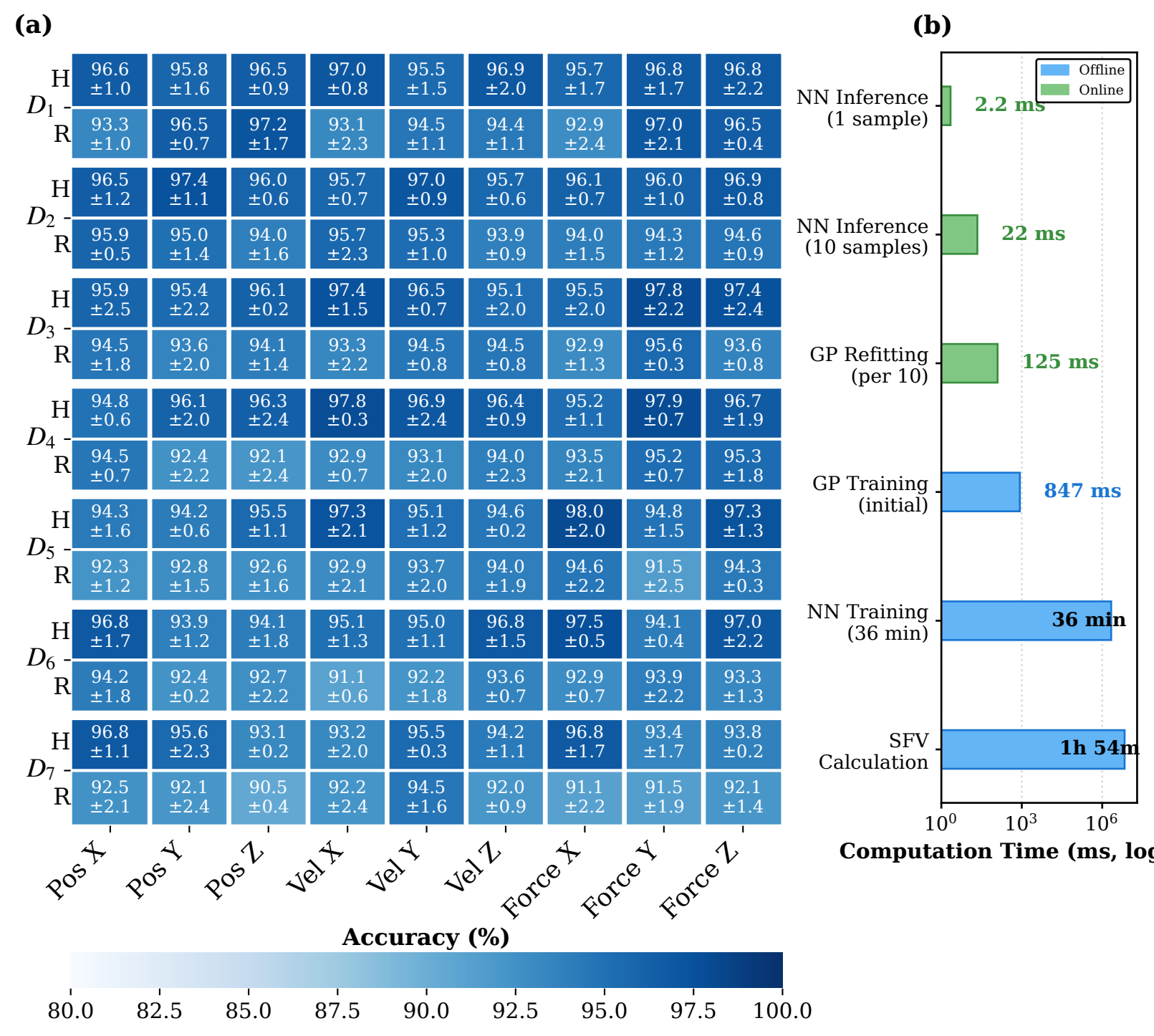
(a)
H
R
D_1
96.6 ±1.0 95.8 ±1.6 96.5 ±0.9 97.0 ±0.8 95.5 ±1.5 96.9 ±2.0 95.7 ±1.7 96.8 ±1.7 96.8 ±2.2
93.3 ±1.0 96.5 ±0.7 97.2 ±1.7 93.1 ±2.3 94.5 ±1.1 94.4 ±1.1 92.9 ±2.4 97.0 ±2.1 96.5 ±0.4
D_2
96.5 ±1.2 97.4 ±1.1 96.0 ±0.6 95.7 ±0.7 97.0 ±0.9 95.7 ±0.6 96.1 ±0.7 96.0 ±1.0 96.9 ±0.8
95.9 ±0.5 95.0 ±1.4 94.0 ±1.6 95.7 ±2.3 95.3 ±1.0 93.9 ±0.9 94.0 ±1.5 94.3 ±1.2 94.6 ±0.9
D_3
95.9 ±2.5 95.4 ±2.2 96.1 ±0.2 97.4 ±1.5 96.5 ±0.7 95.1 ±2.0 95.5 ±2.0 97.8 ±2.2 97.4 ±2.4
94.5 ±1.8 93.6 ±2.0 94.1 ±1.4 93.3 ±2.2 94.5 ±0.8 94.5 ±0.8 92.9 ±1.3 95.6 ±0.3 93.6 ±0.8
D_4
94.8 ±0.6 96.1 ±2.0 96.3 ±2.4 97.8 ±0.3 96.9 ±2.4 96.4 ±0.9 95.2 ±1.1 97.9 ±0.7 96.7 ±1.9
94.5 ±0.7 92.4 ±2.2 92.1 ±2.4 92.9 ±0.7 93.1 ±2.0 94.0 ±2.3 93.5 ±2.1 95.2 ±0.7 95.3 ±1.8
D_5
94.3 ±1.6 94.2 ±0.6 95.5 ±1.1 97.3 ±2.1 95.1 ±1.2 94.6 ±0.2 98.0 ±2.0 94.8 ±1.5 97.3 ±1.3
92.3 ±1.2 92.8 ±1.5 92.6 ±1.6 92.9 ±2.1 93.7 ±2.0 94.0 ±1.9 94.6 ±2.2 91.5 ±2.5 94.3 ±0.3
D_6
96.8 ±1.7 93.9 ±1.2 94.1 ±1.8 95.1 ±1.3 95.0 ±1.1 96.8 ±1.5 97.5 ±0.5 94.1 ±0.4 97.0 ±2.2
94.2 ±1.8 92.4 ±0.2 92.7 ±2.2 91.1 ±0.6 92.2 ±1.8 93.6 ±0.7 92.9 ±0.7 93.9 ±2.2 93.3 ±1.3
D_7
96.8 ±1.1 95.6 ±2.3 93.1 ±0.2 93.2 ±2.0 95.5 ±0.3 94.2 ±1.1 96.8 ±1.7 93.4 ±1.7 93.8 ±0.2
92.5 ±2.1 92.1 ±2.4 90.5 ±0.4 92.2 ±2.4 94.5 ±1.6 92.0 ±0.9 91.1 ±2.2 91.5 ±1.9 92.1 ±1.4
Pos X
Pos Y
Pos Z
Vel X
Vel Y
Vel Z
Force X
Force Y
Force Z
Accuracy (%)
80.0 82.5 85.0 87.5 90.0 92.5 95.0 97.5 100.0
(b)
Offline
Online
NN Inference (1 sample)
2.2 ms
NN Inference (10 samples)
22 ms
GP Refitting (per 10)
125 ms
GP Training (initial)
847 ms
NN Training (36 min)
36 min
SFV Calculation
1h 54m
10^0 10^3 10^6
Computation Time (ms, log