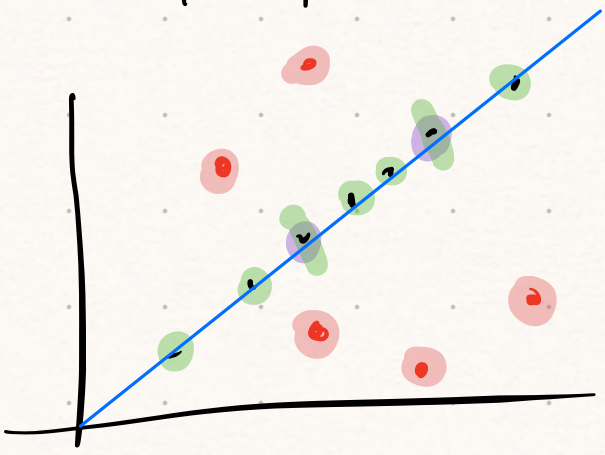
Problem: line fit



Idea:

grade a candidate model by how many "inliers" it has

what is an inlier?

$\|model(x) - y\| \leq threshold$

(x, y) is data

$model(x) = y_{pred}$

input, output

$\min_{(models)} \#inliers$

Huh? Not differentable

huh? set looks infinite

Idea: Finite-dimensional search space

2 points make a line.

choose two points

Fit the model.

Loop over all "minimally-sized sets"

Fit a model to that set

Count inliers

bad scaling

Pick the model with most inliers

Select all inliers

Fit to all inliers

How to speed up?

"Loop over 10000 random minimally-sized sets"