Pedestrian Traffic Forecasting

in

Melbourne City Centre

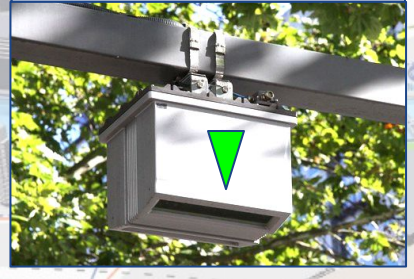
by

Khairul Omar

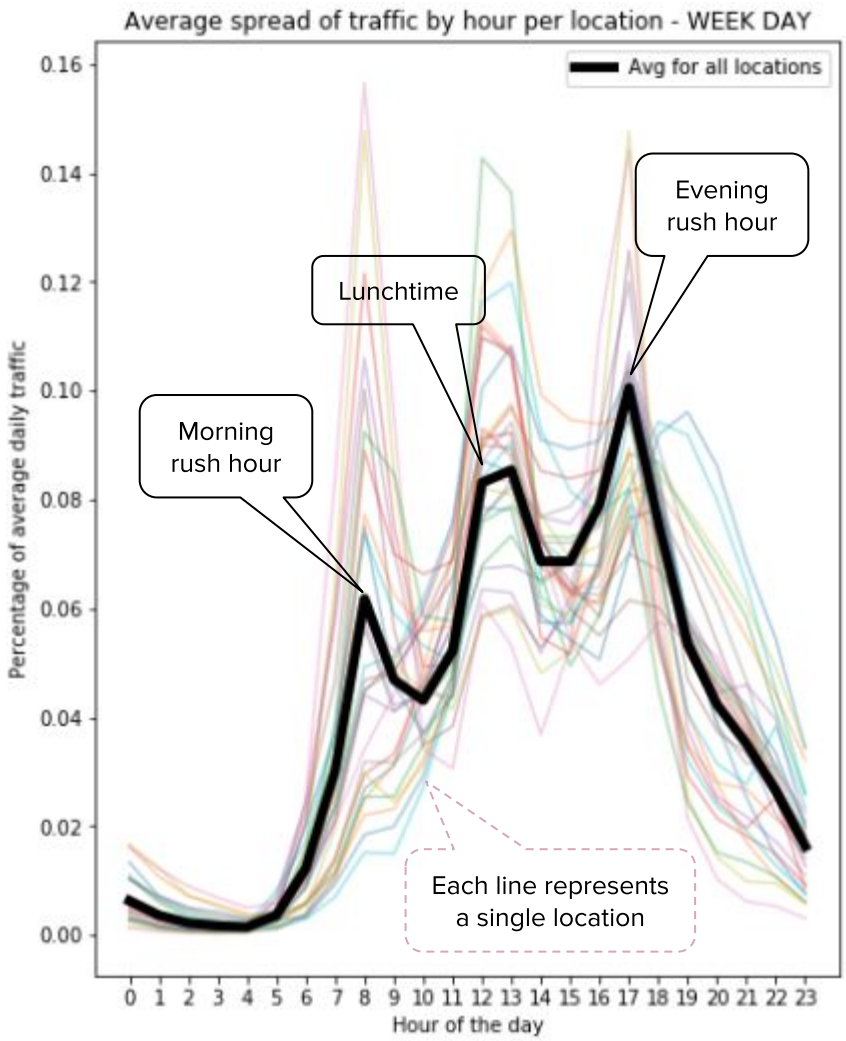
Flatiron School London

Pedestrian counting system in Melbourne

Pedestrian counting sensors



Project scope boundary



Objective

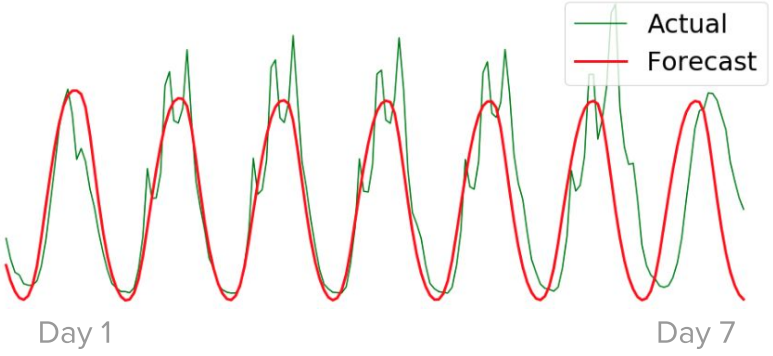
Develop a model to generate **hourly forecast 7 days in advance**

Challenges

- Can a single general model be applied to every location?
- How to account for hourly, daily and seasonal variations?
- What are the best machine learning techniques to use?

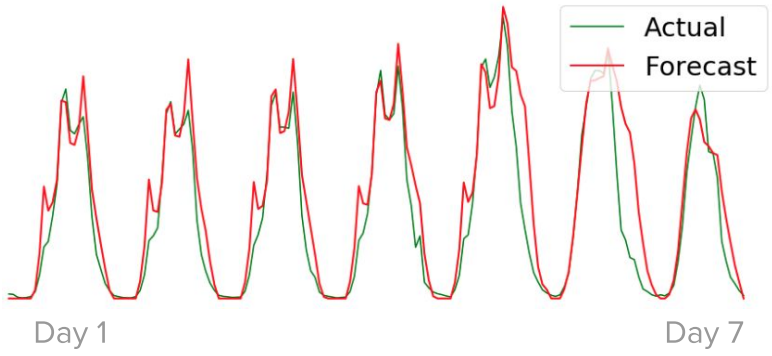
7-day Forecasting Model Results

Model 1 using LSTM Neural Network



- **L**ong **S**hort-**T**erm **M**emory recurrent neural network
- Low performance in hourly variations despite long training
- Out of sync after 4 days

Model 2 SARIMA Time Series



- **S**easonal **A**uto **R**egressive **I**ntegrated **M**oving **A**verage
- Good accuracy in forecasting hourly and daily variations
- Relatively fast to deploy

Benefits of good pedestrian forecasting

City planning policy

Pedestrian-friendly urban design and planning policy can be rolled out to enhance public comfort and safety.

Police resources

Extra security forces can be deployed during forecasted busy hours at different locations of the city centre.

Business opportunities

Understanding pedestrian traffic volume and flow pattern can help businesses to tap hidden opportunities.

Thank you

Any question?

About me

Khairul Omar

- Senior Business Analyst from Engineering background
- 10 years experience in business intelligence (BI) & forecasting
- Degree in UK, MBA in France, career in Luxembourg & Australia

linkedin.com/in/khairulomar
khairul.omar@gmail.com