



POMDP Planning for Socially Situated Tasks in HRI

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What is HRI?

- How **people** react to **robots**

- Psychology, Anthropology

- How to make **robots** **people** can use

- HCI, Design

- How to make **robots** interact with **people**

- Robotics, AI





Research Directions

- Prove assumptions wrong
- From descriptive, qualitative models to predictive, computational models
- Robots and people doing tasks that they can't separately

HRI and the Rest of Robotics

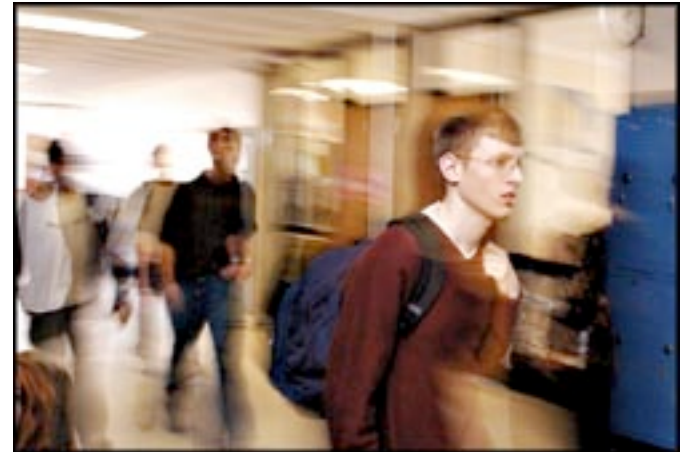
- HRI research is robotics research
- Interesting new problems
- Consumers of cutting-edge technology
 - Sensing
 - Algorithms
 - Robot Platforms



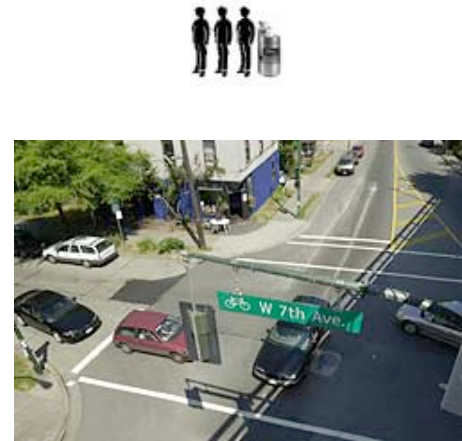
Planning for Socially Situated Tasks

- Socially Situated Tasks

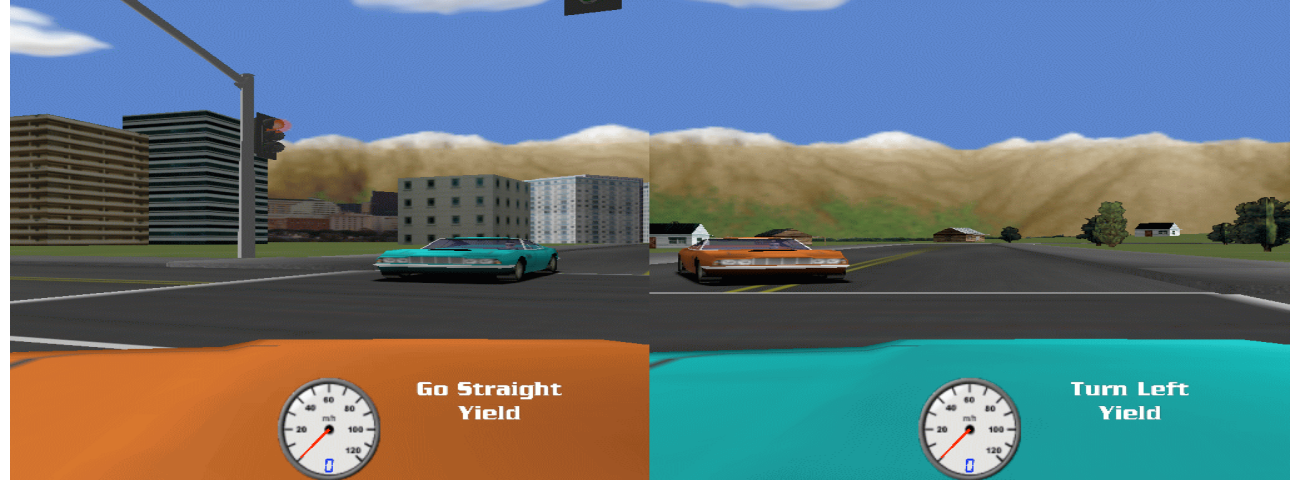
- Shared environment
- Individual goals
- Interaction required
- Social conventions



- Partially observable
- Time dependent
- POMDP planning



Pittsburgh Left Experiment



Intention		Outcome				
Turn Car	Straight Car	Turn First	Straight First	Turn Finish	Straight Finish	No Finish
Pgh Left	Yield	92%	4%	2%	1%	1%
Reg Left	No Yield	2%	97%	0%	1%	0%
Pgh Left	No Yield	59%	40%	0%	1%	0%
Reg Left	Yield	51%	29%	11%	2%	7%