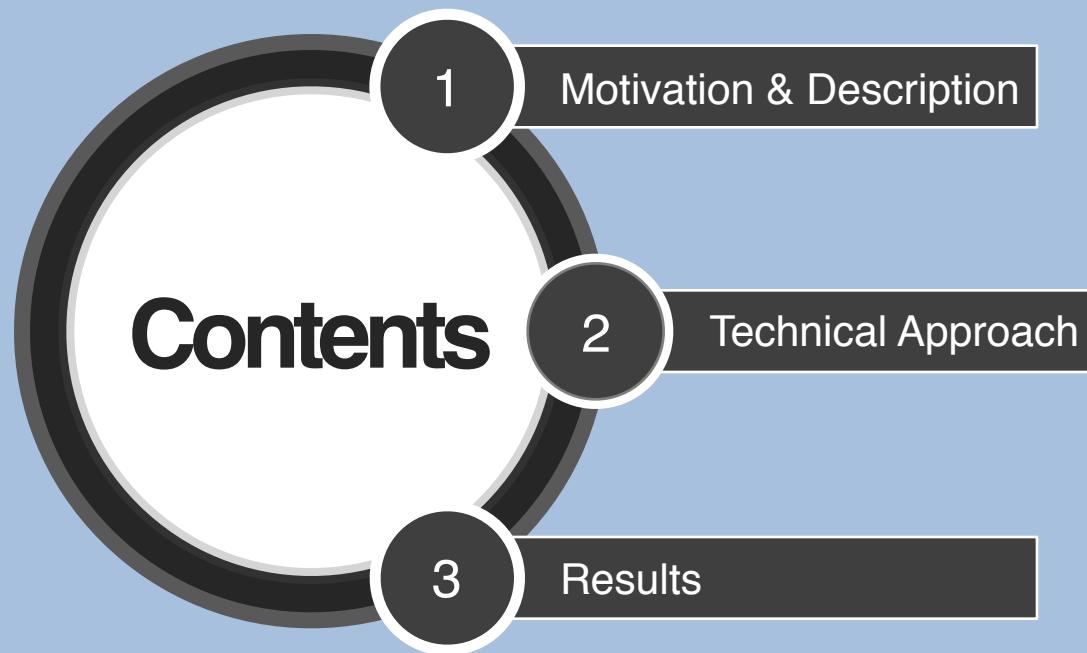


# Self-driving Car



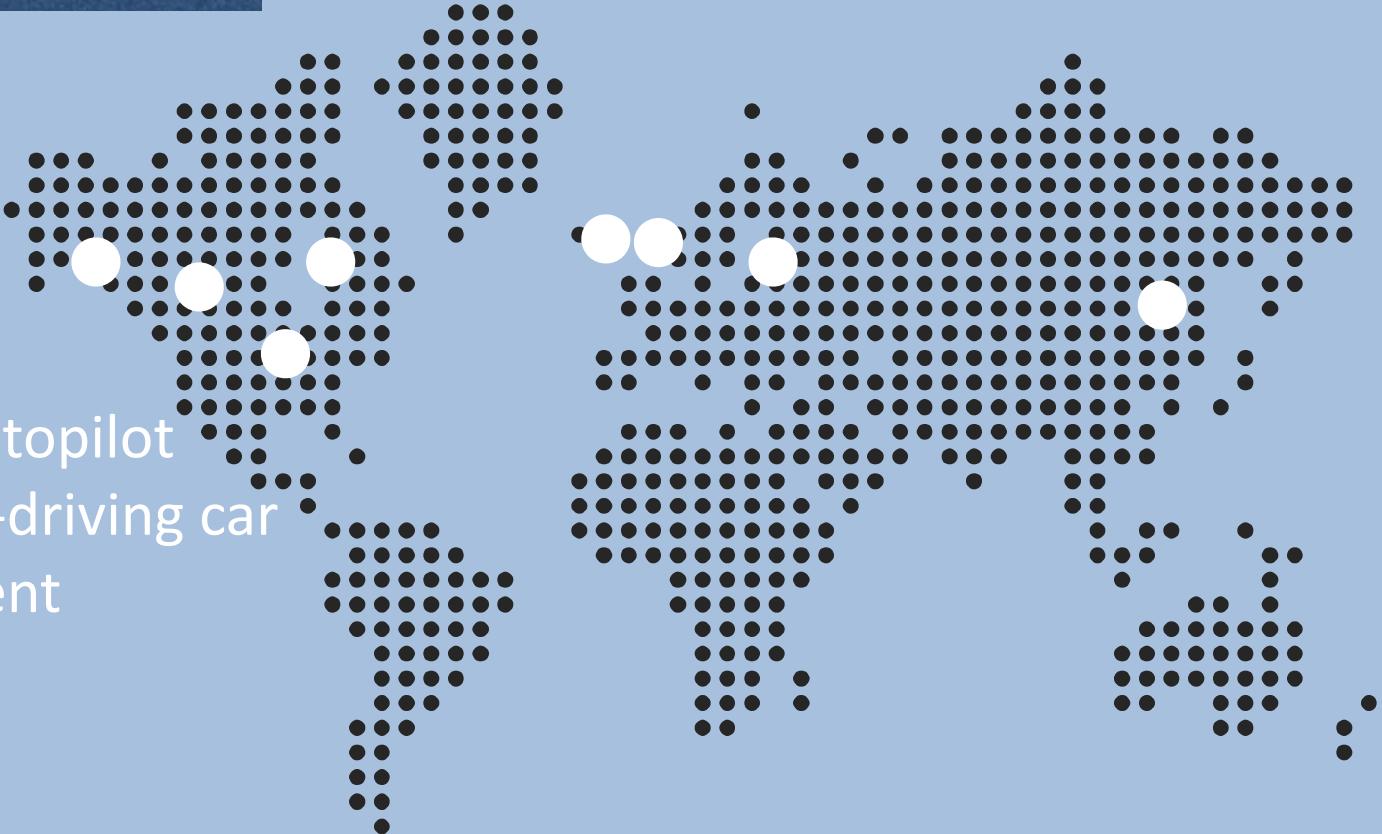
刘心哲 陈师孟 秦奕



# Motivation

Tesla full autopilot  
Google self-driving car  
Uber accident

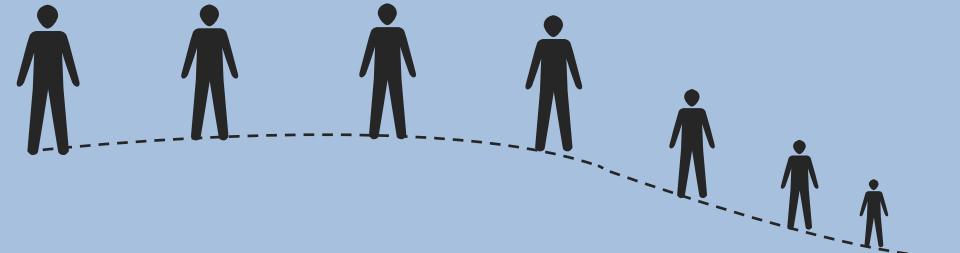
UK: 4 cities  
USA: CA  
China: Baidu, Wuhu



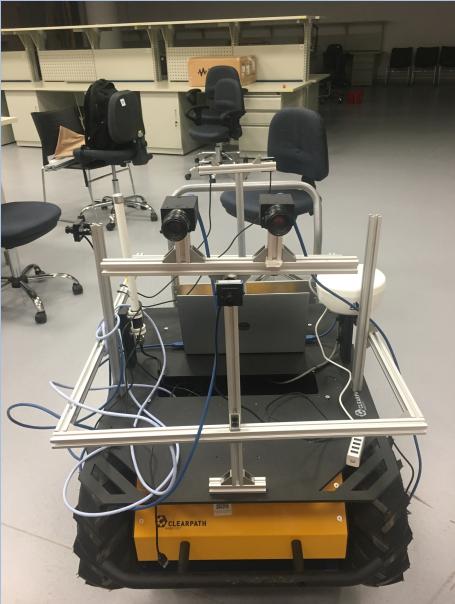
# Description

## What's our problem ?

Autonomous cars use a variety of techniques to detect their surroundings, such as radar, laser light, GPS, odometry and computer vision. Advanced control systems interpret sensory information to identify appropriate navigation paths, as well as obstacles and relevant signage.



# Description

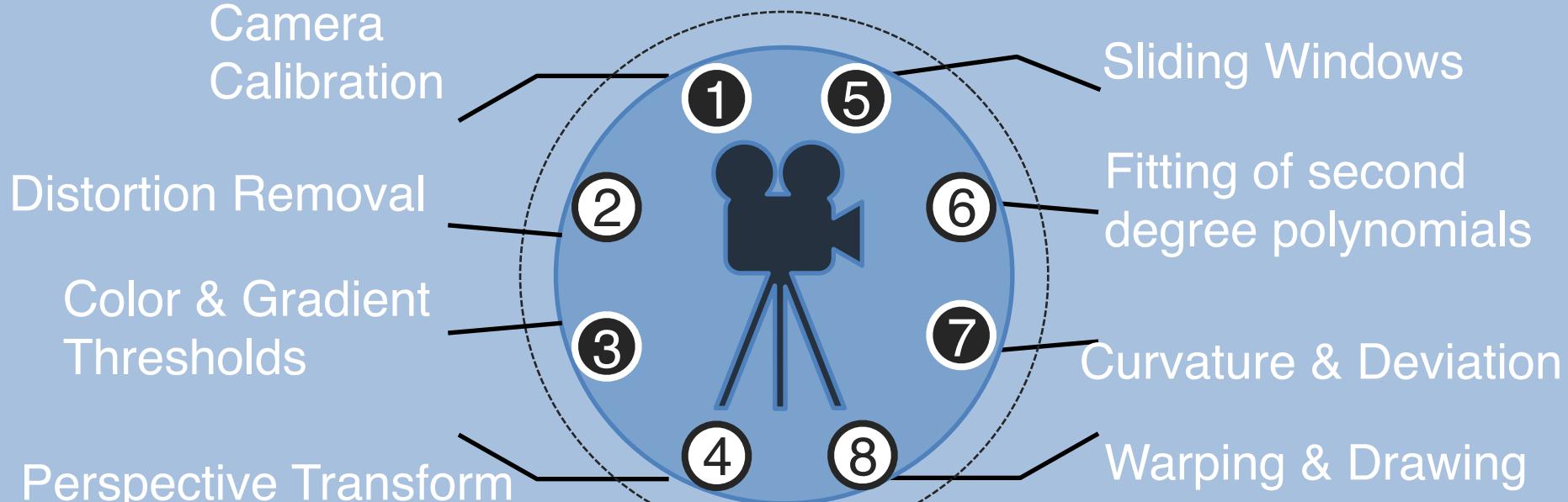


Lane Detection .....

Pedestrian & Car Detection .....

Binocular Ranging .....

# Lane Detection



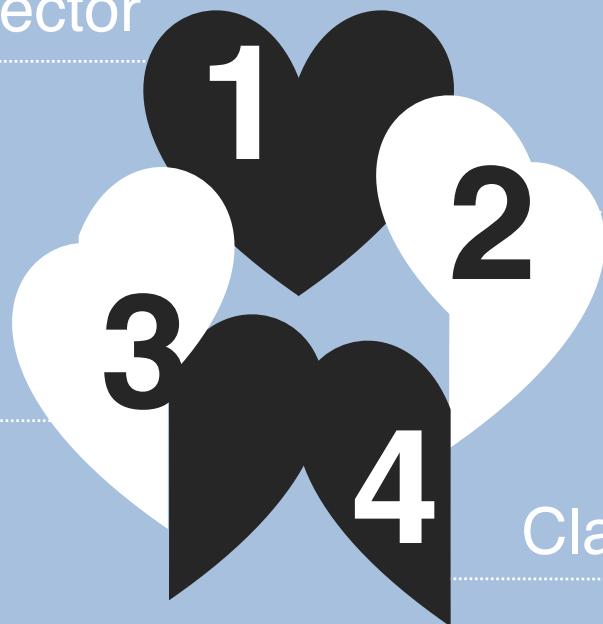
Compute from a set of chessboard images  
Focus on lane lines

Get HOG feature vector

Sliding window

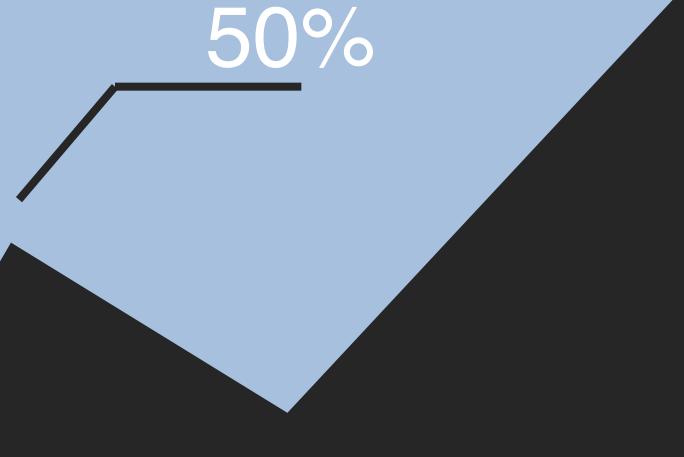
Get CENTRIST visual descriptor

Classifier & Integration



## YOLO: Real-Time Object Detection

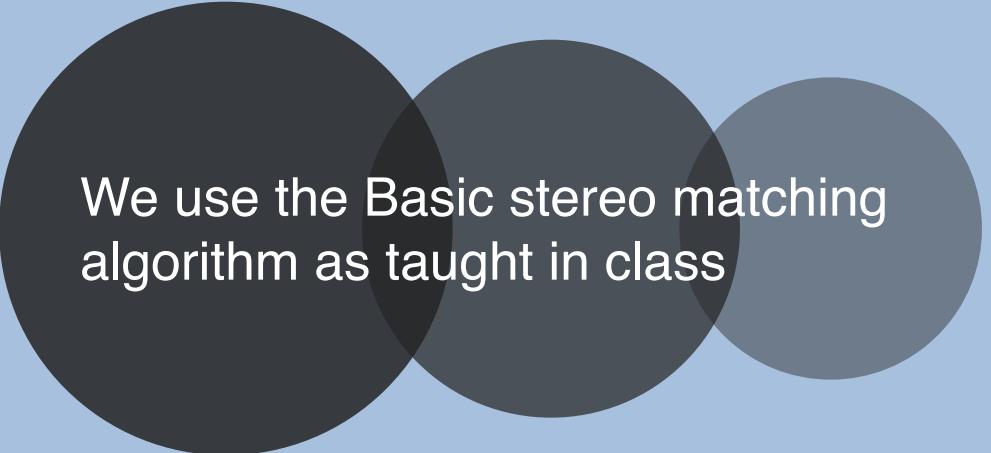
We apply a single neural network to the full image. This network divides the image into regions and predicts bounding boxes and probabilities for each region. These bounding boxes are weighted by the predicted probabilities.



50%

Actually, it can detect many other features

# Binocular Ranging

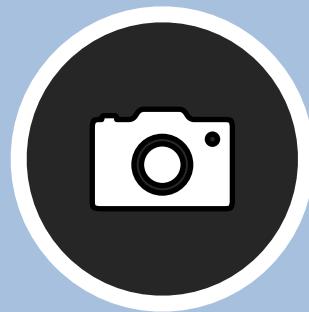


We use the Basic stereo matching algorithm as taught in class

# Results



# Results



Better

Server

Control

System

Fixed

Cameras

单击添加文本文字单击添加文本文字单击添加文本文字单击添加文本文字单击添加文本文字  
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Thank You! 