
Supplementary Material

Anonymous Author(s)

Affiliation

Address

email

1 A. Additional Experimental Results

2 These experiments were done over four different random seeds. Note that we will update the main
3 manuscript with the new numbers.

Table 1: Out-of-distribution Micro-F₁ under Length OOD test

Algorithm	Vanilla	Adaptive	Tropical
ConvexHull	42.75% \pm 2.06%	48.25% \pm 0.96%	97.00% \pm 1.15%
Quickselect	2.50% \pm 0.58%	11.00% \pm 4.29%	68.50% \pm 4.31%
SCC	46.50% \pm 5.07%	51% \pm 0.82%	63.50% \pm 6.61%
SubsetSum	21.13% \pm 2.45%	22.75% \pm 5.25%	87.50% \pm 6.45%
3SUM	80.00% \pm 0.82%	79.75% \pm 0.50%	82.75% \pm 1.59%

Table 2: Out-of-distribution Micro-F₁ under Value OOD test

Algorithm	Vanilla	Adaptive	Tropical
ConvexHull	22.75% \pm 3.59%	23.77% \pm 3.10%	34.25% \pm 1.71%
Quickselect	0.25% \pm 0.50%	3.25% \pm 4.72%	50.25% \pm 5.06%
SCC	68.75% \pm 9.43%	70.25% \pm 4.11%	77.75% \pm 4.41%
SubsetSum	34.75% \pm 6.60%	28.50% \pm 10.12%	79.25% \pm 5.38%
3SUM	26.00% \pm 3.16%	26.25% \pm 3.50%	22.00% \pm 2.16%

Table 3: Out-of-distribution Micro-F₁ under Adversarial Attack test

Algorithm	Vanilla	Adaptive	Tropical
ConvexHull	90.75% \pm 2.22%	91.00% \pm 2.16%	96.00% \pm 2.16%
Quickselect	7.00% \pm 8.72%	21.75% \pm 2.36%	55.65% \pm 8.33%
SCC	21.50% \pm 1.29%	24.50% \pm 4.80%	29.25% \pm 4.03%
SubsetSum	3.75% \pm 1.50%	3% \pm 1.63%	72.75% \pm 10.01%
3SUM	47.50% \pm 9.47%	49.25% \pm 9.22%	65.25% \pm 3.59%

Table 4: Out-of-distribution MSE under Length OOD test

Dataset	Vanilla	Adaptive	Tropical
BalancedPartition	6.08 \pm 4.96	2.74 \pm 1.70	<u>0.25 \pm 0.01</u>
BinPacking	112.62 \pm 23.18	101.12 \pm 8.69	<u>94.96 \pm 4.10</u>
FloydWarshall	12.81 \pm 4.03	1.31 \pm 0.36	<u>0.81 \pm 0.08</u>
FractionalKnapsack	103.75 \pm 15.56	100.50 \pm 12.26	<u>96.25 \pm 14.93</u>
Knapsack	44.50 \pm 3.11	41.75 \pm 5.19	<u>32.75 \pm 7.80</u>
MinCoinChange	0.55 \pm 0.28	0.29 \pm 0.12	<u>0.16 \pm 0.02</u>

Table 5: Out-of-distribution MSE under Value OOD test

Dataset	Vanilla	Adaptive	Tropical
BalancedPartition	36.01 \pm 9.04	5.85 \pm 0.65	5.46 \pm 0.97
BinPacking	0.63 \pm 0.13	12.32 \pm 9.59	<u>0.39 \pm 0.17</u>
FloydWarshall	87.68 \pm 5.65	56.30 \pm 3.04	<u>55.30 \pm 4.36</u>
FractionalKnapsack	363.75 \pm 45.29	267.50 \pm 50.43	<u>169.50 \pm 20.42</u>
Knapsack	44.25 \pm 9.57	45.25 \pm 2.22	<u>36.25 \pm 10.87</u>
MinCoinChange	1.10 \pm 0.38	0.90 \pm 0.37	<u>0.32 \pm 0.12</u>

Table 6: Out-of-distribution MSE under Adversarial Attack test

Dataset	Vanilla	Adaptive	Tropical
BalancedPartition	10.59 \pm 2.01	1.33 \pm 1.09	<u>0.34 \pm 0.05</u>
BinPacking	0.59 \pm 0.24	1.20 \pm 0.50	<u>0.31 \pm 0.33</u>
FloydWarshall	7.54 \pm 3.63	5.29 \pm 2.56	<u>4.39 \pm 1.62</u>
FractionalKnapsack	7.83 \pm 1.28	7.56 \pm 1.30	<u>6.75 \pm 1.25</u>
Knapsack	68.50 \pm 16.90	56.00 \pm 4.83	<u>34.00 \pm 7.16</u>
MinCoinChange	1.42 \pm 0.33	1.07 \pm 0.58	<u>0.82 \pm 0.26</u>