

Antenna Design based on Machine Learning

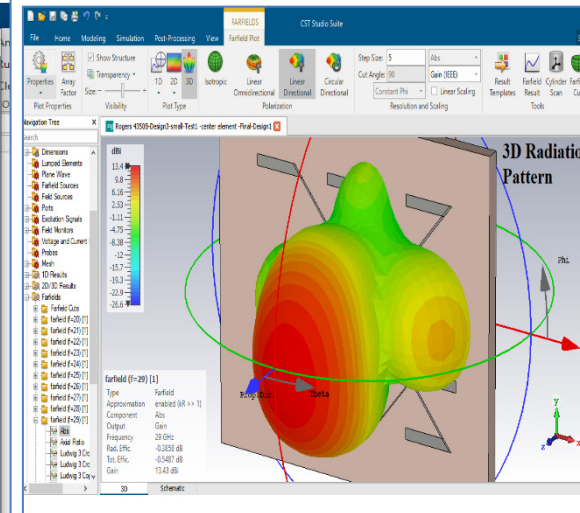
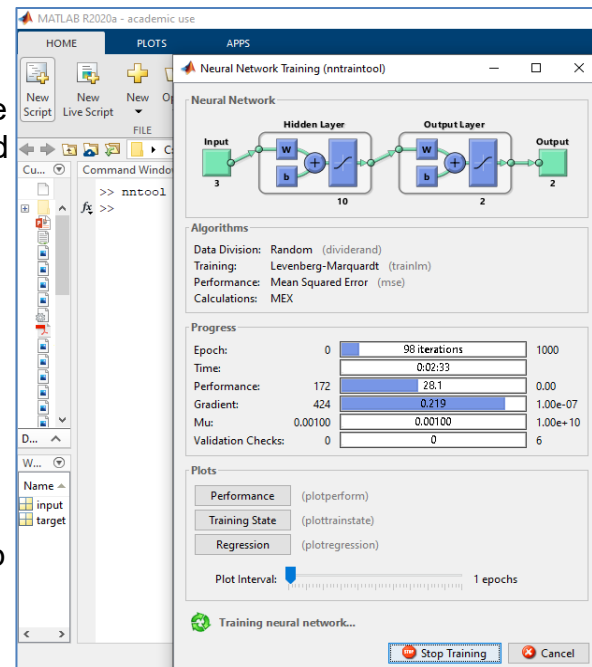
Background

Machine learning techniques are currently playing a major role in the ongoing research and today's technologies, it is expected to be used in every corner of the modern development. The use of Machine Learning (ML) & Artificial Intelligence (AI) can give promising results in the field of antenna designing especially for complex structure when too much time and cost are consumed by using traditional simulations software. ML & AI could assist in design of smart antennas that support massive MIMO and beamforming technologies, which are needed in 5G and future generations networks

Tasks

Your task is to design Artificial Neural Network(ANN) model in Matlab to predict the radiation pattern for array antenna when the antenna design parameters are changed such as antenna dimensions, substrate type, excitation for array's elements (magnitude and phase shift), mutual coupling and distances between antenna's array elements

- Antenna simulation in CST
- Train the collected data from CST to Matlab neural network(data train in Machine learning), build the model and algorithm.
- Use the final neural network model to design antennas according to required radiation pattern performance.



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