TENTATIVE SCHEDULE FOR Robot Planning CLASS

Spring 2021

Date	Day	Topic	HW out	HW due
1-Feb	Mon	Introduction; What is Planning?		
3-Feb	Wed	planning representations: grid-based graphs		
8-Feb	Mon	search algorithms: Uninformed A*		
10-Feb	Wed	search algorithms: A*	HW1	
15-Feb	Mon	heuristics, weighted A*, Backward A*		
17-Feb	Wed	interleaving planning and execution: Anytime heuristic search		
22-Feb	Mon	interleaving planing and execution: Freespace assumption, Incremental heuristic search		
24-Feb	Wed	interleaving planning and execution: Limited Horizon search, LRTA*		
1-Mar	Mon	planning representations: lattice-based graphs, explicit vs. implicit graphs		HW1
3-Mar	Wed	case study: planning for autonomous driving		
8-Mar	Mon	planning representations: PRM for continuous spaces	HW2	
10-Mar	Wed	planning representations/search algorithms: RRT, RRT-Connect, RRT*		
15-Mar	Mon	planning representations/search algorithms: RRT, RRT-Connect, RRT* (cont'd)		
17-Mar	Wed	case study: planning for mobile manipulation and articulated robots		
22-Mar	Mon	search algorithms: Multi-goal A*, Markov Property, dependent vs. independent variables		HW2
24-Mar	Wed	case study: planning for exploration and surveillance tasks		
29-Mar	Mon	planning representations: state-space vs. symbolic representation for task planning	HW3	
31-Mar	Wed	search algorithms: symbolic task planning algorithms		
5-Apr	Mon	BREAK DAY; NO CLASSES		
7-Apr	Wed	final project proposal presentations		
12-Apr	Mon	planning under uncertainty: Minimax formulation		HW3
14-Apr	Wed	planning under uncertainty: Expected Cost Minimization formulation		
19-Apr	Mon	planning under uncertainty: Solving Markov Decision Processes		
21-Apr	Wed	planning under uncertainty: Solving Markov Decision Processes (cont'd)		
26-Apr	Mon	exam		
28-Apr	Wed	multi-robot planning: centralized planning		
3-May	Mon	multi-robot planning: decentralized planning		
5-May	Wed	final project presentations		