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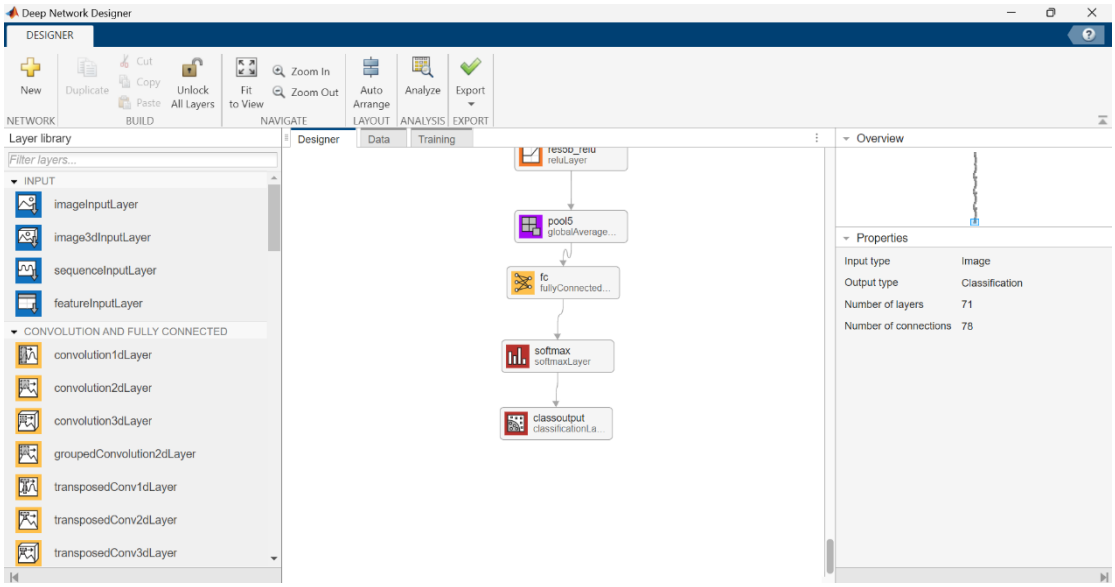

1.fullyConnectedLayer

Fully connected layerexpand all in page

A fully connected layer refers to a neural network in which each neuron applies a linear transformation to the input vector through a weights matrix. It multiplies the input by a weight matrix and then adds a bias vector

2.softmaxLayer

Softmax layerexpand all in page

A softmax layer applies a softmax function to the input. Softmax is typically used in the last layer of a neural network to predict the class of an input image

3. classificationLayer

classificationLayer

A classification layer computes the cross-entropy loss for classification and weighted classification tasks with mutually exclusive classes. The layer infers the number of classes from the output size of the previous layer. For example, to specify the number of classes K of the network, you can include a fully connected layer with output size K and a softmax layer before the classification layer.

The connection between fullyConnectedLayer, softmaxLayer, classificationLayer

In the context of neural networks, particularly for classification tasks, the `fullyConnectedLayer`, `softmaxLayer`, and `classificationLayer` are typically used in sequence towards the end of the network. The `fullyConnectedLayer` serves to combine features learned by previous layers, performing a linear transformation on the input data to produce a vector of raw scores (logits) for each class. These logits are then passed to the `softmaxLayer`, which converts them into normalized class probabilities using the softmax function. Finally, the `classificationLayer` uses these probabilities, along with the true labels, to compute the loss during training, typically using a cross-entropy loss function. This loss is crucial for updating the model weights, guiding the training process. In essence, the fully connected layer summarizes the features, the softmax layer produces interpretable probabilities, and the classification layer ensures effective training by measuring performance and updating the model accordingly.