**High Frequency System Identification:**

Sample rate: 10 KHz => maximum drivable frequency (less than Nyquist frequency, 5 KHz= 31 Krad/s )

OUTPUT (REZONATOR SIZE = 32)

|  |  |  |  |
| --- | --- | --- | --- |
| Sl. No. | Frequency (in rad/s) | Batch Size | Result |
| 1. | 15000 | 16 | Converged |
| 2. |  | 8 | converged |
|  |  | 4 | converged |
|  |  | 2 |  |
|  | 20000 | 4 | Didn’t converge |

>Taking one gradient and diff to update weights turn into poor convergence even on low frequency data, although learning would be faster.

RBNN & Frequency:

Observations:

1. System trained in frequency range up to fs/4 learn well and predict well when driven by signal whose frequency lies between this range.
2. System trained to learn high frequency band can predict low frequency signal. But system trained at low frequency has difficulty to predict high frequency output.

Assume a system which has high bandwidth (more than fs/4). In that case, system will not predict the output out of fs/4 bandwidth, even though system has learnt the behavior very well at low frequency.