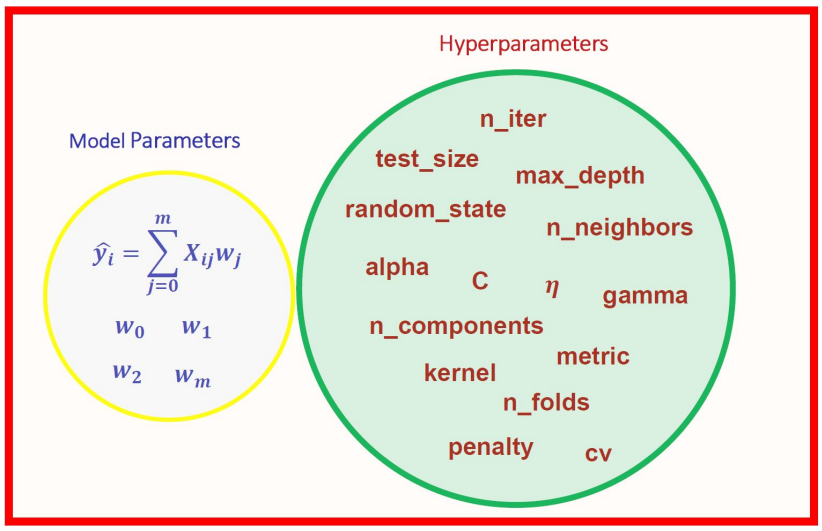
Fine tuning model parameters and assessing model performance

Anyone can create a model but that does not mean it will be accurate. When a model is being trained, the model will do its best to choose the best weights with the given information. However, there is only so much it can do before the accuracy plateaus.

Before we start training there are a set of hyperparameters associated with all machine learning models. Hyperparameters are variables which determine the model's structures and how the model will be trained. Unlike weights that are changing during each iteration of training, hyperparameters are chosen before training and have a big role in how the model will learn. These hyperparameters range from how many epochs to what kind of activation function should be used.



Because tuning parameters play such a big role in our models, there are many tools that programmers can use to assess and optimize the model's performance. During the workshop, we will be focusing on tensorflow's tensorboard. Tensorboard is a tool for providing the measurements and visualizations needed during the machine learning workflow. It enables tracking experiments metrics like loss and accuracy, visualizing the model graph, project embeddings to a lower dimensional space, and more. We will use tensorboard to visualize how changing parameters will affect the training and testing accuracy/loss and understand the next steps of narrowing down these parameters.