

The background image is a wide-angle aerial photograph of London at dusk or night. It captures the illuminated skyline of the City of London, the River Thames flowing through the city, and a dense grid of streets and buildings. The lights from the windows of buildings and street lamps create a warm, glowing atmosphere against the dark blue of the evening sky.

# Predicting traffic accidents in London

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# PROBLEM



- ❖ Each year about 1.25 million people die in traffic accidents
- ❖ Hard to predict where these will occur, to take necessary action (e.g. avoiding these routes in routing software or for driverless cars)
- ❖ Also relevant for insurance companies and government

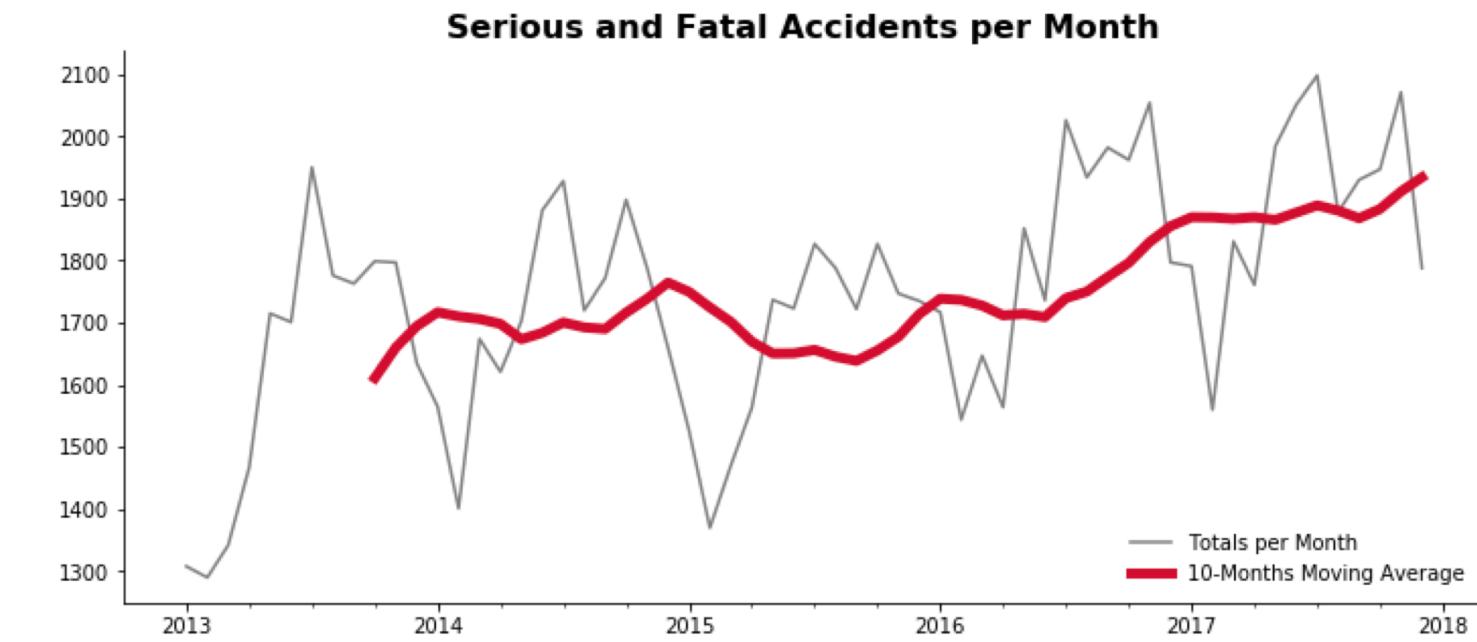
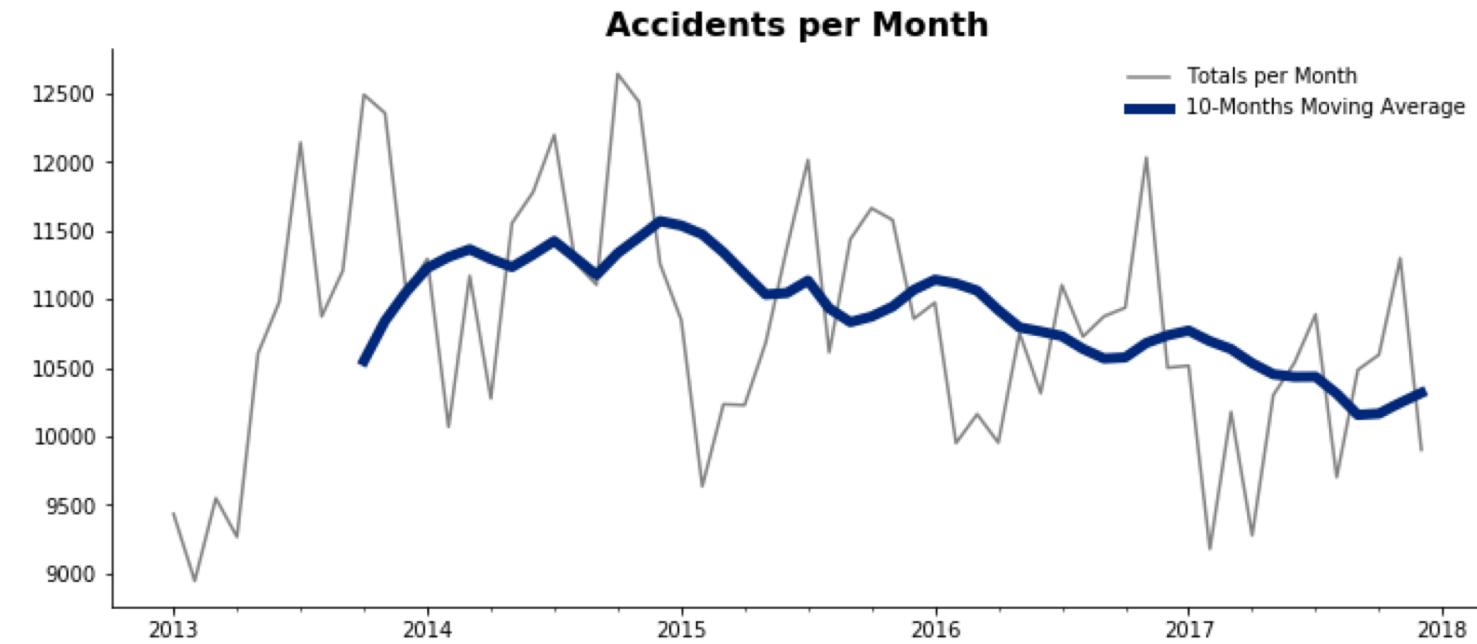
# THE SOLUTION

Using satellite imagery combined  
with traffic accident and local  
area data to predict the location  
of traffic accidents



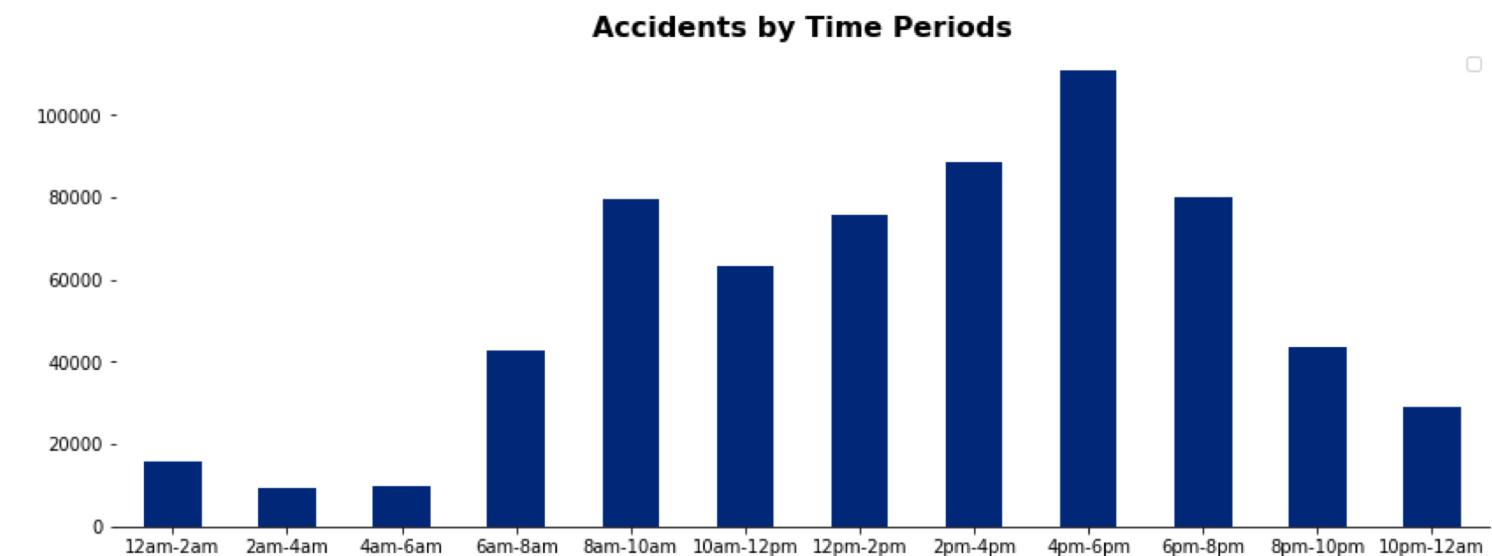
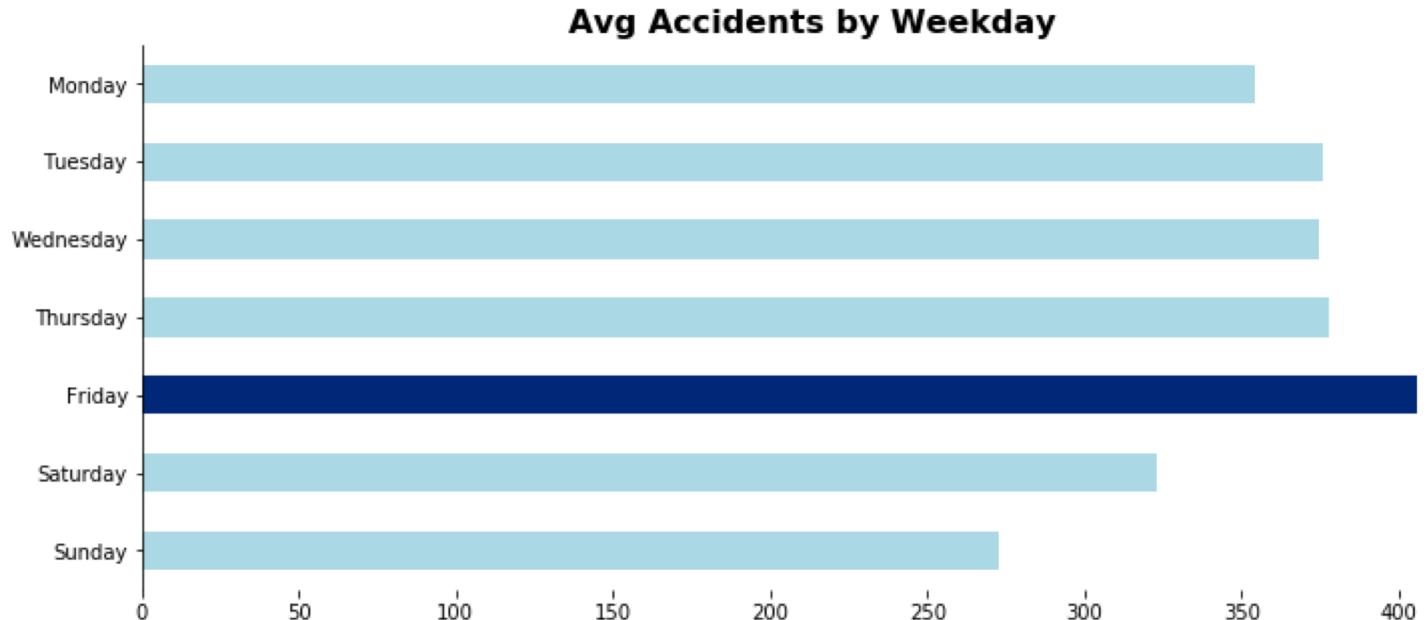
# Accident trends

- ❖ Month: November & July
- ❖ Day: Friday
- ❖ Time: 4PM-6PM
- ❖ Age: 26-35 years old



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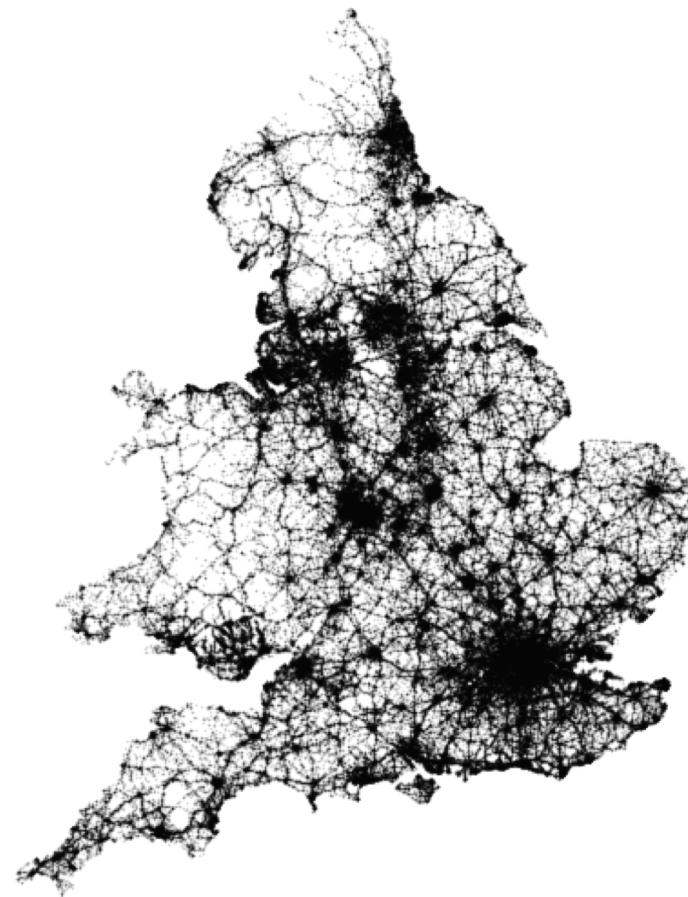
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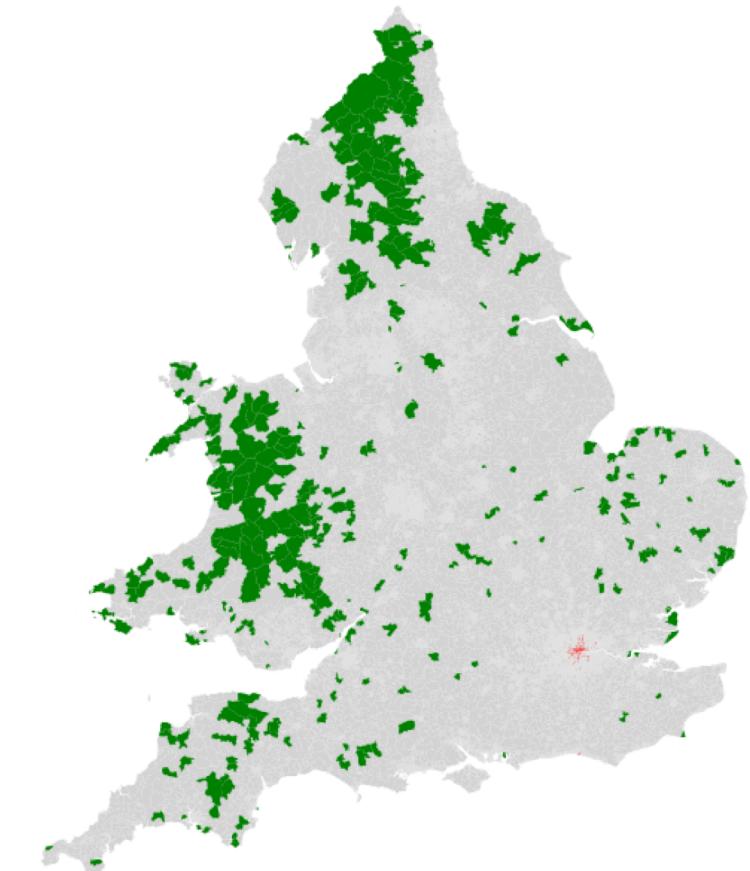
# Accident hot-spots

Road traffic accidents in England and Wales, 2013-2017

- ❖ Big cities have the most traffic accidents
- ❖ London contains 95% of the 300 worst areas of traffic accident density

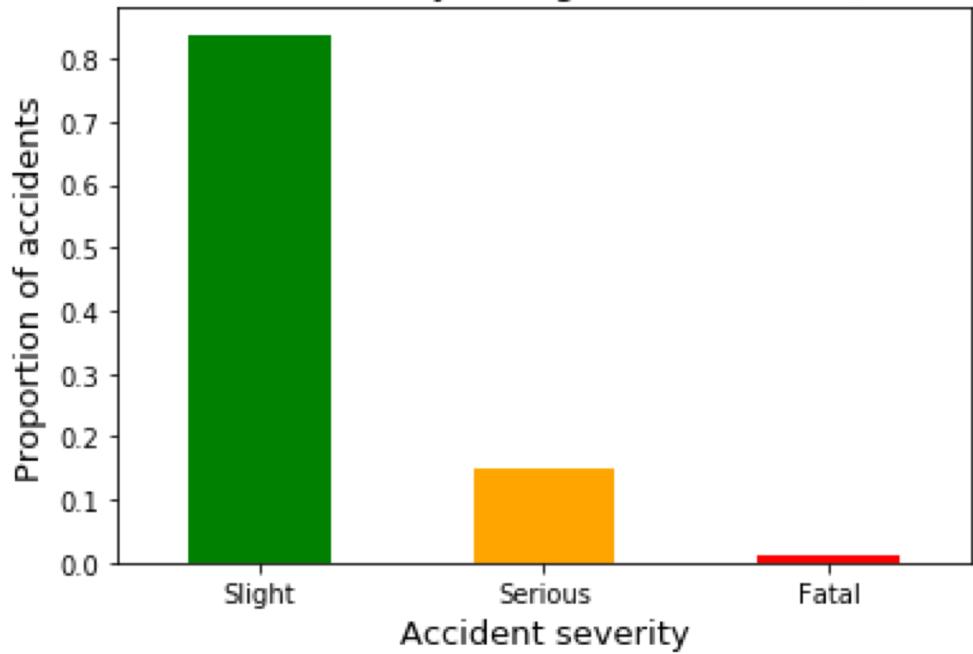


LSOAs in England and Wales with the highest (red) and lowest (green) density of traffic accidents 2013-2017



# Accident severity

Traffic accident severity in England and Wales, 2013-2017



Fatal accidents are more likely to be:

- ❖ On larger roads with higher speed limits
- ❖ On straight sections of road (not junctions)
- ❖ At night
- ❖ In rural areas

# Methodology

- ❖ Three models - only satellite images, only other data, and combined
- ❖ Combined model performed the best (80% accuracy), with opportunities for further improvement

Examples of traffic accident areas

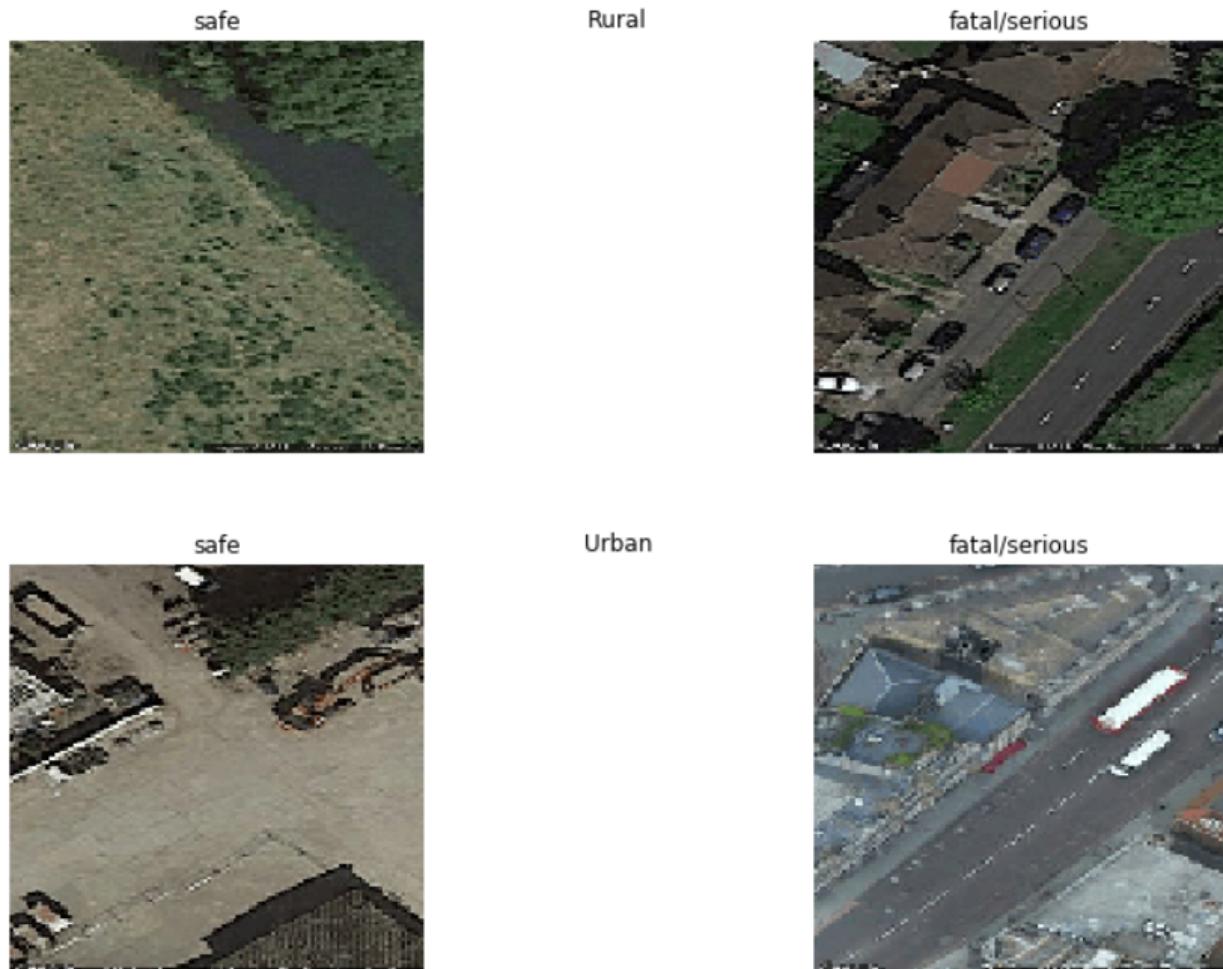


Examples of areas without traffic accidents



# Predicting the location of traffic accidents

- ❖ Predicting locations of serious or fatal accidents
- ❖ Able to predict the worst locations for traffic accidents with 82% accuracy



# Rural and urban danger zones



# Conclusions & future work

- ❖ Being able to predict the location of road traffic accidents could have many beneficial uses
- ❖ Promising results from combining satellite images and other data
- ❖ Future work could include:
  - Expanding to other cities and countries
  - Adding other data sources
  - Adding more images to learn from

An aerial photograph of London at night, showing the illuminated skyline of the City of London, the River Thames, and various landmarks like the London Eye and the Gherkin. The city is bathed in a warm glow from numerous streetlights and building facades.

Any questions?