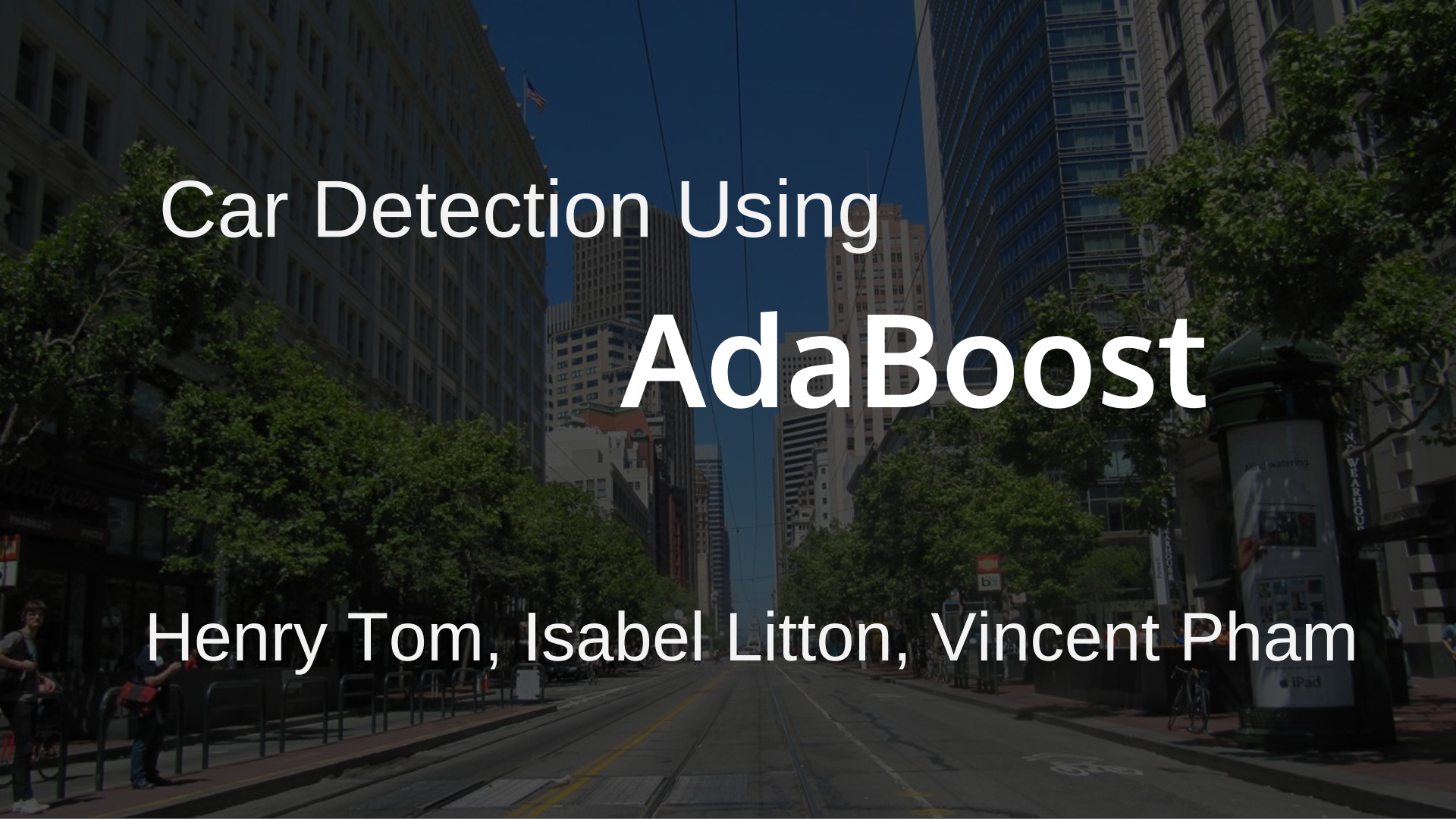


Car Detection Using AdaBoost

Henry Tom, Isabel Litton, Vincent Pham

Motivation

- Classification of cars in a video
- Develop and learn AdaBoost from scratch
- Groundwork for multiple object detection

Data

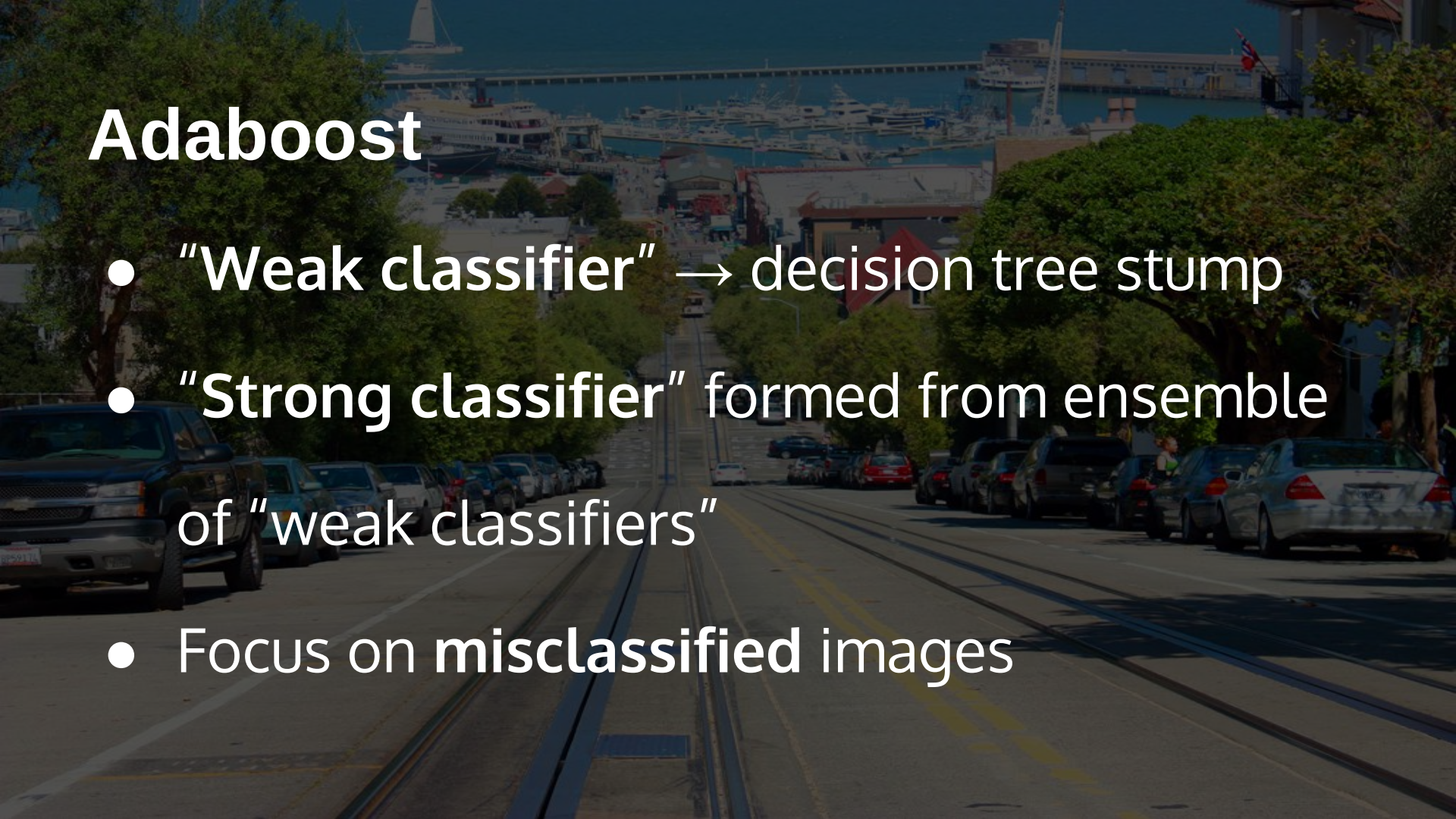
- University of Oxford & Paris

Positive

- Training: 500
- Test: 90

Negative

- Training: 500
- Test: 90

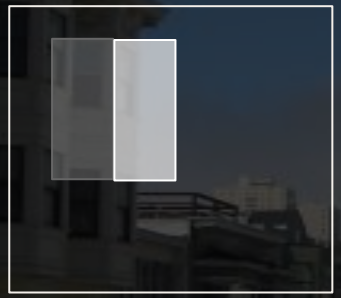


Adaboost

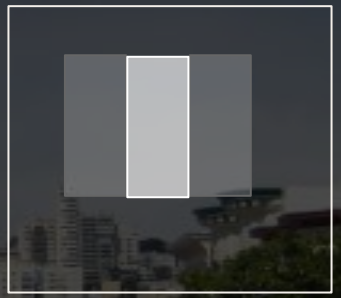
- "**Weak classifier**" → decision tree stump
- "**Strong classifier**" formed from ensemble of "weak classifiers"
- Focus on **misclassified** images

Haar Features

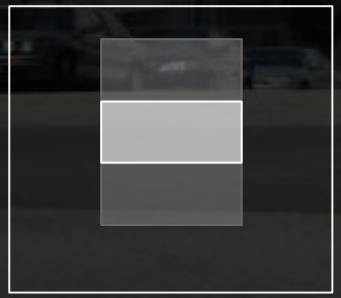
Vertical 2-Rectangle



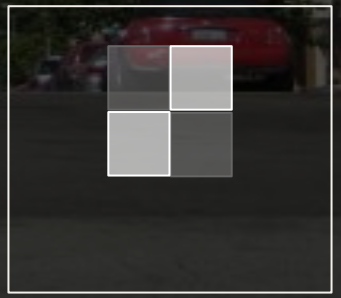
Vertical 3-Rectangle

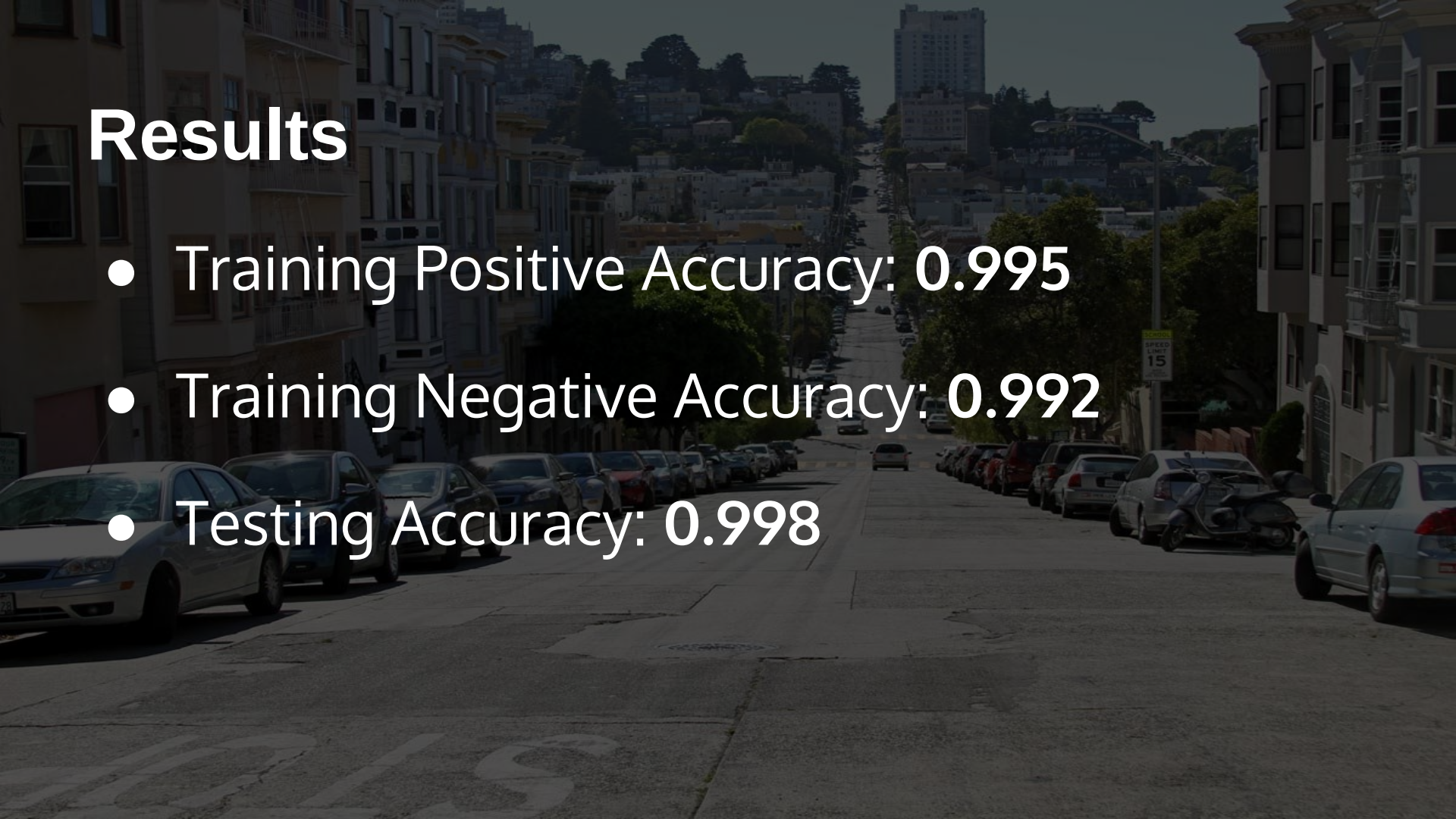


Horizontal 3-Rectangle



4-Rectangle





Results

- Training Positive Accuracy: **0.995**
- Training Negative Accuracy: **0.992**
- Testing Accuracy: **0.998**

Video

https://youtu.be/XCPRrZx2IcE

Thanks!

Contact us at:

https://github.com/USF-ML2/CaptainDataCrunch-

http://stuartmu[illegible]/assets/img/github_logo.png

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