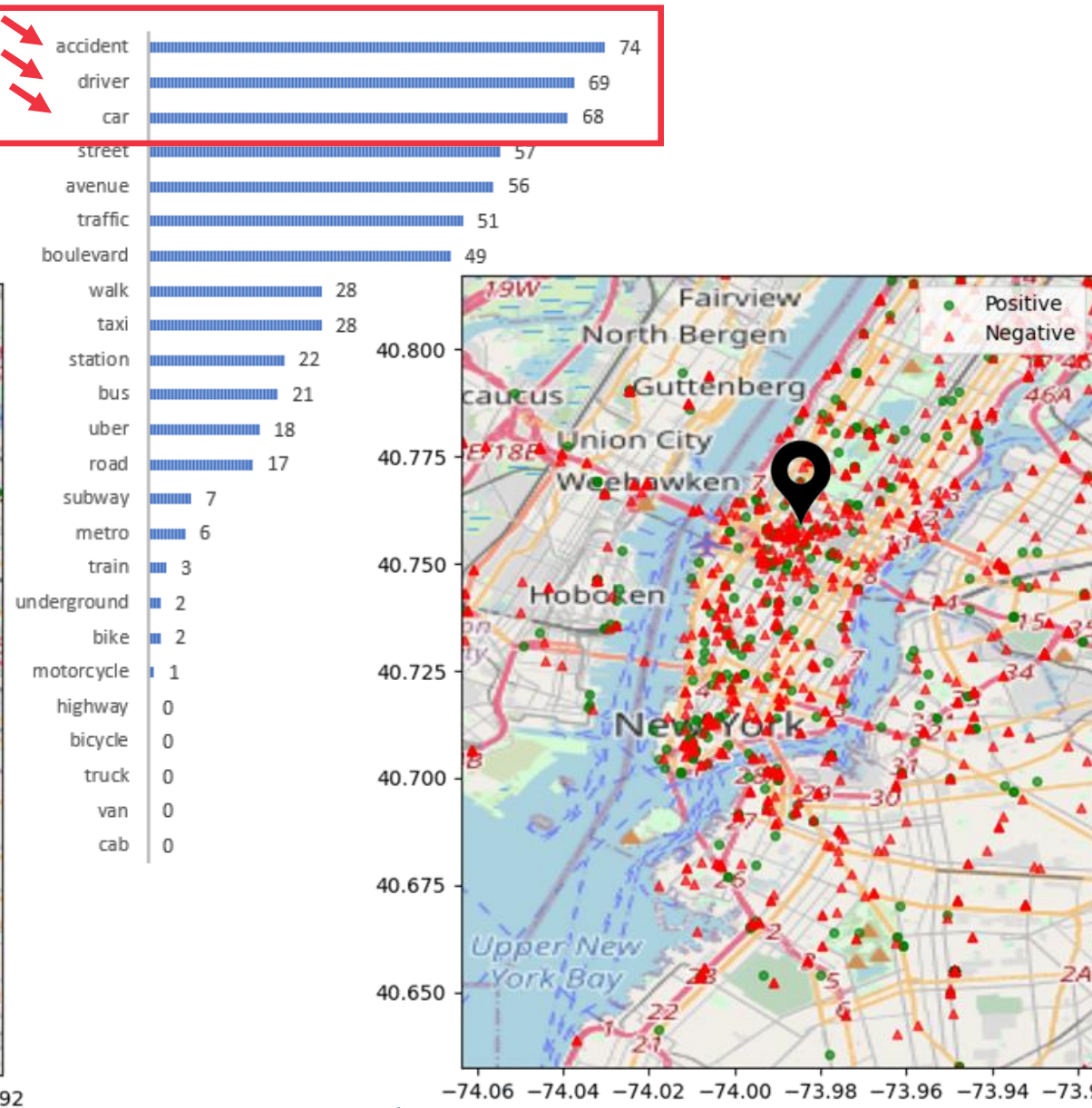
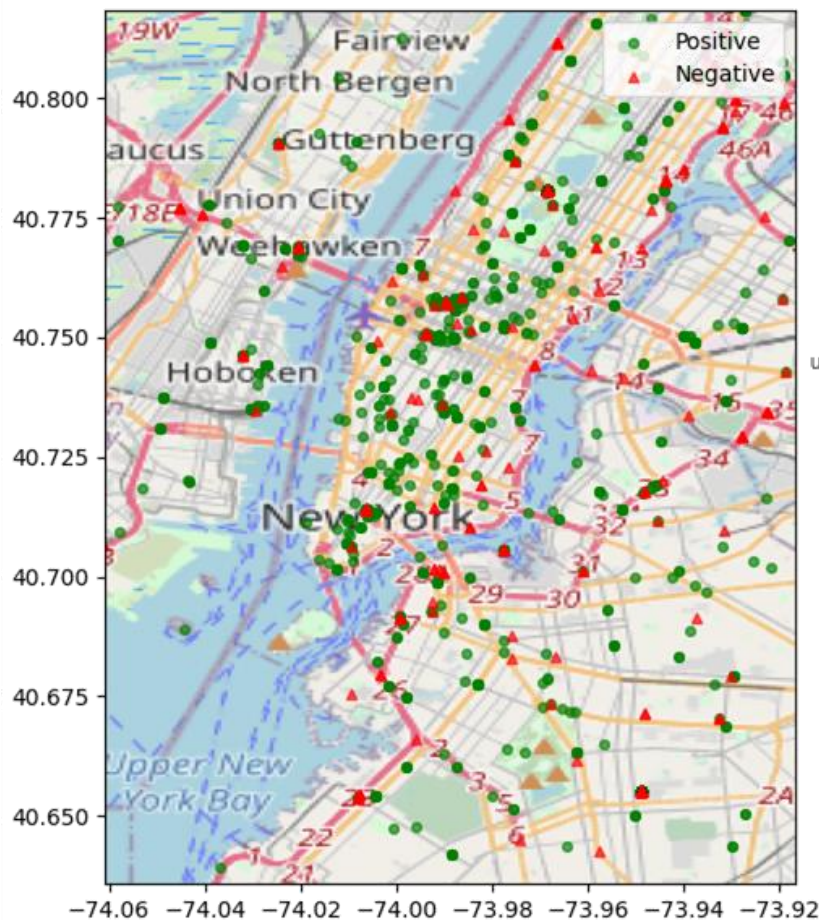
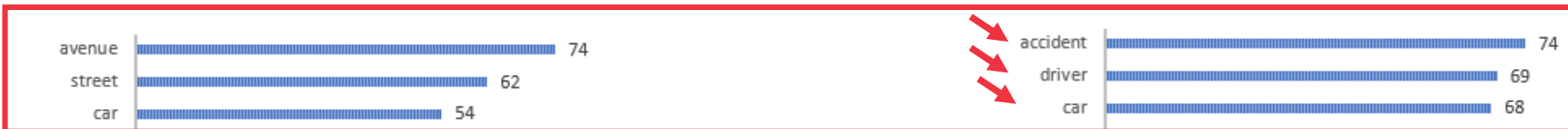


Contagem de palavras

New York



Contagem de palavras



Localização de um acidente

11h53 EDT de 18/5/2017: um carro bateu na Times Square. Uma pessoa morreu e 20 ficaram feridas.

# Referências

- Murçós, F. (2021), Urban transport evaluation using knowledge extracted from social media, (Advisor: T. Fontes, Co-advisor: R. Rossetti). Dissertation presented for obtaining the MsC degree in Electrical and Computer Engineering, FEUP.
- Murçós, F. Fontes, T., Rossetti, R. (2021). Are BERT embeddings able to infer travel patterns from Twitter efficiently using a unigram approach? IEEE International Smart Cities Conference 2021, 7-10/9/2021, virtual conference, accepted.

Campus da Faculdade de  
Engenharia da Universidade  
do Porto

Rua Dr. Roberto Frias

4200-465 Porto, Portugal



T +351 222 094 000

[info@inesctec.pt](mailto:info@inesctec.pt)

[www.inesctec.pt](http://www.inesctec.pt)

