

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 = 10M = 0.1 | 35.7 (5.6) | 38.9 (4.5) | 41.3 (3.7) | 42.7 (2.9) | 43.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 20M = 0.1 | 41.7 (5.5) | 47.8 (5.3) | 51.0 (3.8) | 53.2 (3.1) | 54.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 30M = 0.1 | 39.8 (5.1) | 46.5 (5.0) | 50.0 (3.8) | 52.6 (3.0) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 40M = 0.1 | 37.8 (4.7) | 44.9 (4.6) | 48.6 (3.6) | 51.5 (3.1) | 52.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 50M = 0.1 | 36.8 (4.7) | 44.1 (4.5) | 48.0 (3.6) | 51.0 (3.2) | 52.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 10M = 0.2 | 35.7 (5.6) | 38.8 (4.5) | 41.2 (3.7) | 42.5 (2.9) | 43.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 20M = 0.2 | 41.8 (5.5) | 47.8 (5.3) | 51.0 (3.8) | 53.1 (3.1) | 54.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 30M = 0.2 | 40.1 (5.1) | 46.8 (5.0) | 50.2 (3.8) | 52.8 (3.0) | 54.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 40M = 0.2 | 38.2 (4.8) | 45.3 (4.7) | 49.0 (3.6) | 51.8 (3.0) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 50M = 0.2 | 37.3 (4.8) | 44.6 (4.5) | 48.5 (3.6) | 51.5 (3.2) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 10M = 0.300000000000000004 | 35.6 (5.6) | 38.7 (4.5) | 41.1 (3.7) | 42.4 (2.9) | 42.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 20M = 0.300000000000000004 | 41.8 (5.5) | 47.7 (5.3) | 51.0 (3.9) | 53.1 (3.1) | 54.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 30M = 0.300000000000000004 | 40.4 (5.2) | 47.0 (5.0) | 50.4 (3.8) | 52.9 (3.0) | 54.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 40M = 0.300000000000000004 | 38.6 (4.9) | 45.7 (4.7) | 49.4 (3.6) | 52.1 (3.0) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 50M = 0.300000000000000004 | 37.8 (4.9) | 45.1 (4.6) | 49.0 (3.5) | 51.9 (3.2) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 10M = 0.4 | 35.5 (5.5) | 38.5 (4.5) | 40.9 (3.7) | 42.2 (2.9) | 42.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 20M = 0.4 | 41.8 (5.5) | 47.6 (5.3) | 50.9 (3.9) | 52.9 (3.1) | 54.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 30M = 0.4 | 40.6 (5.2) | 47.1 (5.0) | 50.5 (3.8) | 53.0 (3.0) | 54.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 40M = 0.4 | 39.0 (4.9) | 46.0 (4.7) | 49.6 (3.6) | 52.3 (3.0) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 50M = 0.4 | 38.3 (5.0) | 45.5 (4.6) | 49.4 (3.5) | 52.2 (3.1) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 10M = 0.5 | 35.4 (5.5) | 38.3 (4.6) | 40.7 (3.7) | 42.0 (2.9) | 42.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 20M = 0.5 | 41.7 (5.5) | 47.5 (5.4) | 50.8 (3.9) | 52.8 (3.1) | 54.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 30M = 0.5 | 40.8 (5.2) | 47.2 (5.1) | 50.6 (3.8) | 53.0 (3.0) | 54.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 40M = 0.5 | 39.3 (5.0) | 46.2 (4.7) | 49.8 (3.6) | 52.4 (3.0) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 50M = 0.5 | 38.7 (5.1) | 45.8 (4.7) | 49.6 (3.5) | 52.4 (3.1) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 10M = 0.6 | 35.3 (5.6) | 38.1 (4.6) | 40.5 (3.7) | 41.7 (2.9) | 42.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 20M = 0.6 | 41.7 (5.6) | 47.3 (5.5) | 50.6 (3.9) | 52.6 (3.1) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 30M = 0.6 | 40.9 (5.3) | 47.2 (5.1) | 50.5 (3.8) | 52.9 (3.0) | 54.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 40M = 0.6 | 39.6 (5.1) | 46.4 (4.8) | 49.9 (3.7) | 52.5 (3.0) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 50M = 0.6 | 39.1 (5.1) | 46.0 (4.7) | 49.8 (3.5) | 52.6 (3.0) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 10M = 0.700000000000000001 | 35.2 (5.6) | 37.9 (4.6) | 40.3 (3.7) | 41.5 (3.0) | 41.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 20M = 0.700000000000000001 | 41.6 (5.6) | 47.0 (5.5) | 50.4 (4.0) | 52.3 (3.1) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 30M = 0.700000000000000001 | 41.0 (5.3) | 47.1 (5.2) | 50.5 (3.8) | 52.8 (3.0) | 54.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 40M = 0.700000000000000001 | 39.8 (5.2) | 46.4 (4.8) | 49.9 (3.7) | 52.5 (3.0) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 50M = 0.700000000000000001 | 39.4 (5.2) | 46.2 (4.8) | 49.9 (3.5) | 52.6 (3.0) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 10M = 0.8 | 35.0 (5.5) | 37.7 (4.5) | 40.1 (3.8) | 41.2 (3.0) | 41.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 20M = 0.8 | 41.4 (5.7) | 46.8 (5.5) | 50.1 (3.9) | 52.0 (3.1) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 30M = 0.8 | 41.0 (5.3) | 47.0 (5.2) | 50.3 (3.8) | 52.6 (3.0) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 40M = 0.8 | 40.0 (5.2) | 46.4 (4.9) | 49.8 (3.7) | 52.4 (2.9) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 50M = 0.8 | 39.7 (5.2) | 46.3 (4.8) | 50.0 (3.5) | 52.6 (3.0) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 10M = 0.9 | 34.9 (5.5) | 37.4 (4.5) | 39.9 (3.8) | 40.9 (3.1) | 41.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 20M = 0.9 | 41.3 (5.7) | 46.5 (5.6) | 49.8 (3.9) | 51.6 (3.1) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 30M = 0.9 | 41.1 (5.4) | 46.9 (5.3) | 50.1 (3.8) | 52.4 (3.0) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 40M = 0.9 | 40.1 (5.3) | 46.3 (4.9) | 49.7 (3.7) | 52.2 (3.0) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 50M = 0.9 | 39.9 (5.3) | 46.3 (4.9) | 49.9 (3.6) | 52.4 (3.0) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 10M = 1.0 | 34.7 (5.5) | 37.1 (4.5) | 39.6 (3.8) | 40.6 (3.1) | 40.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 20M = 1.0 | 41.1 (5.8) | 46.1 (5.6) | 49.4 (3.9) | 51.3 (3.2) | 52.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 30M = 1.0 | 41.0 (5.4) | 46.6 (5.3) | 49.8 (3.7) | 52.1 (3.1) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 40M = 1.0 | 40.2 (5.3) | 46.2 (5.0) | 49.5 (3.7) | 51.9 (3.0) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 50M = 1.0 | 40.0 (5.4) | 46.2 (4.9) | 49.7 (3.6) | 52.2 (3.0) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 10M = 1.1 | 34.5 (5.5) | 36.8 (4.5) | 39.3 (3.9) | 40.2 (3.1) | 40.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 20M = 1.1 | 40.9 (5.8) | 45.7 (5.6) | 49.0 (3.9) | 50.8 (3.2) | 52.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 30M = 1.1 | 41.0 (5.5) | 46.3 (5.4) | 49.5 (3.7) | 51.7 (3.1) | 52.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 40M = 1.1 | 40.3 (5.4) | 46.0 (5.0) | 49.3 (3.7) | 51.6 (3.0) | 52.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 50M = 1.1 | 40.1 (5.4) | 46.1 (5.0) | 49.5 (3.6) | 51.9 (3.1) | 53.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 10M = 1.200000000000000002 | 34.3 (5.5) | 36.5 (4.4) | 39.0 (3.9) | 39.8 (3.2) | 40.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 20M = 1.200000000000000002 | 40.6 (5.8) | 45.3 (5.6) | 48.6 (3.9) | 50.3 (3.3) | 51.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 30M = 1.200000000000000002 | 40.9 (5.5) | 46.0 (5.4) | 49.1 (3.7) | 51.2 (3.2) | 52.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 40M = 1.200000000000000002 | 40.3 (5.4) | 45.7 (5.1) | 49.0 (3.7) | 51.2 (3.1) | 52.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 50M = 1.200000000000000002 | 40.2 (5.4) | 45.8 (5.1) | 49.2 (3.6) | 51.5 (3.1) | 52.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 10M = 1.300000000000000003 | 34.0 (5.4) | 36.2 (4.4) | 38.6 (3.9) | 39.4 (3.2) | 39.7 (3.1) |
| HIGH ORDER LAPLACE LEARNINGN = 20M = 1.300000000000000003 | 40.4 (5.9) | 44.8 (5.6) | 48.1 (3.9) | 49.7 (3.4) | 51.7 (3.1) |