Inverse Optimal Control (Inverse Reinforcement Learning)

Most slides by
Drew Bagnell / Brian Ziebart
Carnegie Mellon University
Mode 2: Learned behavior

Mode 2: Learned cost map

Weighting vector

Cost = w^T F

Learn F_1

Learn F_2

example path
Mimicry implies prediction

Pedestrian Trajectory Prediction
Pedestrian Trajectory Prediction

(Using O(1) Bayes’ Rule for Goals)

Staying out of People’s Path

Car Prediction
Motivation

- Robots should move naturally and predictably within crowded environments
- Move amongst people in a socially transparent way
- More efficient and safer motion
- Humans trade off various factors
  - To move with the flow
  - To avoid high density areas
  - To walk on the left/right side
  - To reach the goal

Mall Scenario

Lane Formation