**1. Stacked Conditioned (Comparision between alphas)**

Hyperpara: p = 8

n = 4

H = 50

Sigma: 1 - sigmoid(alpha\*(x-t-0.5))

Net: (1-8-8-8) × [4\*(1-4-4-2)] × (8) × (1-8-8-8)

Brachx0 × 4 Branches u × Sigma × Trunk

Opt: Adam, lr = 0.1

Data: Training: data

Testing: data\_5

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Alpha** | 0.5 | 1 | 2 | 4 | 8 | 16 | 32 | 64 |
| **R2** | 0.8883 | 0.9285 | 0.9543 | 0.9702 | 0.9747 | 0.9791 | 0.9788 | 0.9778 |

**2. Stacked vs Stacked\_conditioned (alpha = 16) (linear system)**

Net: (1-8-8-8) × [4\*(1-4-4-2)] × (1-8-8-8)

Brachx0 × 4 Branches u × Trunk

Data: Training: data

Testing: data\_5

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **lr** | **0.2** | **0.1** | **0.01** | **0.001** |
| **Stacked** | 0.9818 | 0.9454 | 0.7210 | 0.9543 |
| **Stacked\_Conditioned** | 0.9868 | 0.9791 | 0.9725 | 0.9610 |

**3. Stacked vs Stacked\_conditioned (nonlinear system)**

Net: (1-8-8-8) × [4\*(1-2-2-2)] × (1-8-8-8)

Data: Training: data\_6

Testing: data\_7

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **lr** | **0.2** | **0.1** | **0.01** | **0.001** |
| **Stacked** | 0.9868 | 0.9953 | 0.9991 | 0.9969 |
| **Stacked\_Conditioned** | 0.9936 | 0.9988 | 0.9940 | 0.9779 |

**4. Stacked vs Stacked\_conditioned (pendulum system)**

Net: (1-8-8-8) × [4\*(1-2-2-2)] × (1-8-8-8)

Data: Training: data\_8

Testing: data\_9

|  |  |  |
| --- | --- | --- |
| **lr** | **0.1** | **0.001** |
| **Stacked** | 0.9992 | 0.998 |
| **Stacked\_Conditioned** | 0.9994 | 0.998 |