**Deciding What to Do Next Revisited**

Our decision process can be broken down as follows:

* **Getting more training examples:** Fixes high variance
* **Trying smaller sets of features:** Fixes high variance
* **Adding features:** Fixes high bias
* **Adding polynomial features:** Fixes high bias
* **Decreasing λ:** Fixes high bias
* **Increasing λ:** Fixes high variance.

**Diagnosing Neural Networks**

* A neural network with fewer parameters is **prone to underfitting**. It is also **computationally cheaper**.
* A large neural network with more parameters is **prone to overfitting**. It is also **computationally expensive**. In this case you can use regularization (increase λ) to address the overfitting.

Using a single hidden layer is a good starting default. You can train your neural network on a number of hidden layers using your cross validation set. You can then select the one that performs best.

**Model Complexity Effects:**

* Lower-order polynomials (low model complexity) have high bias and low variance. In this case, the model fits poorly consistently.
* Higher-order polynomials (high model complexity) fit the training data extremely well and the test data extremely poorly. These have low bias on the training data, but very high variance.
* In reality, we would want to choose a model somewhere in between, that can generalize well but also fits the data reasonably well.