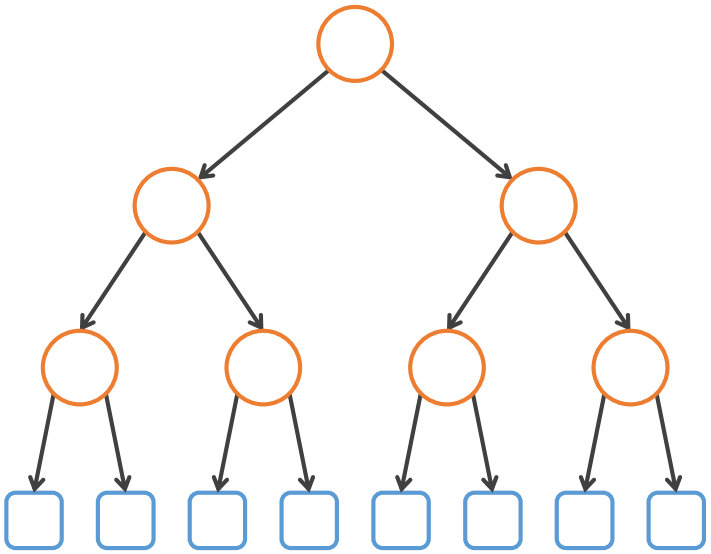
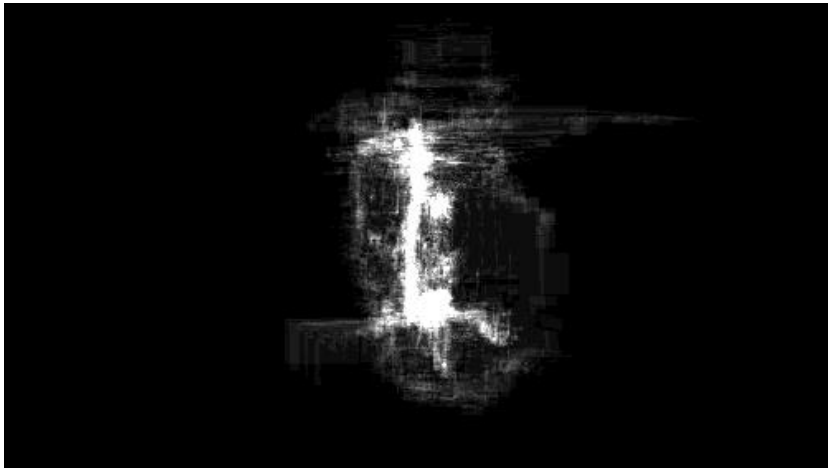
Tracking and Detection
Exercise 05

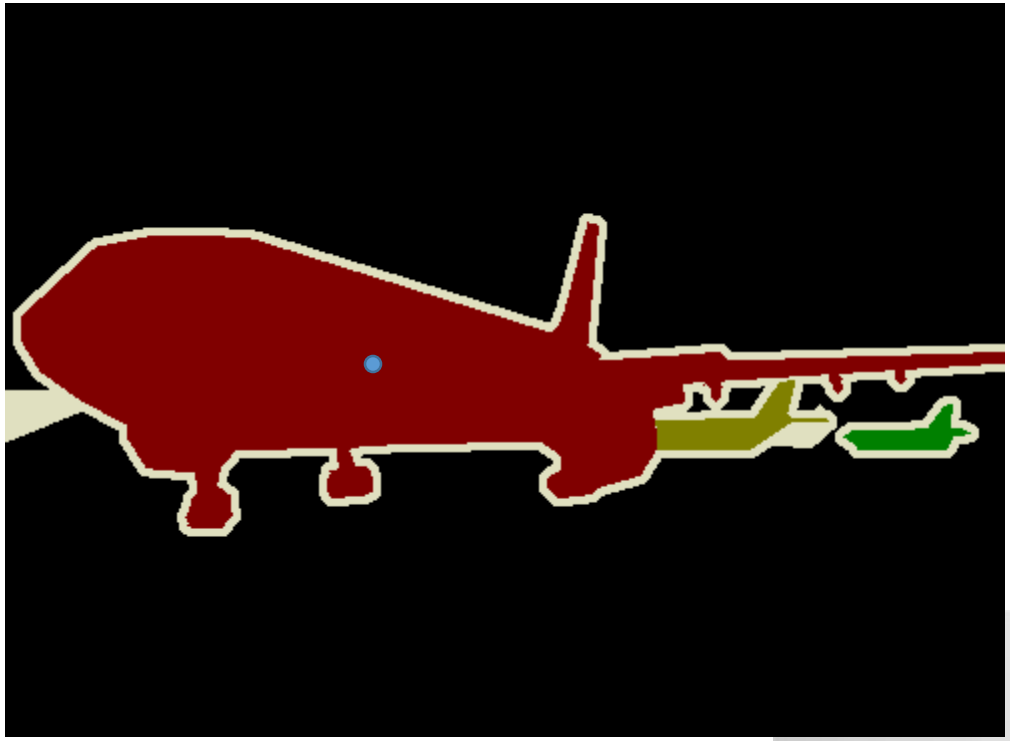
Hough Forests



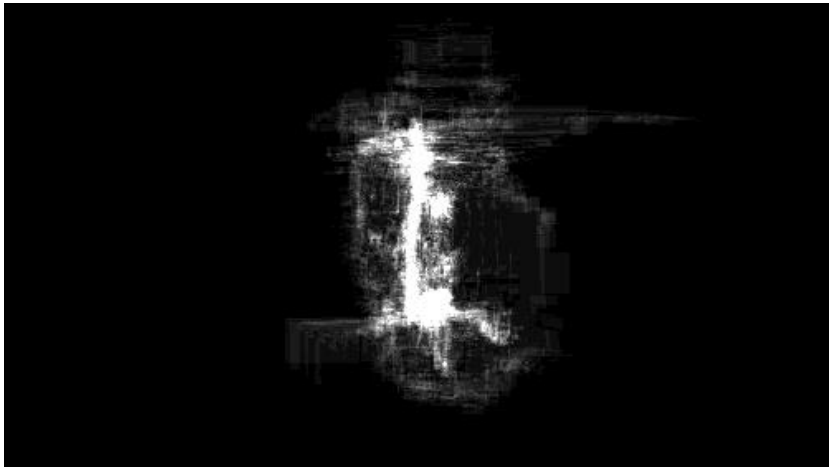
What is a Hough Forest?

- Find the center of an object
- Every pixels votes where it thinks the object is
- Create a heatmap of votes
- Center where it is hottest






Lufthansa



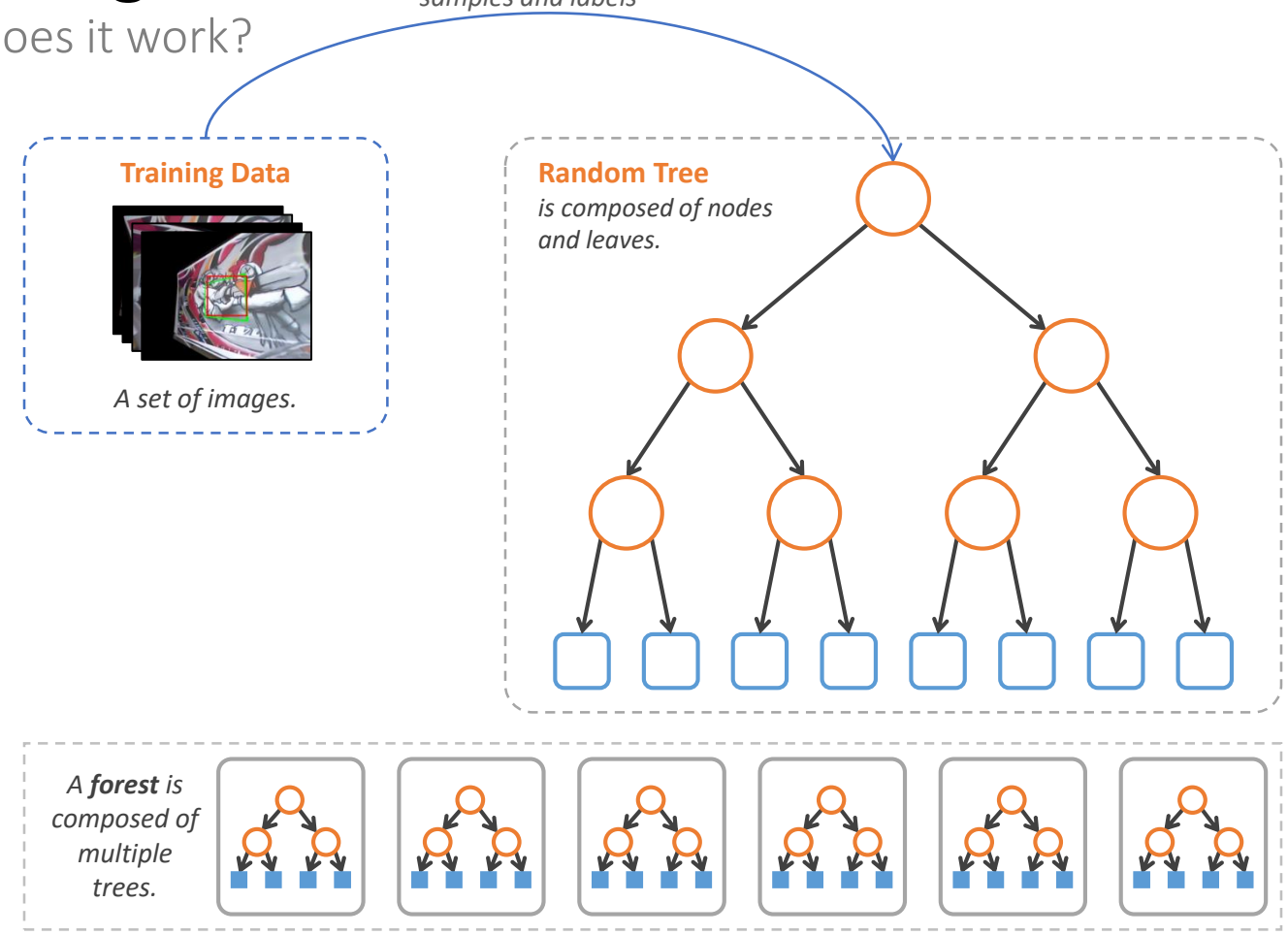
the following slides were created by

David Tan

for his CVPR14 presentation

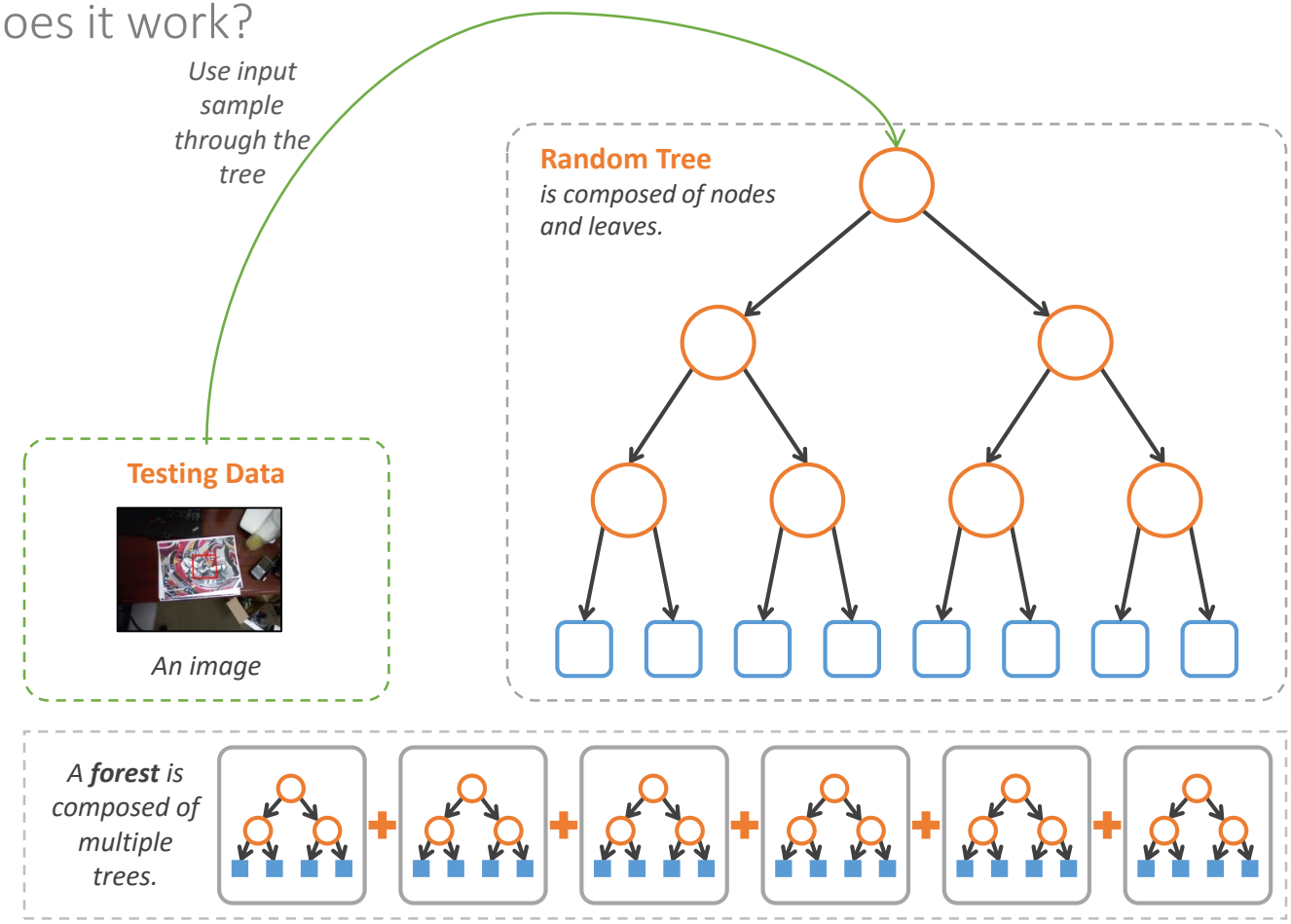
Tracking with Random Forest

How does it work?



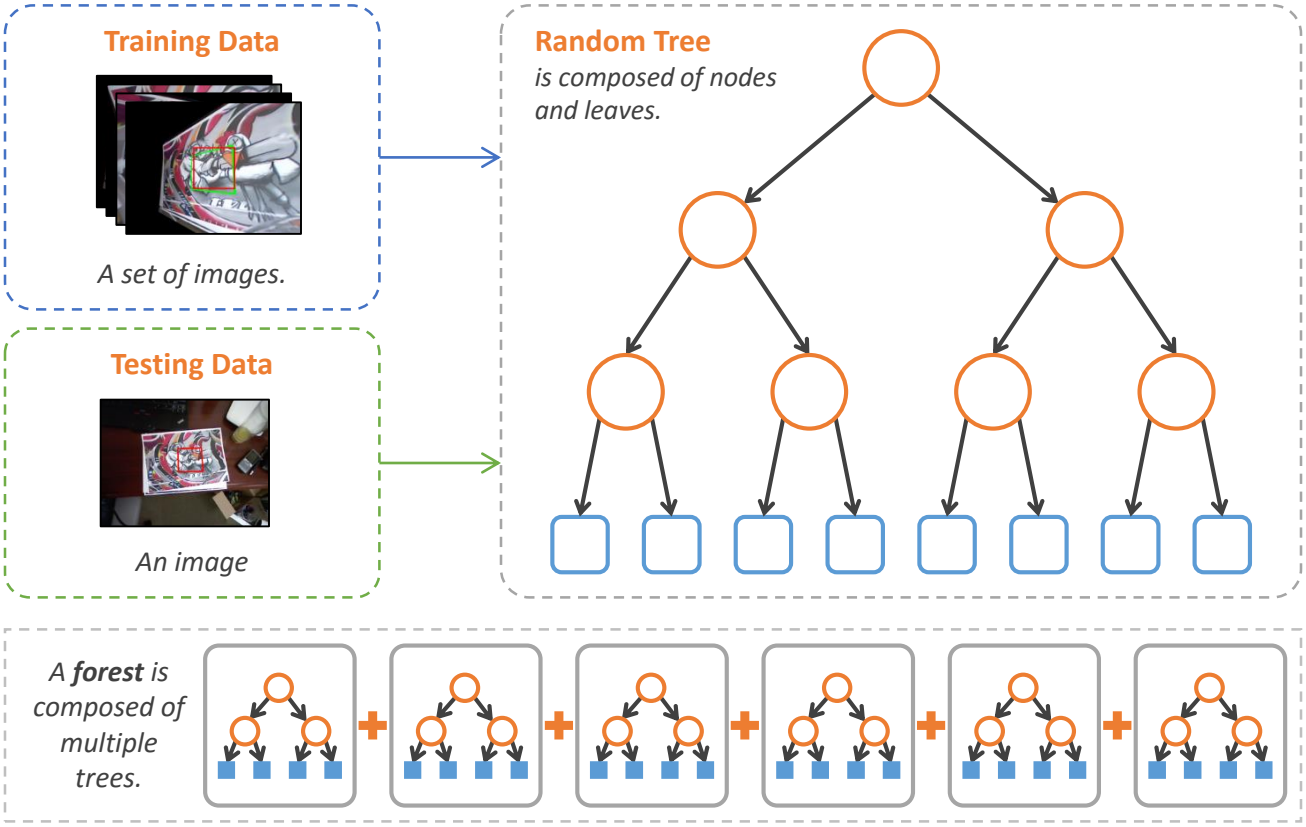
Tracking with Random Forest

How does it work?



Tracking with Random Forest

How does it work?

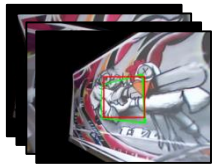


Tracking with Random Forest

How does it work?

1

Training Data



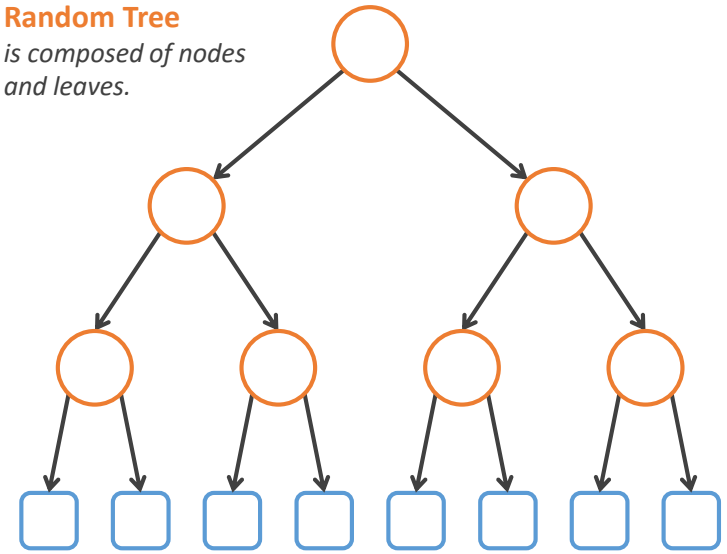
A set of images.

Testing Data

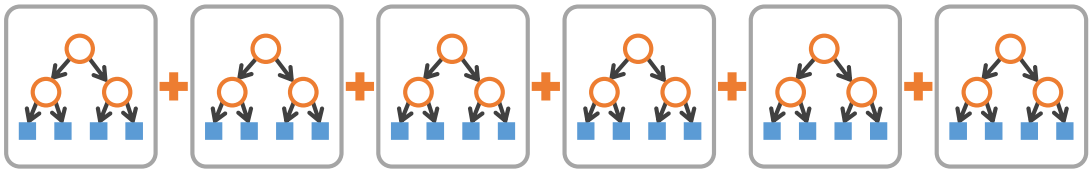
An image

Random Tree

is composed of nodes and leaves.

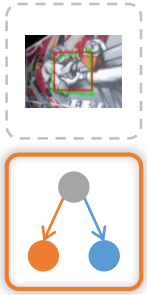


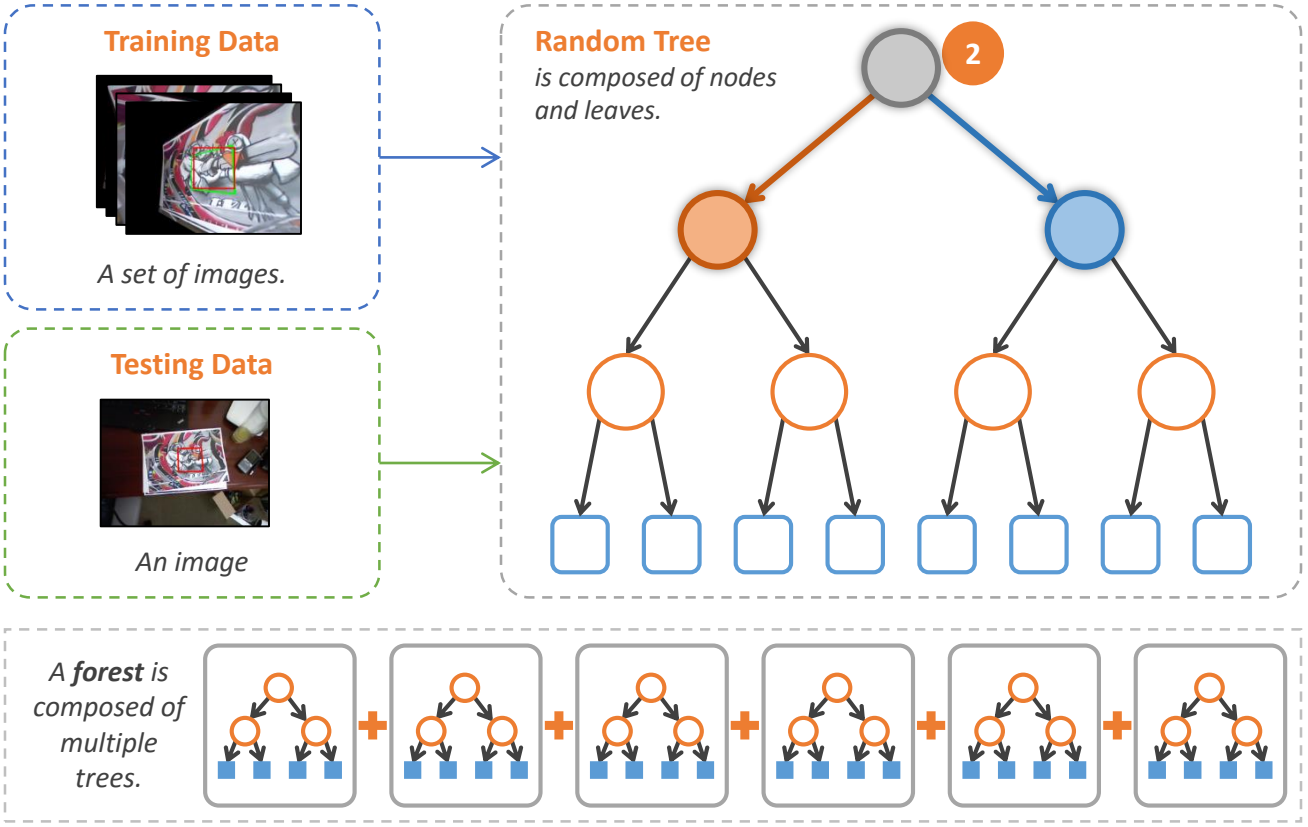
*A **forest** is composed of multiple trees.*



Tracking with Random Forest

How does it work?





Tracking with Random Forest

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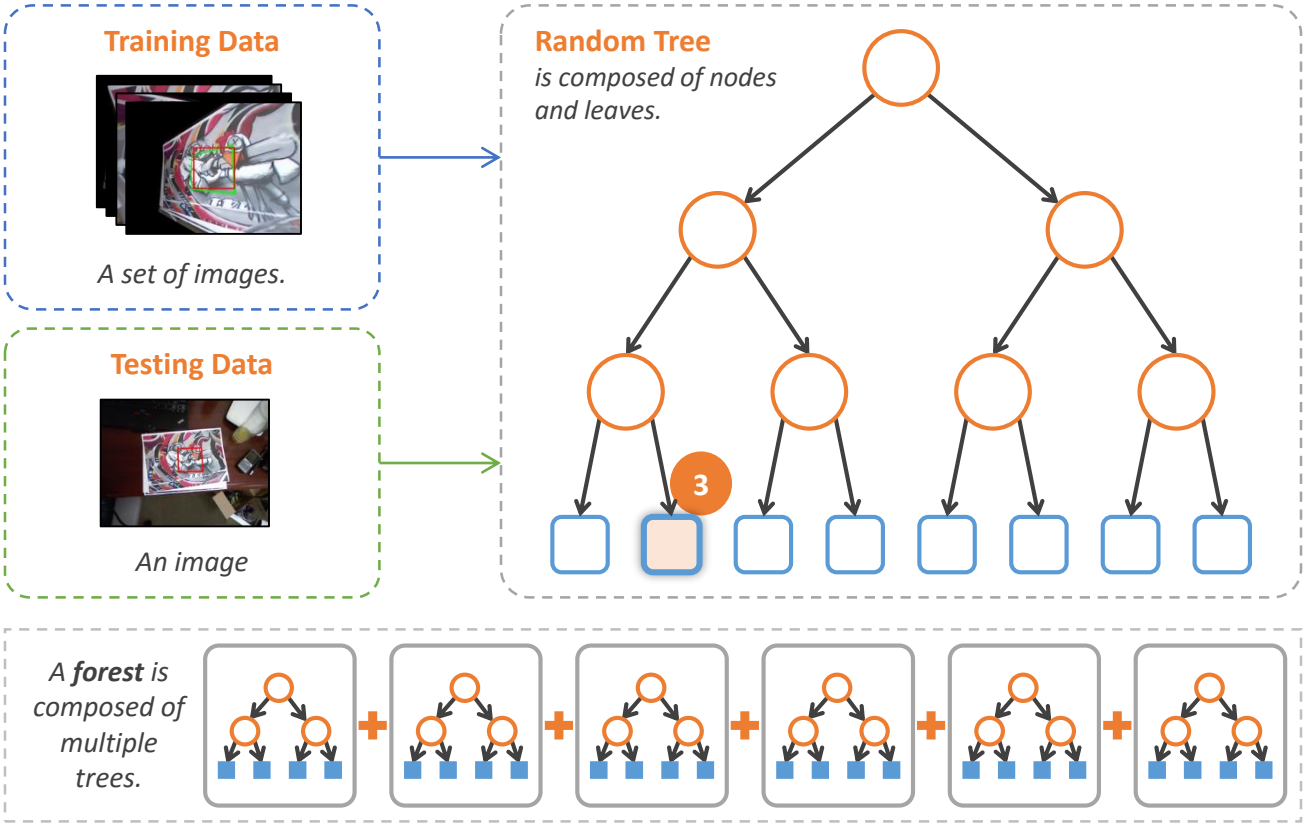

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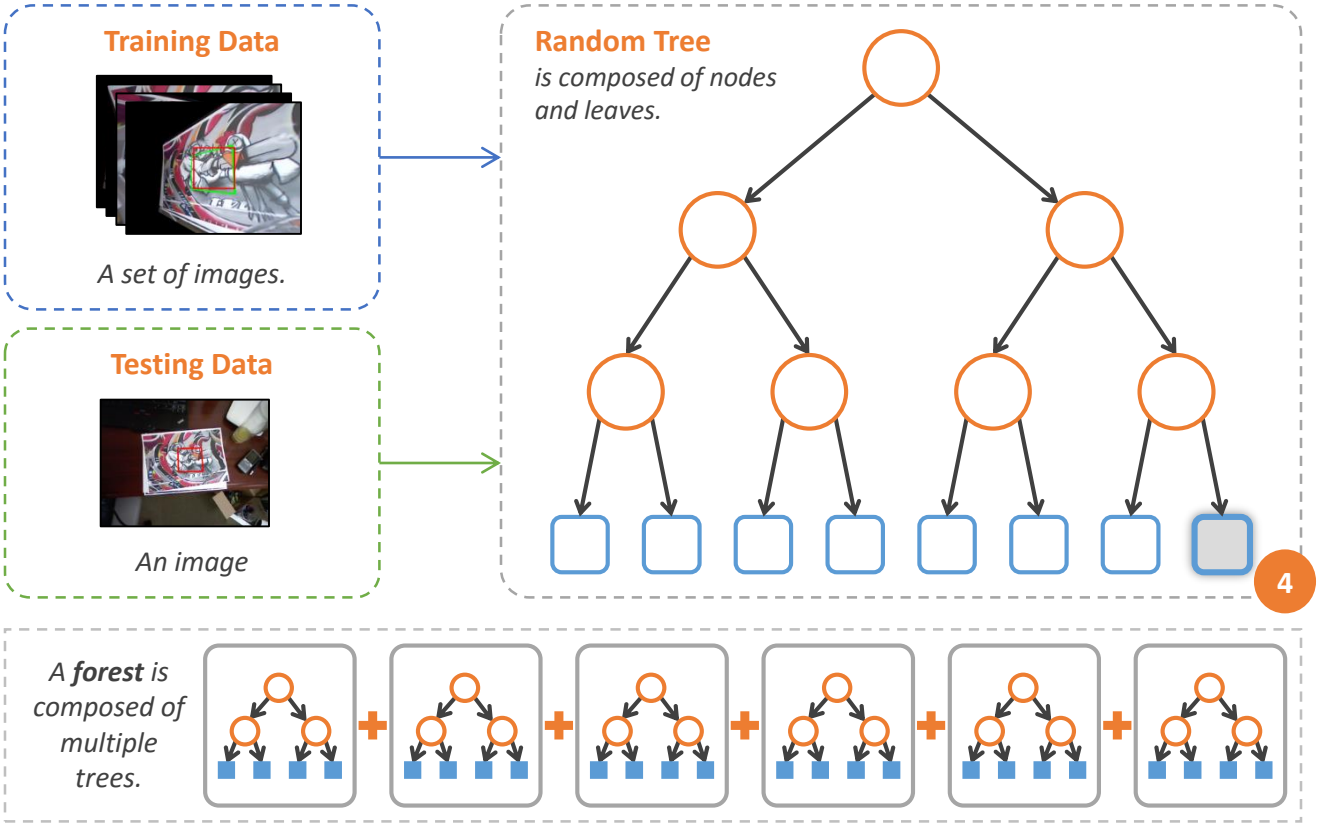

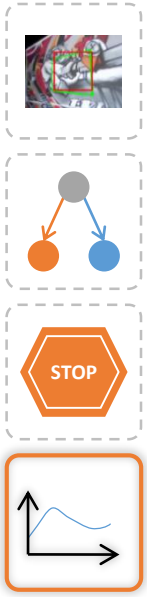

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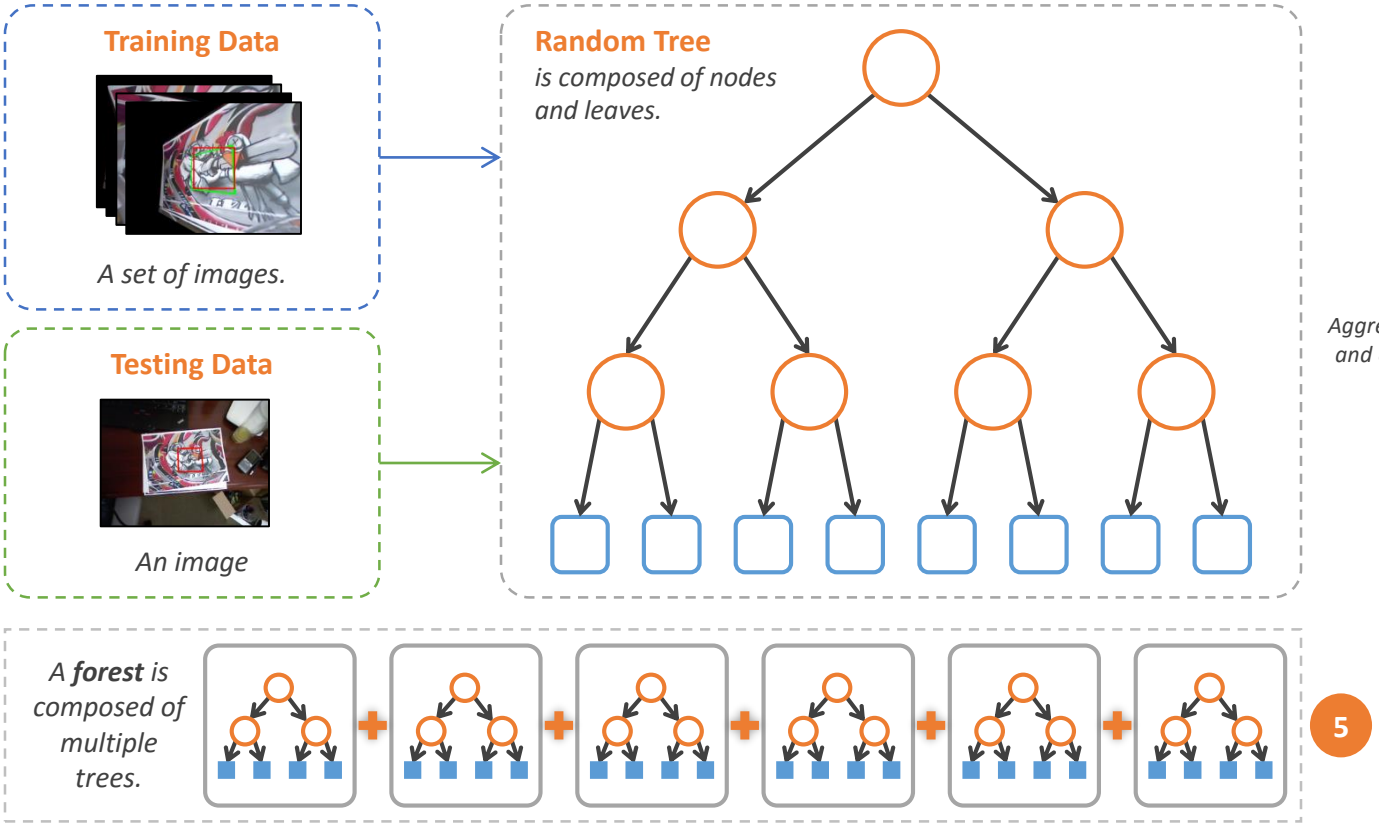

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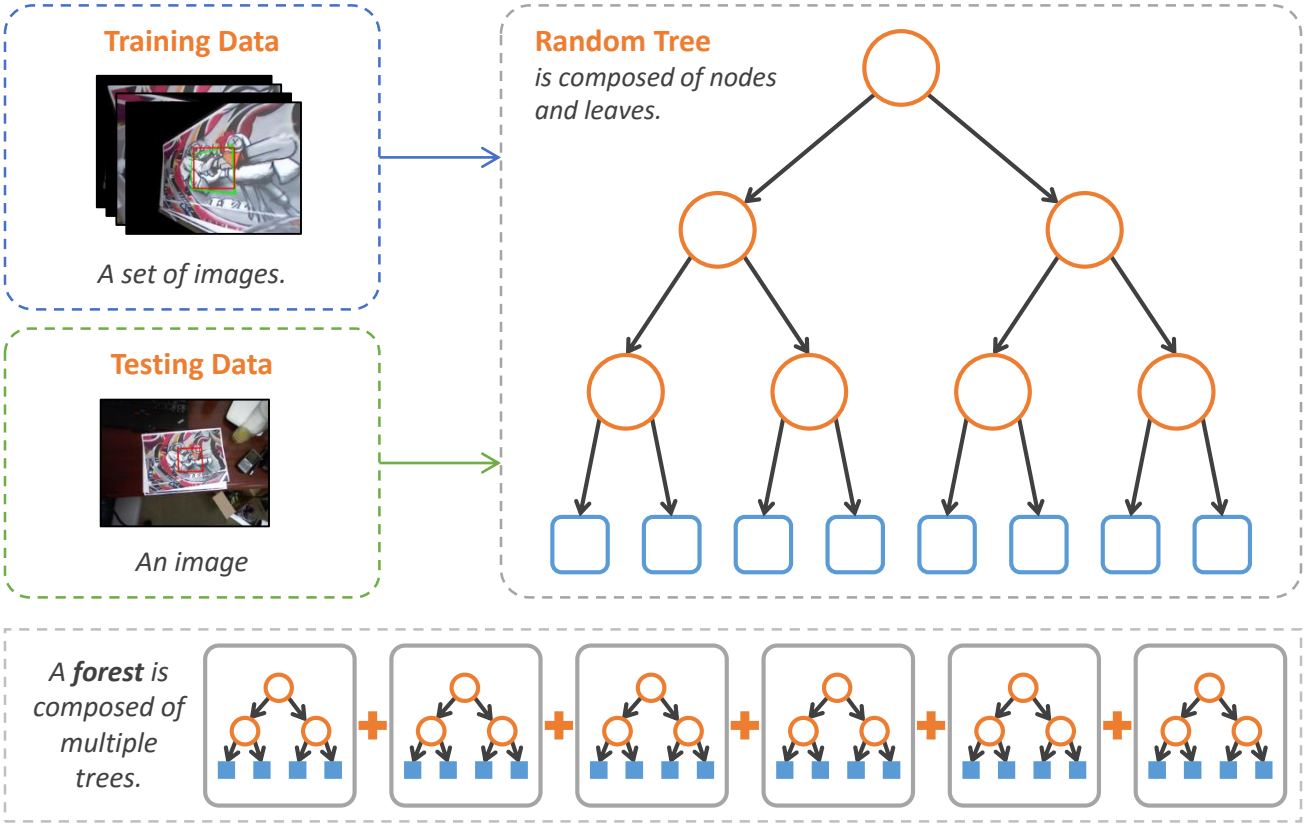
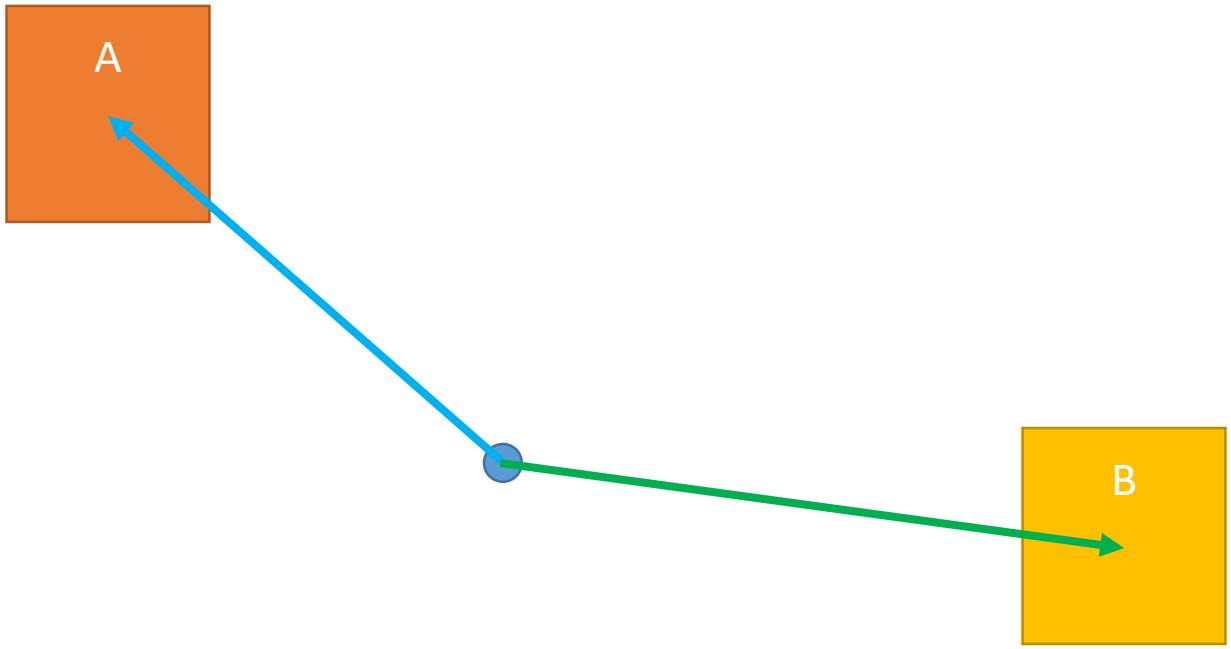
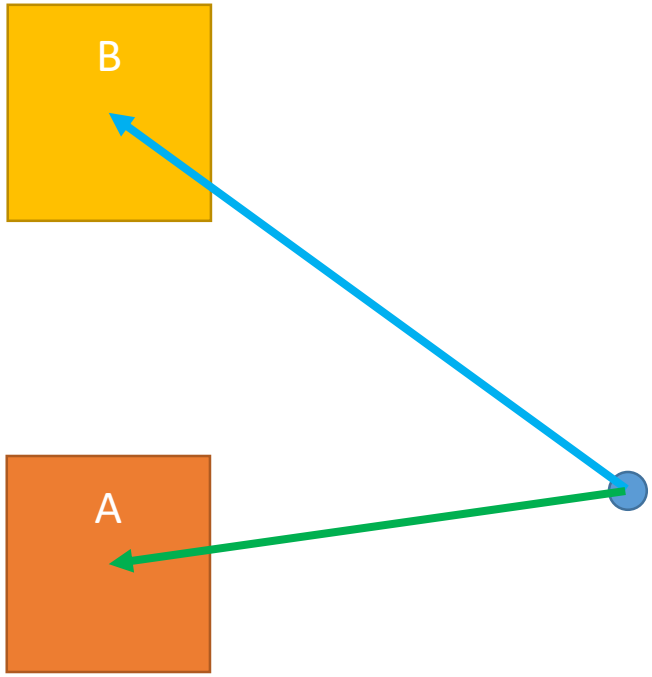




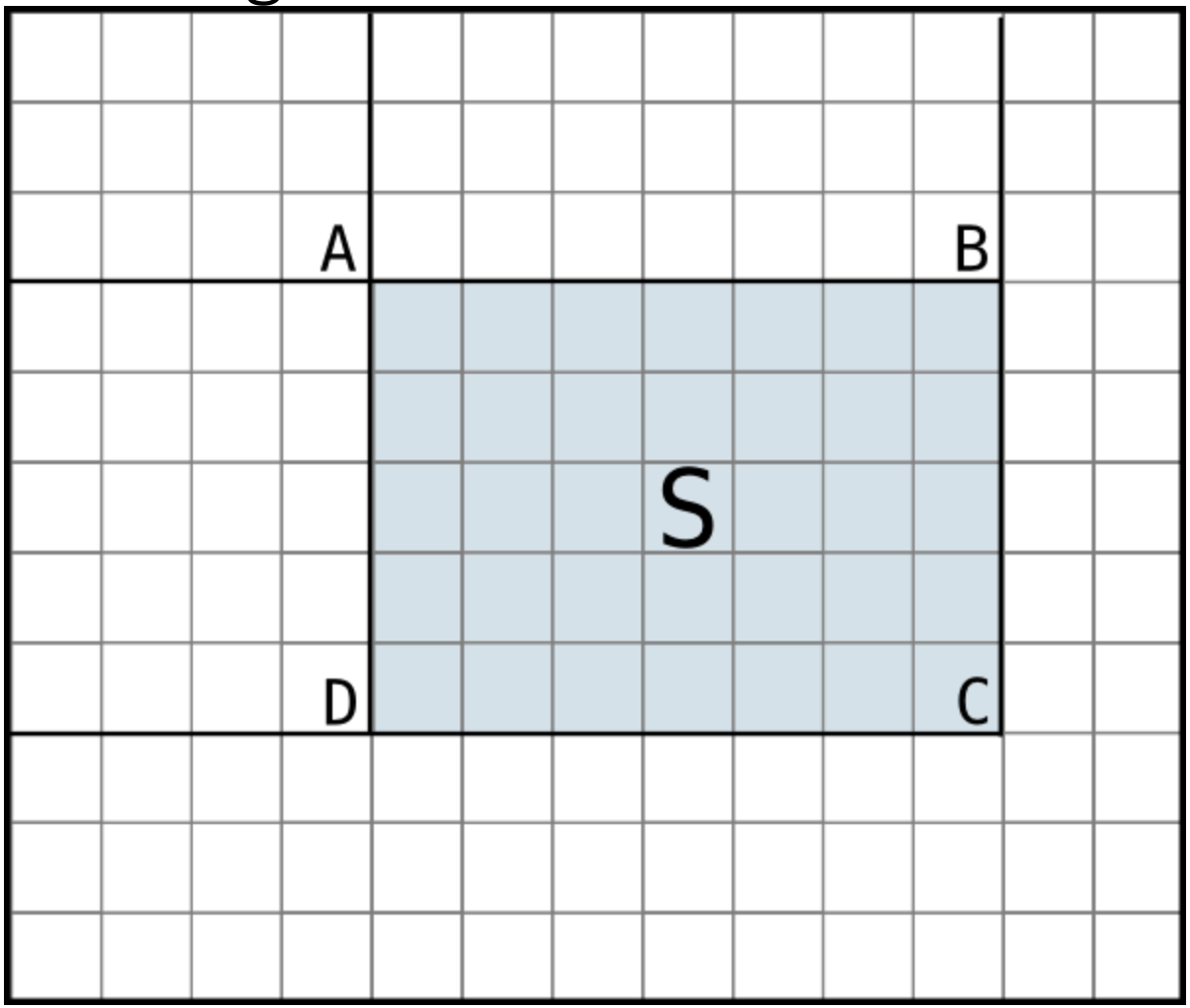
Feature: Compare average in A with average in B using threshold



Feature: Compare average in A with average in B using threshold

$$f = A - B < t$$

Integral Images



S = C – B – D + A