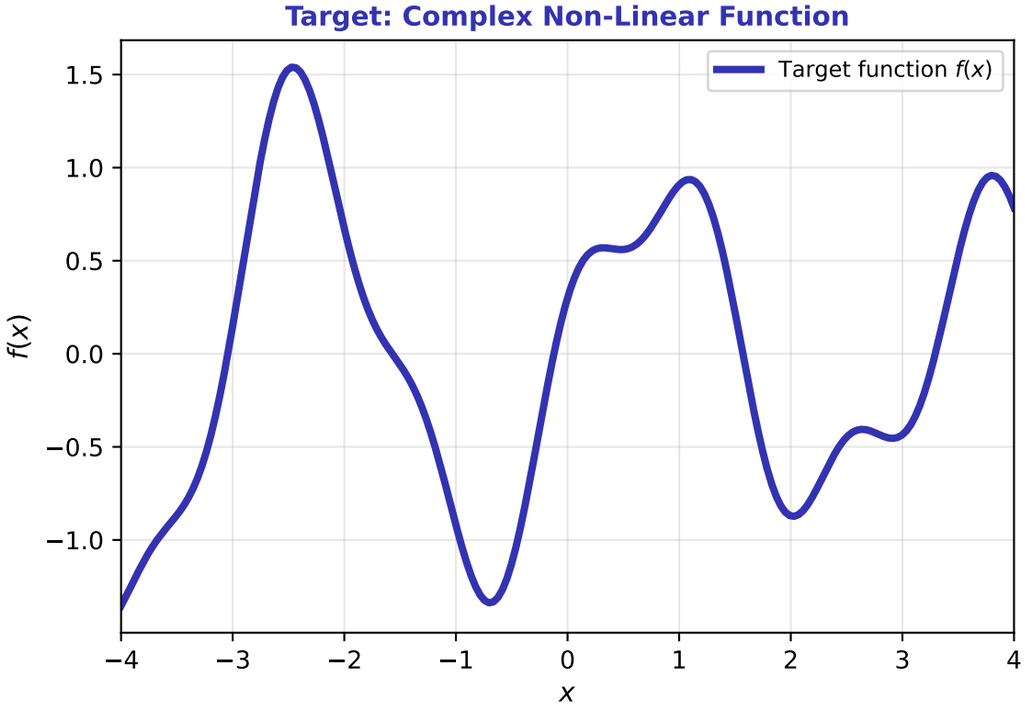
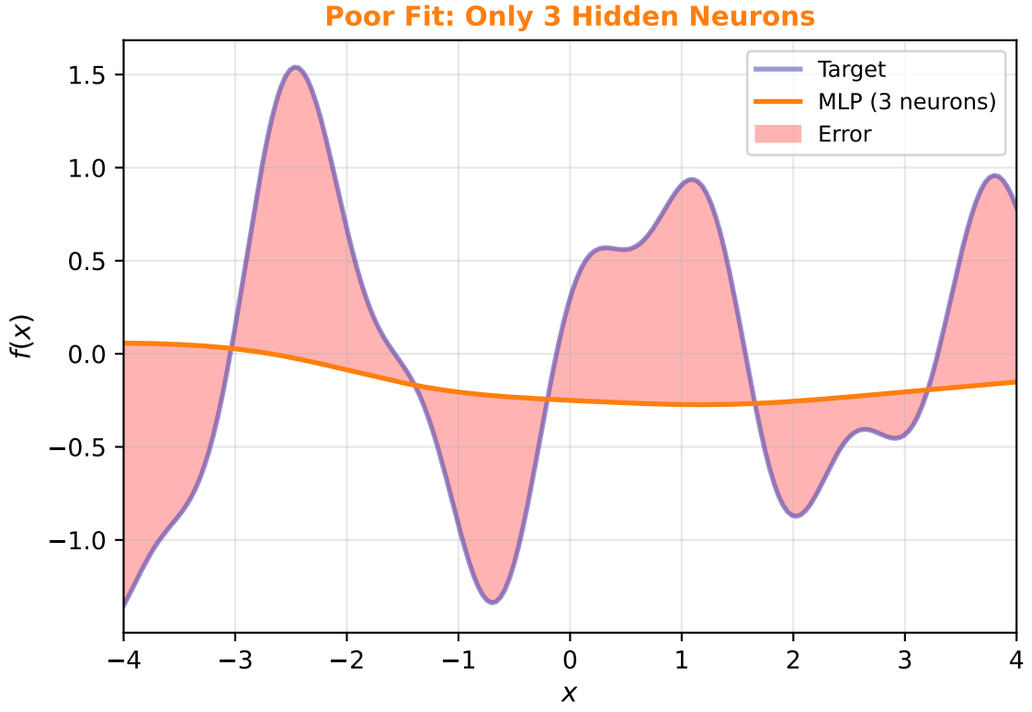
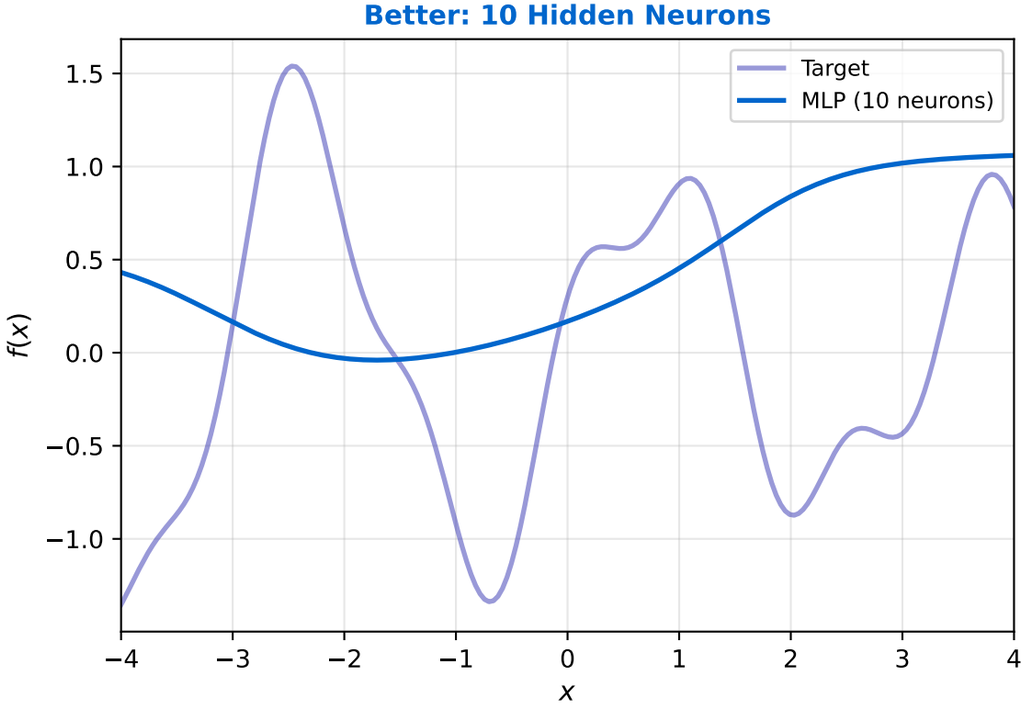
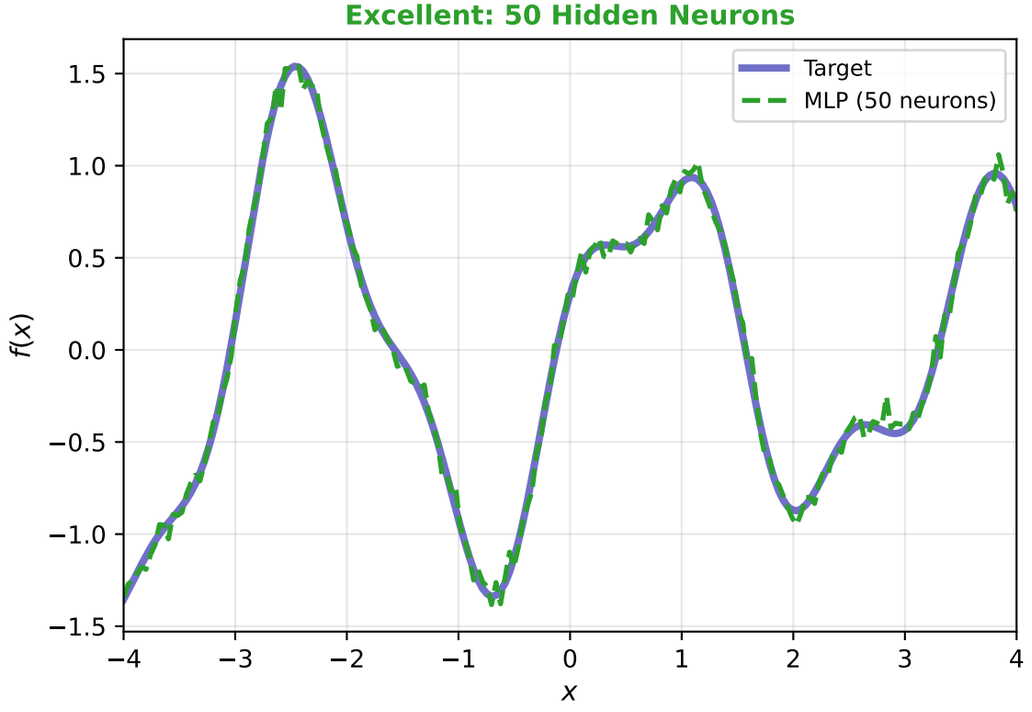
Universal Approximation: MLPs Can Learn Any Function









Universal Approximation Theorem (Cybenko, 1989): A feedforward network with a single hidden layer containing a finite number of neurons can approximate any continuous function on compact subsets of $\mathbb{R}^n$