






## Title of submission to PLOS journals


Name1 Surname<sup>1,2</sup>, Name2 Surname<sup>2</sup>, Name3 Surname<sup>2,3</sup>, Name4 Surname<sup>2</sup>, Name5 Surname<sup>2</sup>, Name6 Surname<sup>2</sup>, Name7 Surname<sup>1,2,3</sup><sup>\*</sup>, with the Lorem Ipsum Consortium<sup>†</sup>


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## Abstract

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## Author summary

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## Introduction

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$$P_Y = \underbrace{H(Y_n) - H(Y_n|\mathbf{V}_n^Y)}_{S_Y} + \underbrace{H(Y_n|\mathbf{V}_n^Y) - H(Y_n|\mathbf{V}_n^{X,Y})}_{T_{X \rightarrow Y}}, \quad (1)$$

## Materials and methods

### Source data

The New York City Department of Transportation (DOT) maintains a network of real-time traffic cameras across the New York City (NYC) metro area. These camera feeds are publicly available and are served at approximately one frame per second—with each frame being a 352x240 RGB .jpg. All together, the 650 cameras are distributed across the five NYC boroughs (see Table 1 and Figure 1 (map of cameras across boroughs)) and captures a continuous record of the NYC streetscape including roadways, building facades, and pedestrian facilities. With our focus on pedestrian foot traffic, each camera was hand-labelled as including pedestrian facilities or not; Figures 2-3 (pedestrian facility images) illustrate the distinction between cameras with and without pedestrian facilities.

Table 1. DOT cameras by New York City borough.

Borough	Bronx	Brooklyn	Manhattan	Queens	Staten Island	Bridges	Total
Total cameras	44	105	226	195	41	39	650
Cams w ped. facilities	13	30	157	65	11	5	281

### Training data

3918 daytime images were scraped from 17 cameras between 11:00-20:00 on April 30th, 2016 and June 19th, 2016. The 3918 images were then labelled by hand for positive and negative examples using 3:4 bounding boxes; the resulting labels were not exhaustive (i.e., not all pedestrians were labelled). Across the 3918 images, 16022 positive examples and 41449 negative examples were labelled—approximately a 2:5 (pos:neg) ratio. XML files were subsequently written for each image, following the PASCAL Visual Object Classes format.

### Faster RCNN training

- Tools utilized (small-corgi, Tensorflow) - Model structure. VGG - How many iterations. 90,000 - Learning rate. 0.005 - RPN positive overlap of 0.7, minimum size of 2. - Proposal method gt.

### Data collection

- Hardware - Scraping images - Scraping data from images - Return time - Data storage  
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## Results

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## Discussion

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## Conclusion

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## Supporting information

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## Acknowledgments

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