

Inoltre abbiamo apportato modifiche agli algoritmi di esplorazione degli stati andando ad introdurre una cancellazione della frontiera nel momento in cui si raggiunge lo stato di griglia colorata dello stesso colore, così facendo abbiamo ottimizzato il tempo di “ritorno in posizione” della testina.

Tested on same grid

	breadth_search_graph_optimized	breadth_search_graph_standard	path cost and solution len	speed boost %
3x3	7.983932733535767	40.46075439453125	std cost -2 std len - 2	+406.78%
3x3	2.4345345497131348	15.849108457565308	std cost -1 std len - 1	+551.01%
3x3	1.4040257930755615	5.780056476593018	same	+311.68%
3x3	4.6725568771362305	83.63421416282654	same len but cost std -10	+1689.90%
[0, 1, 2, 3, 3, 1, 3, 2, 1, 0] (std color all blue instead of all green on opt)				

	best_first_search_graph_optimized node.path_cost	best_first_search_graph_standard node.path_cost	path cost and solution len	speed boost %
3x3	0.8410518169403076	12.725938558578491	same	+1413.10%
3x3	15.504661560058594	77.47219800949097	std cost -2 std len - 2	+399.67%
3x3	3.300513744354248	33.360493898391724	std cost -2 std len - 2	+910.77%
3x3	77.84482979774475	248.50781273841858	std cost -2 opt len - 4	+219.23%
[0, 2, 3, 3, 3, 3, 2, 3, 1, 0] (std color all blue instead of all green on opt)				

Passando a ricerca informata usando euristica hgrid

	a star opt hgrid	a star std hgrid	SAME COST AND LEN	speed boost %
3x3	0.0029184818267822266	0.0058939456939697266		+101.95%
5x5	0.11075043678283691	0.1357250213623047		+22.55%
7x7	1.353161334991455	1.347452163696289		-0.42%
10x10	40.07782816886902	40.653334617614746		+1.44%

	a star opt hgrid + path_cost	a star std hgrid + path_cost	path cost and solution len	speed boost %
3x3	0.3259999752044678	3.039095878601074	same	+832.24%
3x3	0.03413844108581543	0.24129128456115723	same	+606.80%
3x3	1.1318109035491943	3.4365551471710205	std cost -2 std len -2	+203.63%
3x3	0.046866416931152344	0.33684563636779785	std cost -2 std len -2	+618.74%
3x3	2.2046048641204834	15.718055963516235	cost std -1 opt len -3	+612.96%
[0, 3, 2, 2, 2, 3, 1, 2, 3, 0] (it color all blue instead of all yellow)				
4x3	0.42117738723754883	25.292859077453613	std cost -2 std len - 2	+5905.27%
4x3	24.69894313812256	832.7769727706909	std cost -2 std len - 2	+3271.71%

Passando a ricerca informata usando euristica hall

	a star opt hall	a star std hall	SAME COST AND LEN	speed boost %
3x3	0.005917072296142578	0.007804393768310547		+31.90%
5x5	0.06623506546020508	0.06768131256103516		+2.18%
7x7	1.7145183086395264	1.7205917835235596		+0.35%
10x10	50.84996819496155	76.08632826805115		+49.63%

	a star opt hall + path_cost	a star std hall + path_cost	path cost and solution len	speed boost %
3x3	0.00853586196899414	0.014231681823730469	same	+66.73%
3x3	0.025141477584838867	0.08162450790405273	std cost -2 std len - 2	+224.66%
3x3	0.00853586196899414	0.11596512794494629	std cost -2 opt len - 1	+1258.56%