Algorithmic Human-Robot Interaction

Project Pitches (Part II)

Paper Talks

CSCI 7000

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Ideas

1. Intelligent tele-operation for time-delayed environments through macro-actions with contingency planning for potential failures
2. Social navigation with velocity-based motion models from vision
3. Behavior coaching using reward saliency and models of how people consider reward
4. Decentralized collaborative control for inspection tasks
5. NLP + Recommender system for task preference learning
6. Navigation assistant for vision-impaired: path planning, scene analysis, verbal summarization of scene/map
7. Conversational planner to augment plan cost function through visualization
8. Learning motion planning/grasp preferences from human feedback (e.g., don't move sharp end of scissors next to people)
9. Autonomous exploration/belief over terrain cost to inform operator plans
10. When should robots trust humans? Human capability assessment
11. Sim2Real via AR or Pantomime
12. Navigation aid robot with updating map attributes
13. VR Teleop for First-person view: Shared autonomy to make this effective

Final Project Pitches

In two minutes or less:

- What new capability are you introducing / phenomenon are you exploring?
- What's hard about this now?
- How will you evaluate whether your approach works or not?

Ideas

	1.	Intelligent tele-operation for time-delayed environments through macro-actions with contingency planning for potential failures
	2.	Social navigation with velocity-based motion models from vision
SS*, KLS	**3.**	**Behavior coaching using reward saliency and models of how people consider reward**
	4.	Decentralized collaborative control for inspection tasks
	5.	NLP + Recommender system for task preference learning
SA, DS*, IL	**6.**	**Navigation assistant for vision-impaired: path planning, scene analysis, verbal summarization of scene/map**
ML*, SW	**7.**	**Conversational planner to augment plan cost function through visualization**
NS*, JK*	**8.**	**Learning motion planning/grasp preferences from human feedback (e.g., don't move sharp end of scissors next to people)**
	9.	Autonomous exploration/belief over terrain cost to inform operator plans
	10.	When should robots trust humans? Human capability assessment
RL, KP*, AV, CN*	**11.**	**Sim2Real via AR or Pantomime**
	12.	Navigation aid robot with updating map attributes
	13.	VR Teleop for First-person view: Shared autonomy to make this effective

Quiz #2

Today's Papers:

Designing Robot Learners that Ask Good Questions

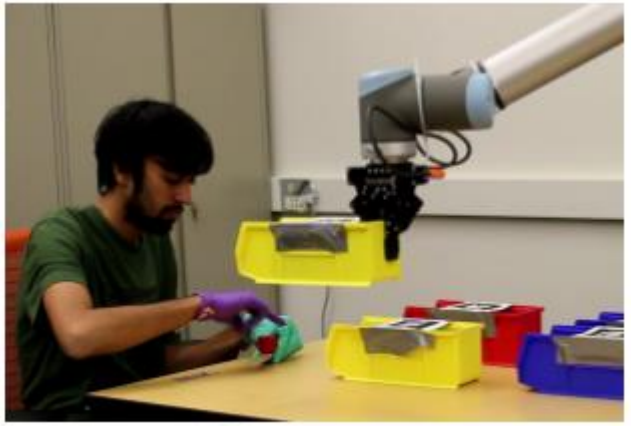
Maya Cakmak and Andrea Thomaz

PRO presenter: Lakhan Kamireddy

CON presenter: Dhanendra Soni

Anticipating human actions for collaboration in the presence of task and sensor uncertainty

Kelsey Hawkins et al.



PRO presenter: Ian Loegfren

CON presenter: Nishank Sharma

Next Week's Papers (2/14):

Probabilistically Safe Robot Planning with Confidence-Based Human Predictions

Jaime Fisac et al.

PRO presenter:

CON presenter:

An Implemented Theory of Mind to Improve Human-Robot Shared Plans Execution

Sandra Devin and Rachid Alami

PRO presenter:

CON presenter: