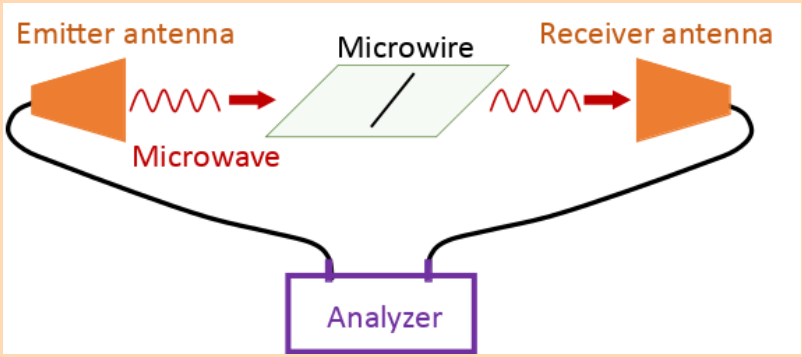
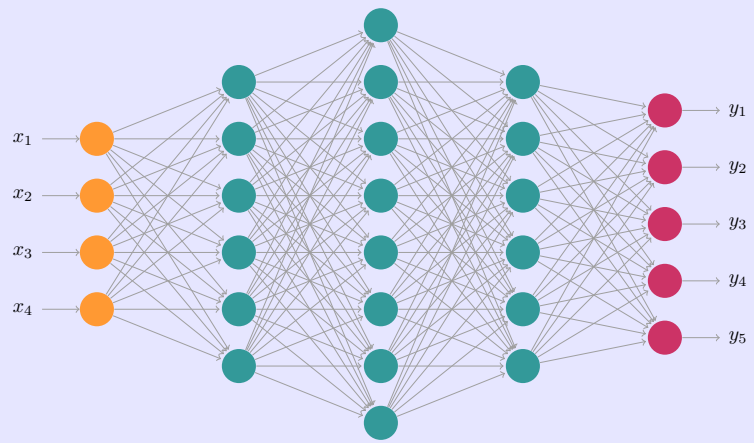
Disambiguation of Magnetic Microwire Signatures Using Neural Networks

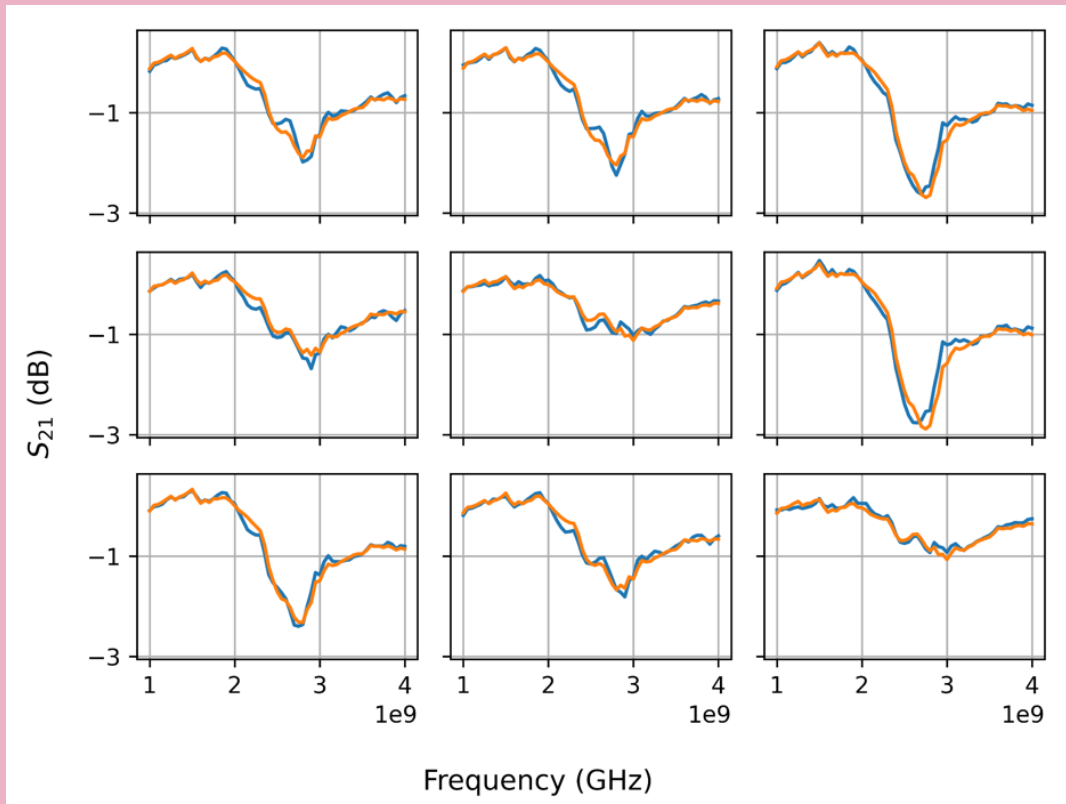


Experimental apparatus to measure the S_{21} response of arrays of $(Co_{0.94}Fe_{0.06})_{75}Si_{10}B_{15}$ magnetic microwires.

Repeat experiment with n microwire configurations.
Generates training dataset used by the neural network



Learn to predict S_{21} given the microwire configurations.



Actual responses (blue traces) and predicted responses (orange traces) for the scattering coefficient data (S_{21}) originating from various unseen magnetic microwire tag configurations.

This trained neural network is accurate enough (mean square error < 0.01) to be used instead of expensive and laborious physical experiments.