Computer Vision-IT416

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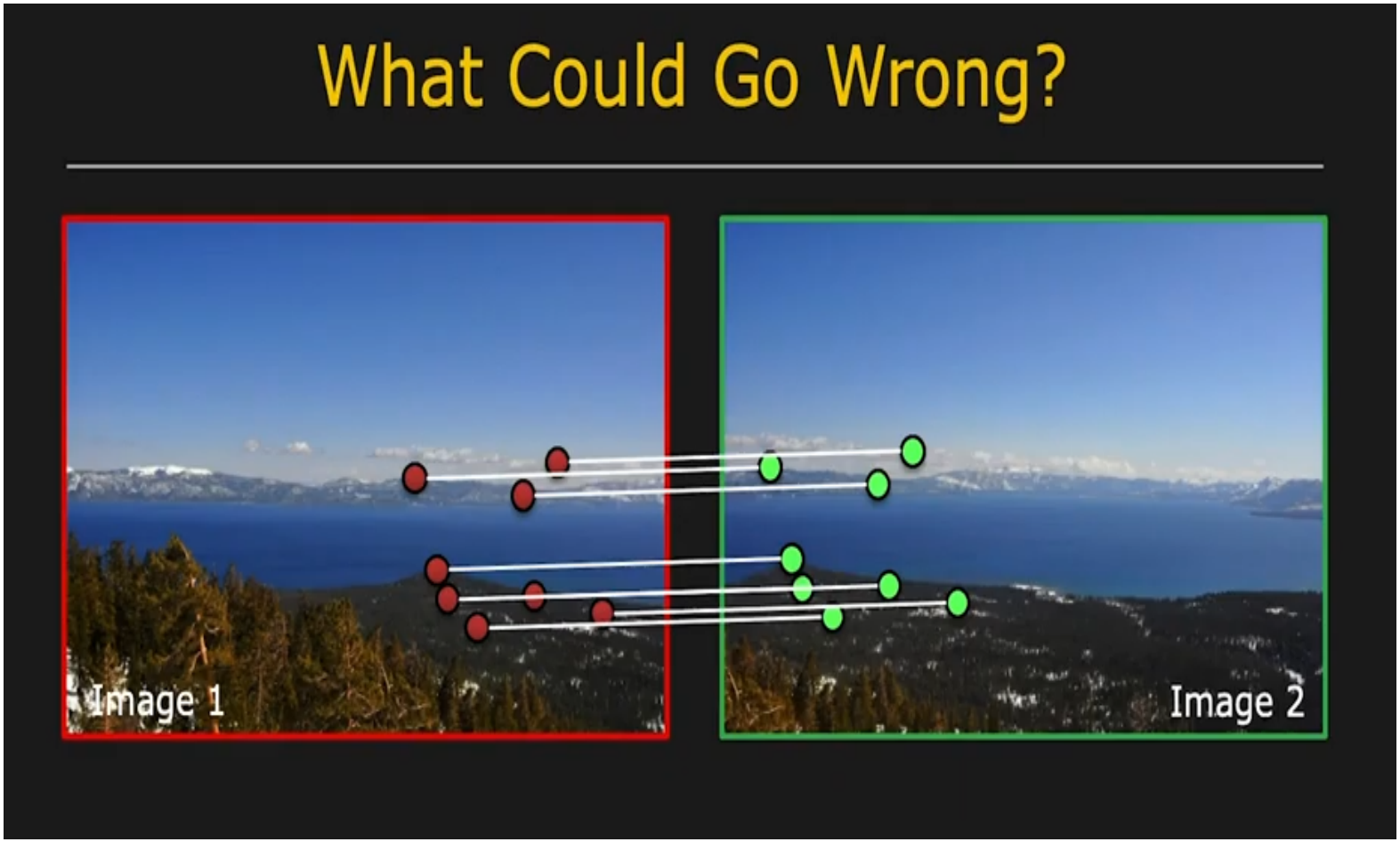
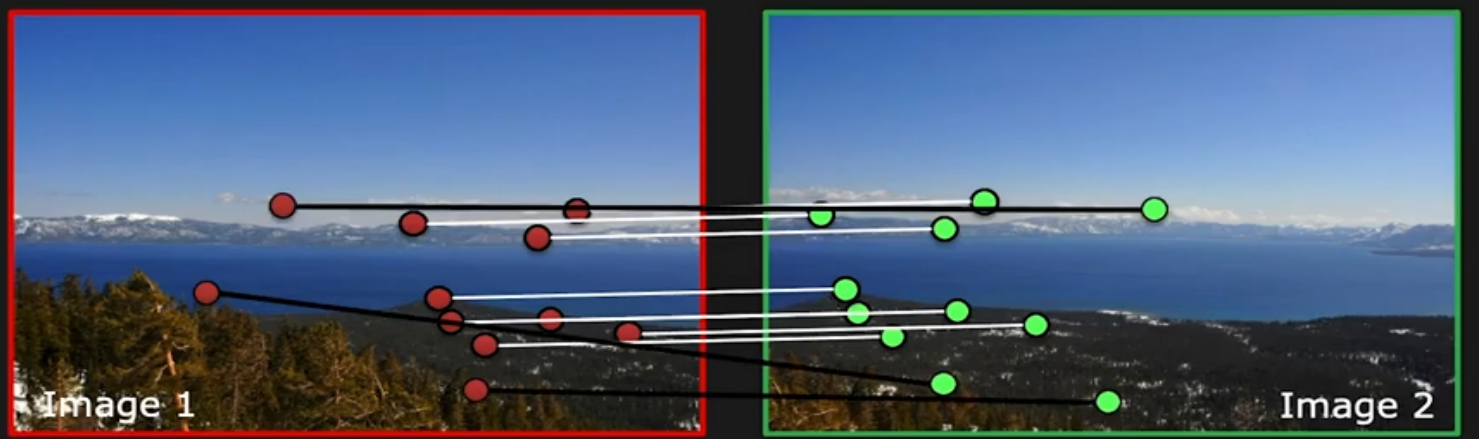

What Could Go Wrong?
Image 1
Image 2

What Could Go Wrong?



Outliers!

We need to robustly compute transformation in the presence of wrong matches.

RANdom SAmple Consensus

General RANSAC Algorithm:

1. Randomly choose s samples. Typically s is the minimum samples to fit a model.

For homography:

$s = 4$ points.

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2. Fit the model to the randomly chosen samples.

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3. Count the number M of data points (inliers) that fit the model within a measure of error ε.

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4. Repeat Steps 1-3 N times

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2. Fit the model to the randomly chosen samples.
3. Count the number M of data points (inliers) that fit the model within a measure of error ε.
4. Repeat Steps 1-3 N times
5. Choose the model that has the largest number M of inliers.

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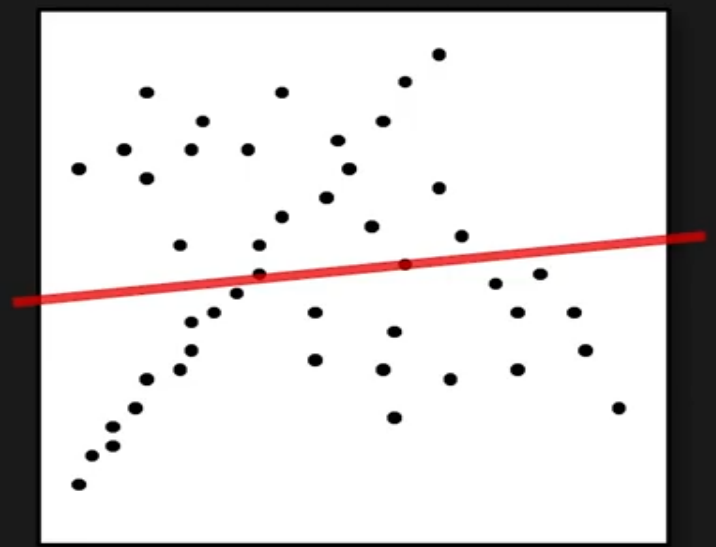
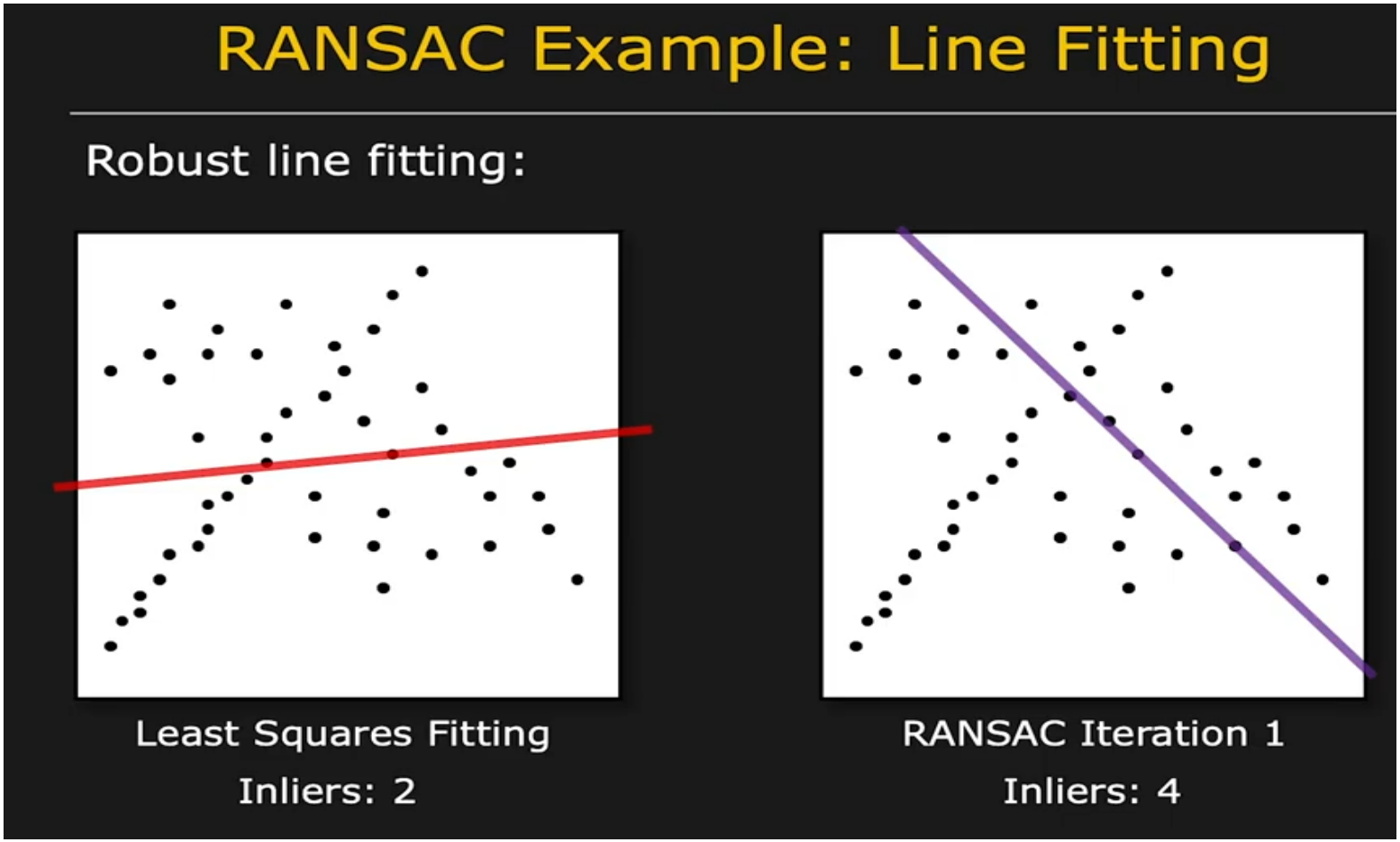
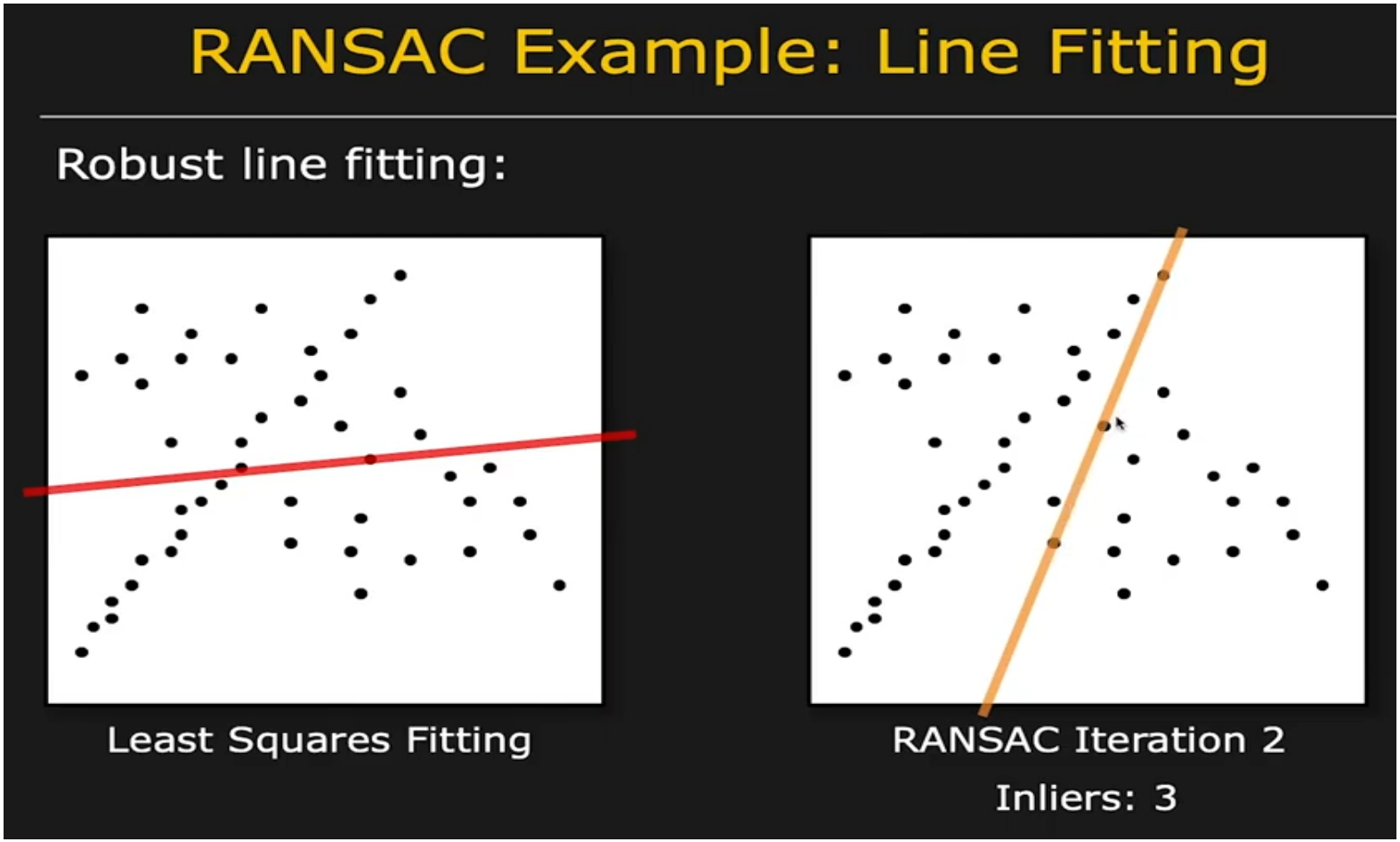
RANSAC Example: Line Fitting

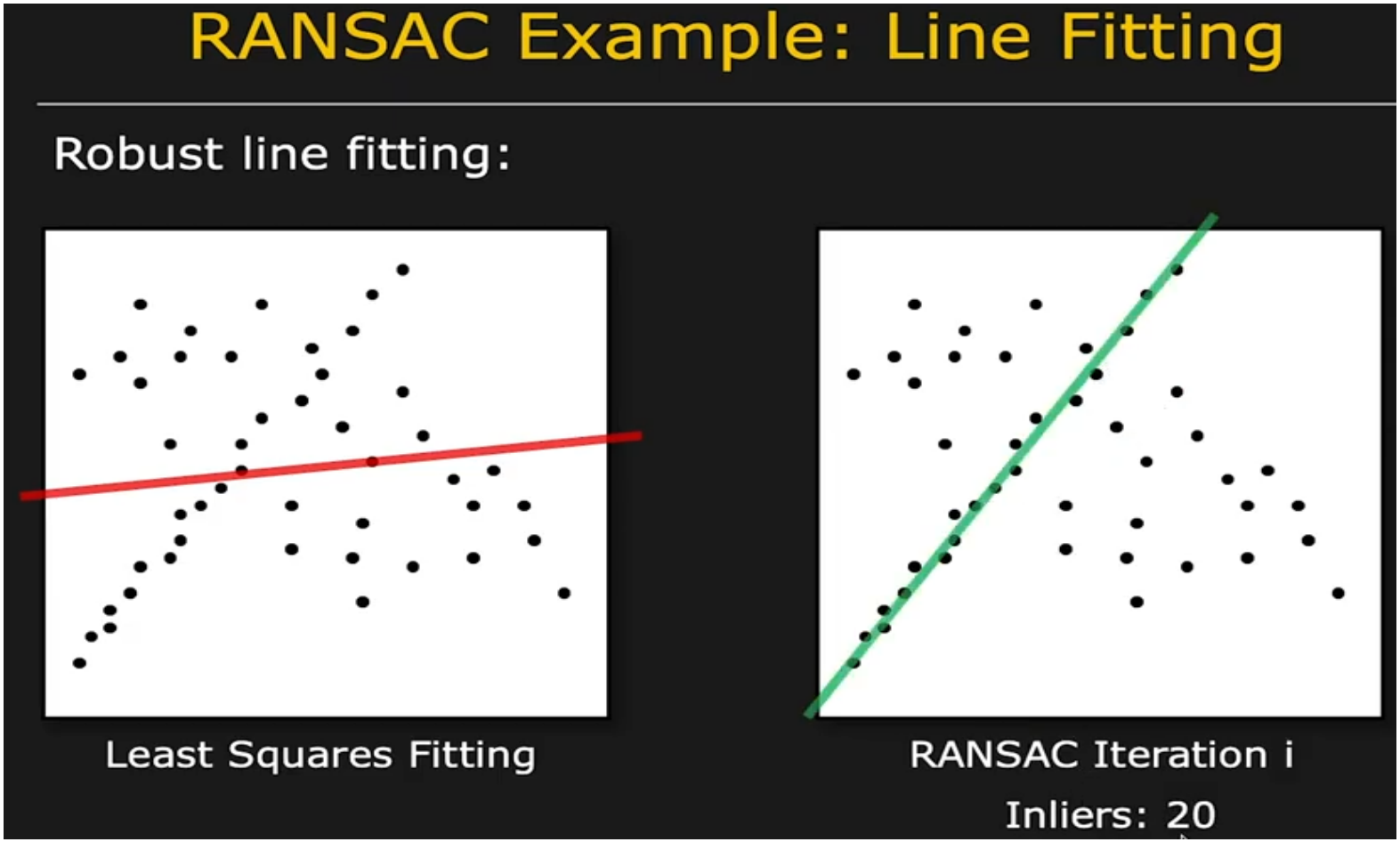
Robust line fitting:



Least Squares Fitting


RANSAC Example: Line Fitting
Robust line fitting:
Least Squares Fitting
Inliers: 2
RANSAC Iteration 1
Inliers: 4


RANSAC Example: Line Fitting
Robust line fitting:
Least Squares Fitting
RANSAC Iteration 2
Inliers: 3


RANSAC Example: Line Fitting
Robust line fitting:
Least Squares Fitting
RANSAC Iteration i
Inliers: 20