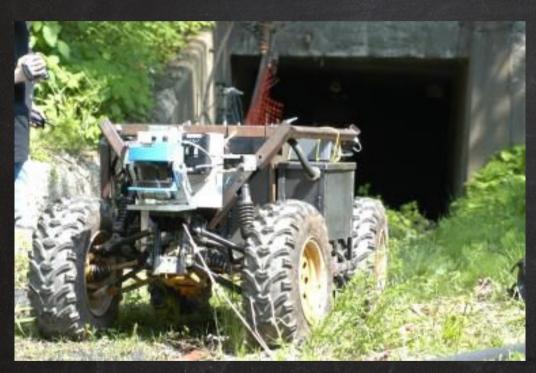


Humble, dirty beginnings





Urban Challenge





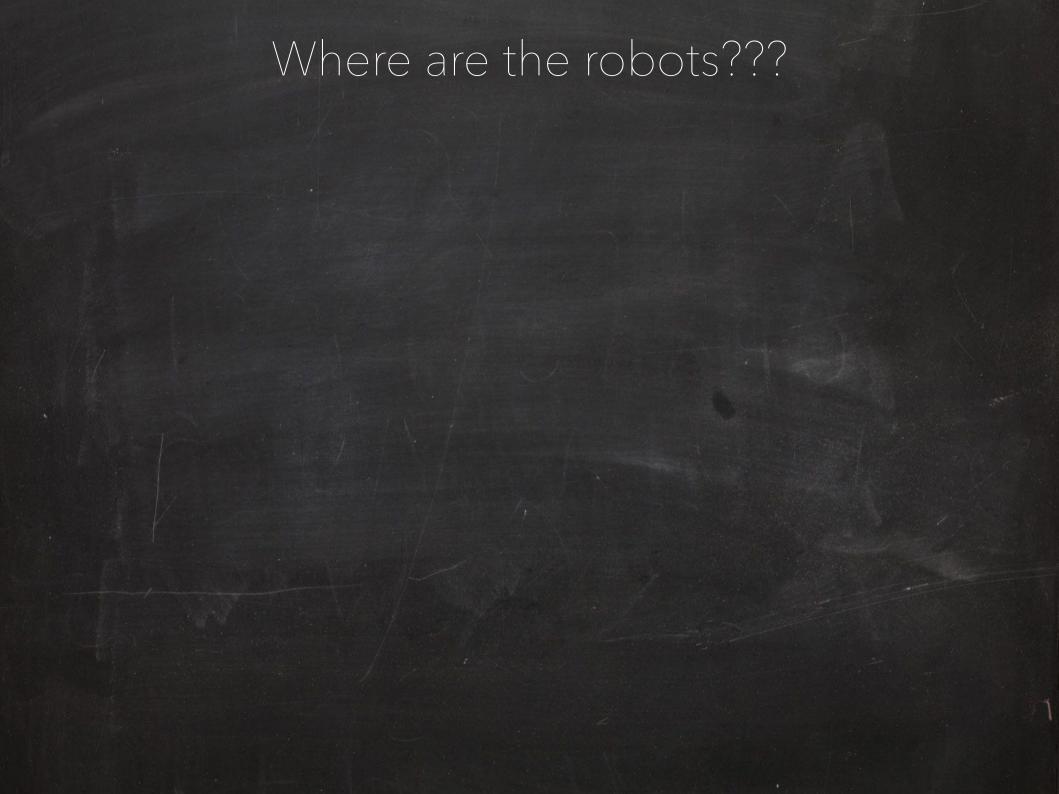
Personal Robotics





The Google self-driving car





Where are the robots???

Perception is hard

Information is imperfect

Uncertainty is fundamental

Challenges

Difficult object scenarios





Difficult road scenarios





Difficult sensing scenarios



