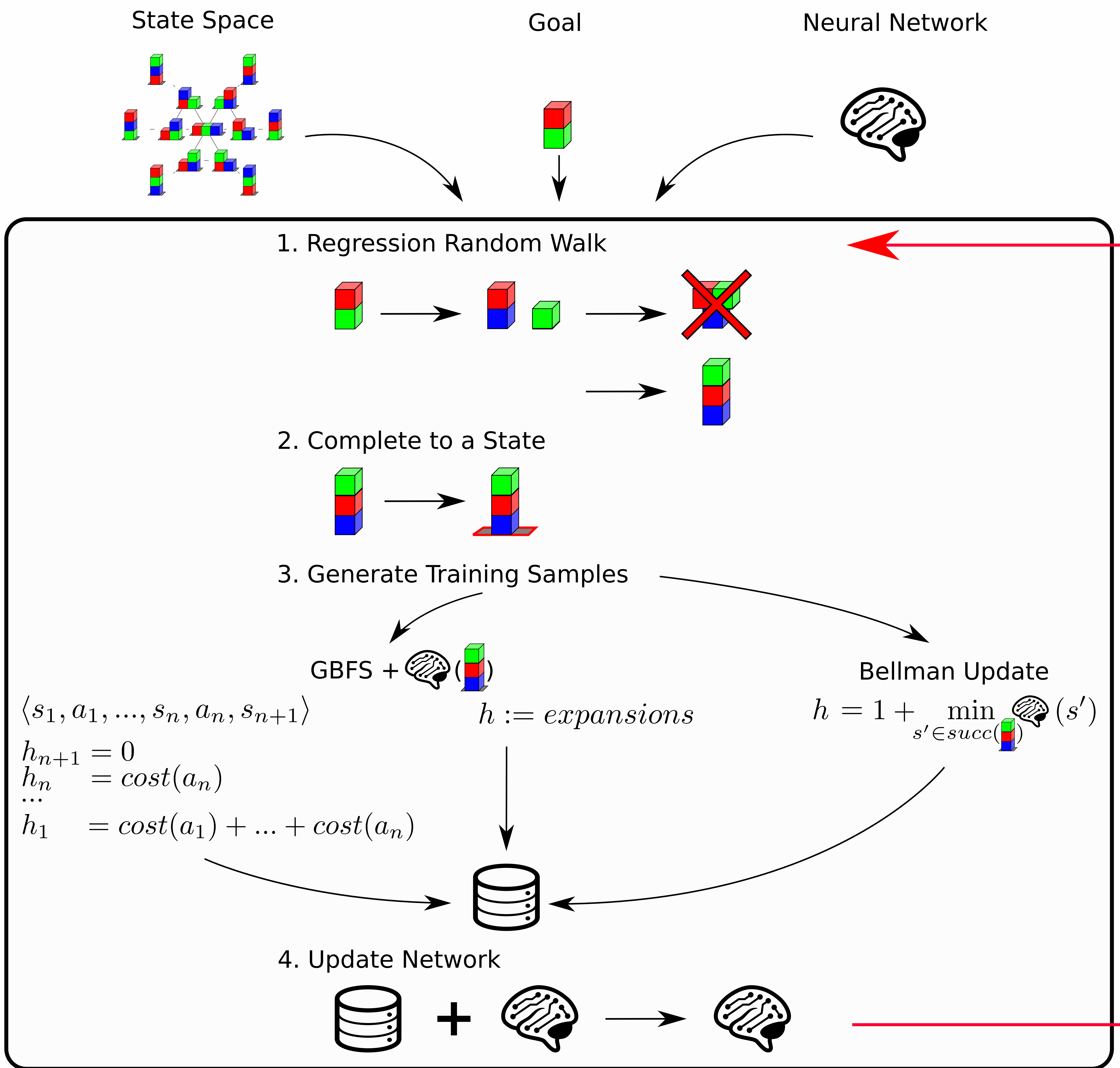


Our RL Heuristics beats LAMA!*

*in one domain

NN heuristics are highly complementary!



Validation

Domain	h^{Boot}	+V	h^{BExp}	+V	h^{AVI}	+V
blocks	0.0	+18.0	0.0	+0.0	0.0	+0.0
depots	31.7	+28.6	17.1	+15.0	43.7	+11.0
grid	100.0	+0.0	100.0	+0.0	51.0	+0.0
npuzzle	27.0	+1.0	0.0	+0.0	1.0	+0.0
pipes-nt	36.2	+21.6	51.2	+17.2	21.4	+28.8
rovers	36.5	+11.7	15.2	+6.6	34.2	+10.8
scanalyzer	33.3	+0.0	59.7	+11.0	66.7	+0.6
storage	89.0	+0.0	61.0	-3.5	67.0	+2.5
transport	83.8	+16.2	79.5	+20.5	70.0	+17.5
visitall	17.0	+38.3	0.0	+0.0	0.0	+0.0

Moderate Tasks

Domain	h^{Boot}	h^{BExp}	h^{AVI}	h^{SL}	h^{HGN}	h^{FF}	LAMA
blocks	18.0	0.0	0.0	80.4	100.0	98.8	100.0
depots	60.3	32.7	54.7	90.3	0.0	98.0	100.0
grid	100.0	100.0	51.0	93.0	0.0	96.0	100.0
npuzzle	28.0	0.0	1.0	0.0	0.3	97.5	100.0
pipes-nt	57.8	68.4	50.2	92.2	7.6	82.4	99.4
rovers	48.2	21.8	45.0	26.0	14.0	84.2	100.0
scanalyzer	33.3	70.7	67.3	82.7	11.0	98.3	100.0
storage	89.0	57.5	69.5	24.5	0.0	48.0	38.5
transport	100.0	100.0	87.5	99.2	94.7	98.5	100.0
visitall	55.3	0.0	0.0	0.0	100.0	93.3	100.0

Hard Tasks

Domain	h^{Boot}	h^{BExp}	h^{AVI}	h^{SL}	h^{HGN}	h^{FF}	LAMA
blocks	0.0	0.0	0.0	0.0	50.0	61.6	96.8
depots	8.3	4.3	12.9	35.4	0.0	36.0	82.6
grid	87.8	95.0	70.5	60.2	0.0	53.2	100.0
npuzzle	0.0	0.0	0.0	0.0	0.0	33.2	86.5
pipes-nt	23.4	19.1	8.0	48.7	0.0	27.4	69.3
rovers	2.8	0.8	6.5	1.5	0.3	13.9	100.0
scanalyzer	3.3	0.0	60.7	60.0	0.0	98.0	100.0
storage	27.2	13.2	15.8	0.0	0.0	13.8	11.5
transport	0.0	0.0	2.4	0.0	0.0	0.0	92.8
visitall	28.0	0.0	0.0	0.0	100.0	74.0	100.0

Neural Network Heuristic Functions for Classical Planning: Reinforcement Learning and Comparison to Other Methods

Patrick Ferber^{1,3}, Florian Geißer², Felipe Trevizan², Malte Helmert¹, Jörg Hoffmann³
 University of Basel¹, Australian National University², Saarland University³

