Supplementary Material
Algorithms and Additional Results for the Paper "*¡Your Paper Title Here¿*"

Overview

This supplementary document contains full algorithm listings and large-format tables referenced in the main paper. These materials are hosted online for readability (e.g., GitHub) but are provided here in a unified PDF.

Algorithm 1: LINE — Distance^2 Seeding with Mini-Sampling

```
# Input: data, budget=50 (say), few=64 (say)
# Output: out
out = [rows[0]]
while len(out) < budget:
    tmp = sample(rows, min(few, len(data.rows)))
    w = {r: min(D(data, r, c)**2 for c in out) for r in tmp}
    r1 = random.choices(tmp, weights=[w[r] for r in tmp])[0]
    out.append(r1)
return out
```

Algorithm 2: LITE — Guess What to Label

```
# Input: data, budget=50 (say), any=4 (say)
# Output: sorted xy
x  = clone(data, shuffle(data.rows))
xy, best, rest = clone(data), clone(data), clone(data)
for i in range(any):
    add(xy, add(best, sub(x, x.rows.pop())))

xy.rows = sorted(xy, key=distance2heaven)
n = round(any**0.5)
adds(xy.rows[:n], best)
adds(xy.rows[n:], rest)

while x.n > 2 and xy.n < budget:
    guess = mostBest(xy, best, rest, x)
    add(xy, add(best, sub(x, guess)))
    if best.n > xy.n**0.5:
        best.rows = sorted(best.rows,
                    key=distance2heaven)
        while best.n > xy.n**0.5:
            add(rest, sub(best, best.rows.pop(-1)))
return sorted(xy, key=distance2heaven)
```

Algorithm 3: MOSTBEST — Used in LITE

```
# Input: xy, best, rest, x, few=64 (say)
# Output: a row from x
def score(row):
    return likes(best, row, x.n, 2) / (
            likes(rest, row, x.n, 2) + 1e-32)

*tmp, guess = sorted(x.rows[:few], key=score)
x.rows = tmp + x.rows[few:]
return guess
```

Note: in Algorithm 2, `add` and `sub` update frequency counts inside a Naive Bayes classifier. The predicate `distance2heaven` is defined in the main paper (Section X). In Algorithm 3, `likes` uses Bayes Theorem to estimate likelihoods.

Table 1: Means from 20 optimization trials of Table **??** data. For Δ values (column one, Equation **??**), higher is better; ▃ shows median Δ. Other columns show distance to heaven (*d2h*), where smaller is better. Cell colors rank *d2h* performance (§**??**): ☐ best, ▨ 2nd, ▨ 3rd, ▨ 4th, ▨ 5th. Bottom row ■ shows percentage achieving best results.

Δ	Rows	|X|	|Y|	As is	DEHB 6	12	18	24	50	100	200	LITE 6	12	18	24	50	100	200	LINE 6	12	18	24	50	100	200	Random 6	12	18	24	50	100	200	
49	10000	5	3	59	43	42	41	41	40	38	36	43	37	35	35	34	31	28	44	41	39	38	36	35	32	42	42	42	41	39	36	34	Health-hard
61	86058	11	2	58	42	40	37	34	28	24	20	37	31	27	25	20	16	14	38	34	25	26	24	18	19	40	33	31	30	22	21	20	SS-X
63	53662	17	2	25	17	16	15	14	12	11	8	17	17	16	14	10	8	7	16	15	14	14	10	8	8	18	16	16	14	14	12	8	SS-N
72	4653	38	1	46	27	25	22	20	15	13	12	23	16	17	16	16	16	16	26	20	15	15	15	14	10	23	21	16	17	13	12	9	SQL_AllMeasurements
76	1512	3	2	32	8	8	7	6	5	4	4	13	10	9	8	7	6	4	13	9	8	8	6	6	5	13	9	7	6	5	6	5	SS-C
78	3008	14	2	41	22	21	19	19	19	16	16	23	21	19	19	17	14	14	23	19	19	18	17	16	16	23	19	18	19	17	17	16	SS-R
81	756	3	2	25	26	24	23	19	17	17	14	32	28	26	24	21	19	14	19	21	21	22	16	14	13	26	24	21	21	19	17	14	SS-E
81	1343	3	2	39	10	8	7	6	3	2	1	8	6	3	2	2	1	0	10	6	6	5	3	3	2	10	7	5	5	4	3	2	SS-A
81	972	11	3	52	28	27	24	23	21	17	15	21	17	17	17	16	13	13	24	21	20	18	16	15	13	27	22	21	20	17	15	13	SS-O
81	10000	88	3	55	28	45	43	42	39	37	37	44	40	39	38	36	35	35	43	41	41	40	38	37	35	44	41	42	41	39	38	37	billing10k
83	6840	16	2	55	20	18	13	12	10	7	6	24	15	13	10	7	3	2	29	20	15	14	10	4	3	27	19	14	11	10	7	4	SS-V
90	196	3	4	57	45	43	41	40	38	36	35	47	44	43	43	40	35	33	43	42	42	40	37	36	33	44	42	41	39	37	36	34	SS-G
90	398	3	3	56	39	38	35	33	29	27	21	32	25	21	20	18	17	7	36	33	29	23	21	21	10	36	32	32	25	24	20	19	auto93
90	192	9	1	33	11	9	9	6	4	2	2	5	2	2	1	0	0	0	7	4	4	3	3	1	0	9	5	3	3	1	1	0	Apache_AllMeasurements
90	2880	6	2	52	30	26	23	20	15	9	5	37	19	16	13	8	6	5	31	17	19	15	9	7	7	29	23	19	18	13	7	5	SS-K
90	3840	6	2	52	28	22	16	13	6	5	4	41	14	11	9	7	6	4	26	11	9	7	5	4	4	22	16	10	8	6	5	4	SS-J
90	4608	21	2	46	29	26	25	25	24	23	23	32	30	28	27	24	23	23	29	27	25	25	25	24	24	23	26	25	25	24	24	23	SS-U
91	196	3	2	55	46	44	43	41	38	34	32	46	40	39	37	33	36	32	42	38	36	36	33	32	32	41	40	40	38	36	33	32	SS-D
91	196	3	2	56	44	43	41	41	37	36	35	47	45	44	44	40	36	35	44	44	43	43	41	36	36	35	43	41	39	38	36	36	SS-F
91	1080	5	3	39	24	18	16	14	7	2	2	23	18	16	16	13	8	2	18	14	13	12	5	2	1	24	18	14	14	6	5	1	SS-I
92	3840	6	2	24	4	3	3	2	1	1	1	5	4	3	2	2	1	1	5	3	3	2	2	2	0	4	3	2	1	1	1	1	SS-S
92	2866	6	1	23	5	2	2	2	2	1	1	5	5	4	2	2	1	1	5	2	2	4	4	3	0	3	2	5	5	4	3	1	sol-6-c2-obj1
92	5184	12	3	29	8	6	6	6	2	1	0	9	7	7	6	5	5	4	8	5	6	7	4	3	3	7	6	6	5	4	3	3	HSMGP_num
92	2736	13	3	41	13	11	9	9	6	5	5	13	6	5	5	5	5	5	11	9	7	6	7	5	5	12	10	8	7	6	5	5	SS-T
92	1023	11	2	63	25	24	20	17	16	16	16	16	35	22	20	19	17	16	31	35	25	25	19	17	17	42	25	22	18	17	16	17	SS-Q
92	65536	16	2	56	34	32	28	26	22	18	12	39	33	31	30	23	20	17	39	33	33	33	29	25	20	38	33	33	31	29	24	24	SS-L
93	206	3	2	27	32	30	27	24	17	11	3	25	25	25	23	3	1	1	27	21	21	16	11	9	3	30	23	20	16	15	4	3	SS-B
94	196	3	1	27	7	4	3	3	0	0	0	6	3	3	2	0	0	0	4	2	2	1	1	0	0	10	3	1	1	0	0	0	wc+wc-3-c4-obj1
94	3456	14	1	12	2	1	1	1	0	0	0	2	1	1	0	0	0	0	2	2	2	1	1	0	0	2	1	1	0	0	0	0	HSMGP_num
95	196	3	1	26	6	3	2	2	1	1	0	6	1	1	1	0	0	0	4	2	2	1	1	0	0	9	3	3	1	0	0	0	wc+sol-3-c4-obj1
95	196	3	1	27	6	4	2	1	1	0	0	6	1	1	0	0	0	0	4	3	2	2	1	1	0	9	3	3	1	0	0	0	wc+rs-3-c4-obj1
95	259	4	2	63	47	40	35	33	28	24	23	43	26	25	25	24	23	23	49	38	36	36	30	26	24	43	41	35	35	27	23	23	SS-H
95	1023	11	2	52	25	24	20	17	16	16	16	35	23	20	16	16	16	16	38	29	24	26	18	17	17	42	25	23	22	18	17	16	SS-P
95	2880	6	1	29	7	5	4	1	1	0	0	10	2	1	0	0	0	0	6	2	1	1	0	0	0	5	2	2	1	1	0	0	wc-6-c1-obj1
95	1152	16	1	38	3	2	1	1	0	0	0	2	1	0	0	0	0	0	7	3	2	2	1	1	0	8	3	2	2	2	1	0	X264_AllMeasurements
96	10000	5	3	66	29	16	8	4	4	0	0	13	0	0	0	0	0	0	14	0	1	1	1	0	0	28	4	4	1	0	0	0	Health-easy
96	864	17	3	31	9	4	3	2	1	0	0	3	2	1	0	0	0	0	3	1	1	0	1	0	0	8	5	2	1	0	0	0	SS-M
97	3840	5	1	28	2	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	5	2	1	0	0	0	0	rs-6-c3-obj1
100	3840	6	1	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	rs-6-c3-obj2
%Best.				0	51	54	59	62	85	92	100	49	72	79	79	87	95	95	49	59	67	72	95	97	97	41	51	69	77	90	95	97	