Parameters in Machine learning using Deep Neural Networks (DNN)

[1]

Abstract

There are at least 13 or 14 parameters used.

I. Outline

The following items are considered and discussed.

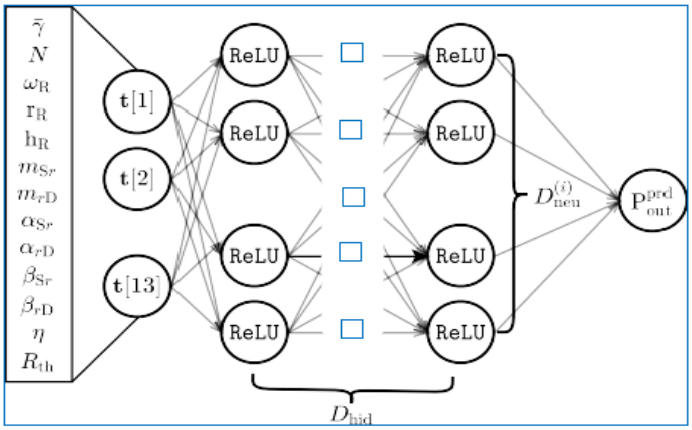
- From T_x to R_x direct link is in general not available.
- There is blockage and shadowing in between the two.
- Reconfigurable intelligent surfaces (RIS) are used such that it helps better beam-forming.
- The $\overline{\Gamma} = \frac{P}{\sigma^2}$ is the average transmit SNR.
- The target spectral efficiency is denoted by R_{th}.
- The outage probability can be written as below:
- $$P_{outage} = P_R(\gamma < \gamma_{th})$$

  where $\gamma_{th} \triangleq 2^{R_{th}-1}$
- 5G & 6G both are the reliable tools over the areas which may be difficult terrain.
- One would need new types of fading models in both DL(downlink) and UL(uplink) channels.

A. Parameters discussed below

- N represents the number of RIS elements.
- ω_R is the azimuth angle in the range of $(0, 2\pi)$.
- r_R and H_R are radial distance and the height of the cylindrical surface used respectively.
- η is the path-loss exponent.
- α and β represent shadowing parameters depending upon Inverse Gamma parameters.
- The letter m represents Nagakami m-parameters for severe shadowing.

Following two figures explain the process of Deep learning



Deep Learning Network with Physical parameters for 5 G/6 G using Reconfigurable Intelligent Surfaces

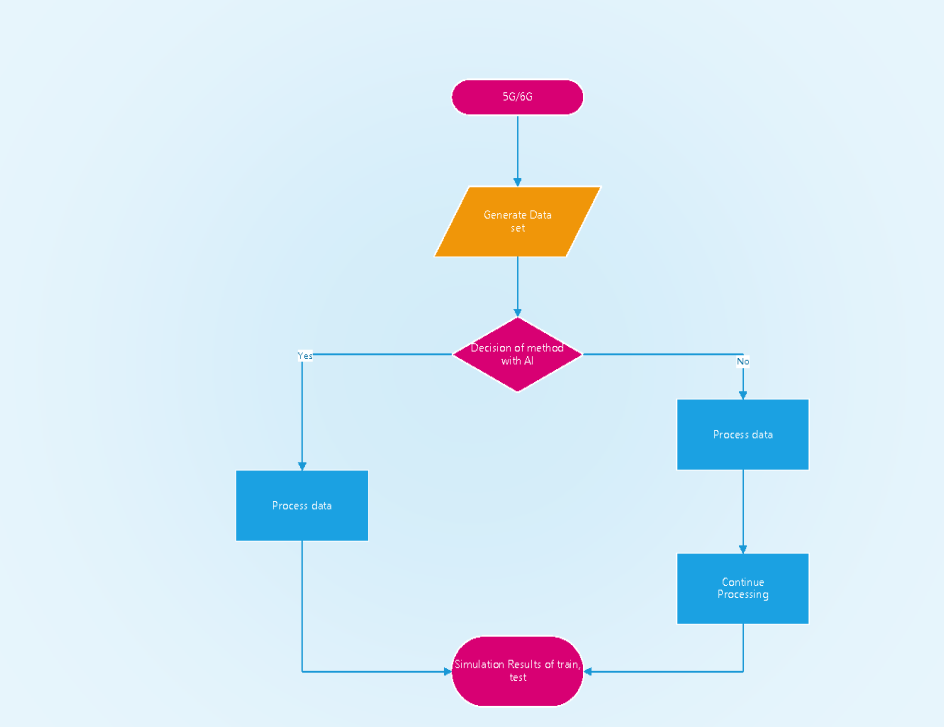


Figure 1: DNN network with RIS