Table 1: SSL Comparison: MNIST: Average (standard deviation) classification accuracy over 100 trials.

# Labels per class	**1**	**2**	**3**	**4**	**5**
High order laplace learningN = 50m = 0.1	67.3 (5.0)	77.4 (3.0)	81.7 (2.8)	84.8 (2.4)	87
High order laplace learningN = 100m = 0.1	56.1 (3.6)	66.3 (2.9)	71.4 (2.5)	75.5 (2.5)	78
High order laplace learningN = 150m = 0.1	50.9 (3.1)	60.0 (2.5)	65.1 (2.4)	69.0 (2.5)	72
High order laplace learningN = 200m = 0.1	48.3 (2.8)	56.5 (2.3)	61.1 (2.2)	65.0 (2.2)	68
High order laplace learningN = 250m = 0.1	46.2 (2.6)	53.6 (2.3)	58.2 (2.0)	61.8 (2.2)	65
High order laplace learningN = 300m = 0.1	44.5 (2.4)	51.6 (2.2)	56.0 (2.0)	59.4 (2.0)	62
High order laplace learningN = 50m = 0.2	70.1 (5.0)	80.3 (2.9)	84.5 (2.5)	87.4 (2.1)	89
High order laplace learningN = 100m = 0.2	59.5 (3.8)	70.3 (2.9)	75.5 (2.4)	79.7 (2.4)	82
High order laplace learningN = 150m = 0.2	54.4 (3.3)	64.3 (2.6)	69.8 (2.4)	73.9 (2.5)	77
High order laplace learningN = 200m = 0.2	51.7 (3.1)	60.8 (2.5)	66.0 (2.2)	70.2 (2.3)	73
High order laplace learningN = 250m = 0.2	49.5 (2.9)	58.0 (2.5)	63.0 (2.1)	67.1 (2.3)	70
High order laplace learningN = 300m = 0.2	47.8 (2.7)	55.9 (2.3)	60.9 (2.1)	64.7 (2.2)	68
High order laplace learningN = 50m = 0.30000000000000004	73.2 (5.0)	83.3 (2.8)	87.2 (2.2)	89.8 (1.8)	91
High order laplace learningN = 100m = 0.30000000000000004	63.4 (4.0)	74.7 (2.9)	79.9 (2.3)	83.9 (2.2)	86
High order laplace learningN = 150m = 0.30000000000000004	58.6 (3.6)	69.3 (2.7)	75.0 (2.3)	79.1 (2.4)	82
High order laplace learningN = 200m = 0.30000000000000004	56.0 (3.4)	66.0 (2.7)	71.6 (2.2)	75.9 (2.4)	79
High order laplace learningN = 250m = 0.30000000000000004	53.9 (3.3)	63.4 (2.7)	68.9 (2.2)	73.0 (2.4)	76
High order laplace learningN = 300m = 0.30000000000000004	52.3 (3.1)	61.4 (2.5)	66.9 (2.1)	71.0 (2.3)	74
High order laplace learningN = 50m = 0.4	76.4 (5.0)	86.2 (2.7)	89.6 (1.9)	91.8 (1.6)	93
High order laplace learningN = 100m = 0.4	67.8 (4.2)	79.2 (2.8)	84.1 (2.1)	87.6 (1.9)	89
High order laplace learningN = 150m = 0.4	63.6 (3.9)	74.7 (2.7)	80.2 (2.1)	83.9 (2.2)	86
High order laplace learningN = 200m = 0.4	61.2 (3.7)	71.8 (2.7)	77.4 (2.1)	81.4 (2.2)	84
High order laplace learningN = 250m = 0.4	59.4 (3.6)	69.5 (2.7)	75.0 (2.1)	79.1 (2.3)	82
High order laplace learningN = 300m = 0.4	57.9 (3.5)	67.7 (2.6)	73.4 (2.1)	77.4 (2.2)	80
High order laplace learningN = 50m = 0.5	79.6 (4.9)	88.6 (2.4)	91.5 (1.6)	93.2 (1.4)	94
High order laplace learningN = 100m = 0.5	72.4 (4.3)	83.2 (2.5)	87.6 (1.8)	90.3 (1.6)	91
High order laplace learningN = 150m = 0.5	68.9 (4.1)	79.7 (2.6)	84.6 (1.9)	87.7 (1.9)	89
High order laplace learningN = 200m = 0.5	66.9 (3.9)	77.4 (2.6)	82.6 (1.9)	85.8 (2.0)	88
High order laplace learningN = 250m = 0.5	65.4 (3.9)	75.5 (2.6)	80.7 (1.9)	84.2 (2.1)	86
High order laplace learningN = 300m = 0.5	64.2 (3.8)	74.1 (2.6)	79.4 (2.0)	82.9 (2.0)	85
High order laplace learningN = 50m = 0.6	82.5 (4.8)	90.5 (2.2)	92.8 (1.4)	94.1 (1.2)	94
High order laplace learningN = 100m = 0.6	76.7 (4.3)	86.4 (2.3)	90.0 (1.6)	92.1 (1.4)	93
High order laplace learningN = 150m = 0.6	74.0 (4.2)	83.8 (2.4)	87.9 (1.7)	90.3 (1.6)	91
High order laplace learningN = 200m = 0.6	72.4 (4.0)	82.1 (2.4)	86.5 (1.6)	89.0 (1.7)	90
High order laplace learningN = 250m = 0.6	71.2 (4.1)	80.7 (2.4)	85.1 (1.6)	87.9 (1.8)	89
High order laplace learningN = 300m = 0.6	70.3 (4.0)	79.6 (2.4)	84.2 (1.7)	87.1 (1.7)	89
High order laplace learningN = 50m = 0.7000000000000001	84.8 (4.6)	91.7 (1.9)	93.6 (1.2)	94.6 (1.0)	95
High order laplace learningN = 100m = 0.7000000000000001	80.3 (4.2)	88.8 (2.1)	91.7 (1.4)	93.2 (1.2)	94
High order laplace learningN = 150m = 0.7000000000000001	78.3 (4.2)	86.9 (2.2)	90.2 (1.4)	92.0 (1.3)	93
High order laplace learningN = 200m = 0.7000000000000001	77.2 (4.1)	85.7 (2.1)	89.2 (1.4)	91.1 (1.5)	92
High order laplace learningN = 250m = 0.7000000000000001	76.3 (4.1)	84.7 (2.2)	88.3 (1.4)	90.4 (1.5)	91
High order laplace learningN = 300m = 0.7000000000000001	75.8 (4.1)	84.0 (2.2)	87.7 (1.4)	89.9 (1.5)	91
High order laplace learningN = 50m = 0.8	86.5 (4.4)	92.5 (1.8)	94.1 (1.2)	94.9 (1.0)	95
High order laplace learningN = 100m = 0.8	83.3 (4.1)	90.4 (1.9)	92.8 (1.3)	93.9 (1.1)	94
High order laplace learningN = 150m = 0.8	81.7 (4.1)	89.1 (2.0)	91.8 (1.3)	93.0 (1.2)	94
High order laplace learningN = 200m = 0.8	81.0 (4.1)	88.3 (2.0)	91.1 (1.3)	92.5 (1.2)	93
High order laplace learningN = 250m = 0.8	80.3 (4.1)	87.6 (1.9)	90.4 (1.2)	92.0 (1.3)	93
High order laplace learningN = 300m = 0.8	80.1 (4.1)	87.1 (2.0)	90.0 (1.3)	91.7 (1.3)	92
High order laplace learningN = 50m = 0.9	87.8 (4.2)	93.0 (1.6)	94.4 (1.1)	95.1 (0.9)	95
High order laplace learningN = 100m = 0.9	85.5 (4.0)	91.6 (1.8)	93.5 (1.2)	94.3 (1.1)	94
High order laplace learningN = 150m = 0.9	84.3 (4.0)	90.6 (1.8)	92.8 (1.2)	93.7 (1.1)	94
High order laplace learningN = 200m = 0.9	83.8 (4.0)	90.0 (1.8)	92.3 (1.2)	93.4 (1.1)	94
High order laplace learningN = 250m = 0.9	83.4 (4.1)	89.6 (1.8)	91.9 (1.2)	93.1 (1.2)	94
High order laplace learningN = 300m = 0.9	83.2 (4.1)	89.3 (1.8)	91.6 (1.2)	92.9 (1.1)	93
High order laplace learningN = 50m = 1.0	88.8 (4.1)	93.4 (1.6)	94.6 (1.1)	95.2 (0.9)	95
High order laplace learningN = 100m = 1.0	87.0 (3.9)	92.4 (1.7)	93.9 (1.2)	94.6 (1.0)	95
High order laplace learningN = 150m = 1.0	86.1 (3.9)	91.7 (1.7)	93.5 (1.2)	94.2 (1.0)	94
High order laplace learningN = 200m = 1.0	85.7 (4.0)	91.3 (1.7)	93.1 (1.2)	93.9 (1.1)	94
High order laplace learningN = 250m = 1.0	85.5 (4.1)	91.0 (1.7)	92.8 (1.2)	93.7 (1.1)	94
High order laplace learningN = 300m = 1.0	85.5 (4.1)	90.8 (1.7)	92.7 (1.2)	93.6 (1.1)	94
High order laplace learningN = 50m = 1.1	89.4 (4.0)	93.6 (1.6)	94.7 (1.2)	**95.2 (0.9)**	**95**
High order laplace learningN = 100m = 1.1	88.0 (3.9)	92.9 (1.7)	94.2 (1.2)	94.8 (1.0)	95