

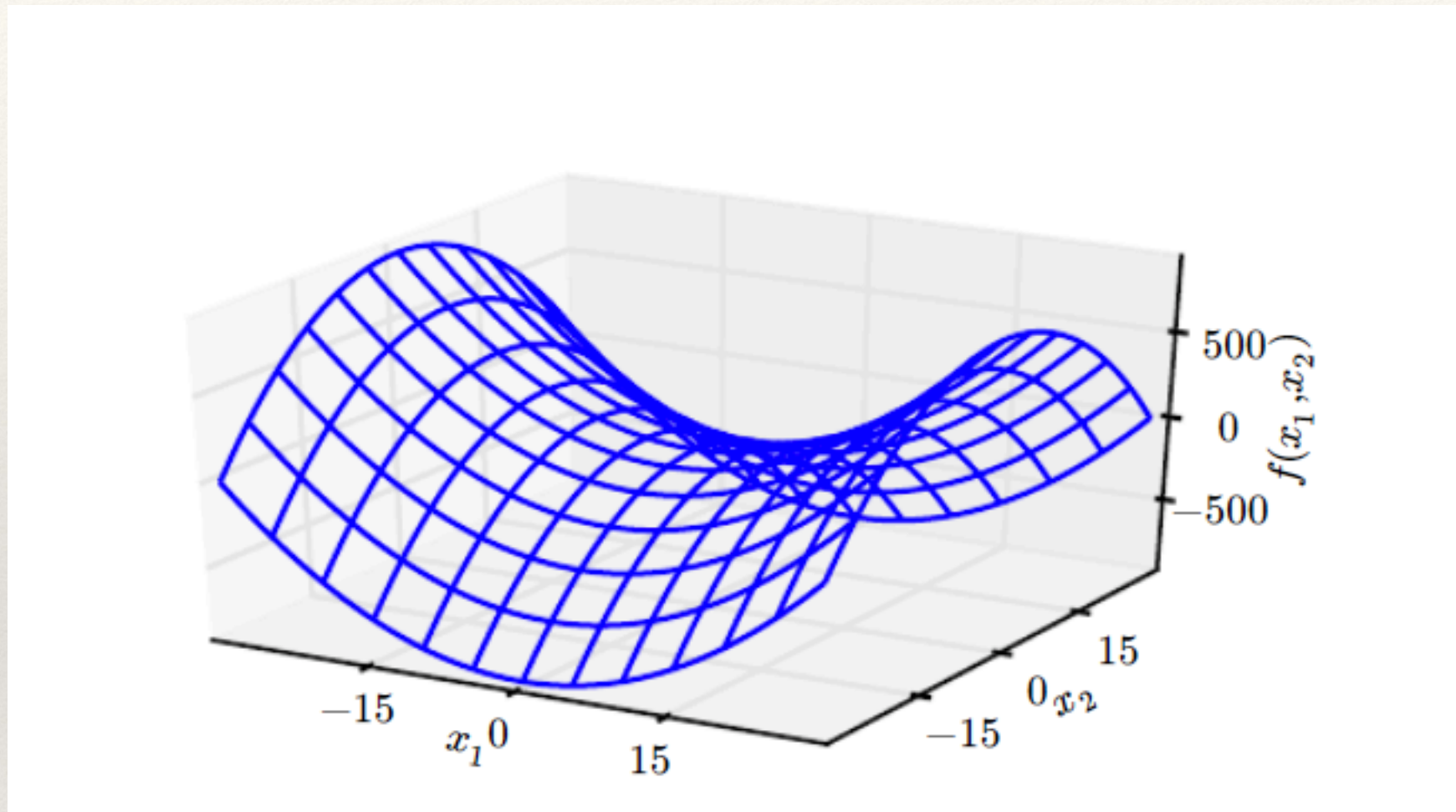
E9 205 Machine Learning for Signal Processing

**Neural Networks - Learning, Error
Functions and Properties**

13-11-2017

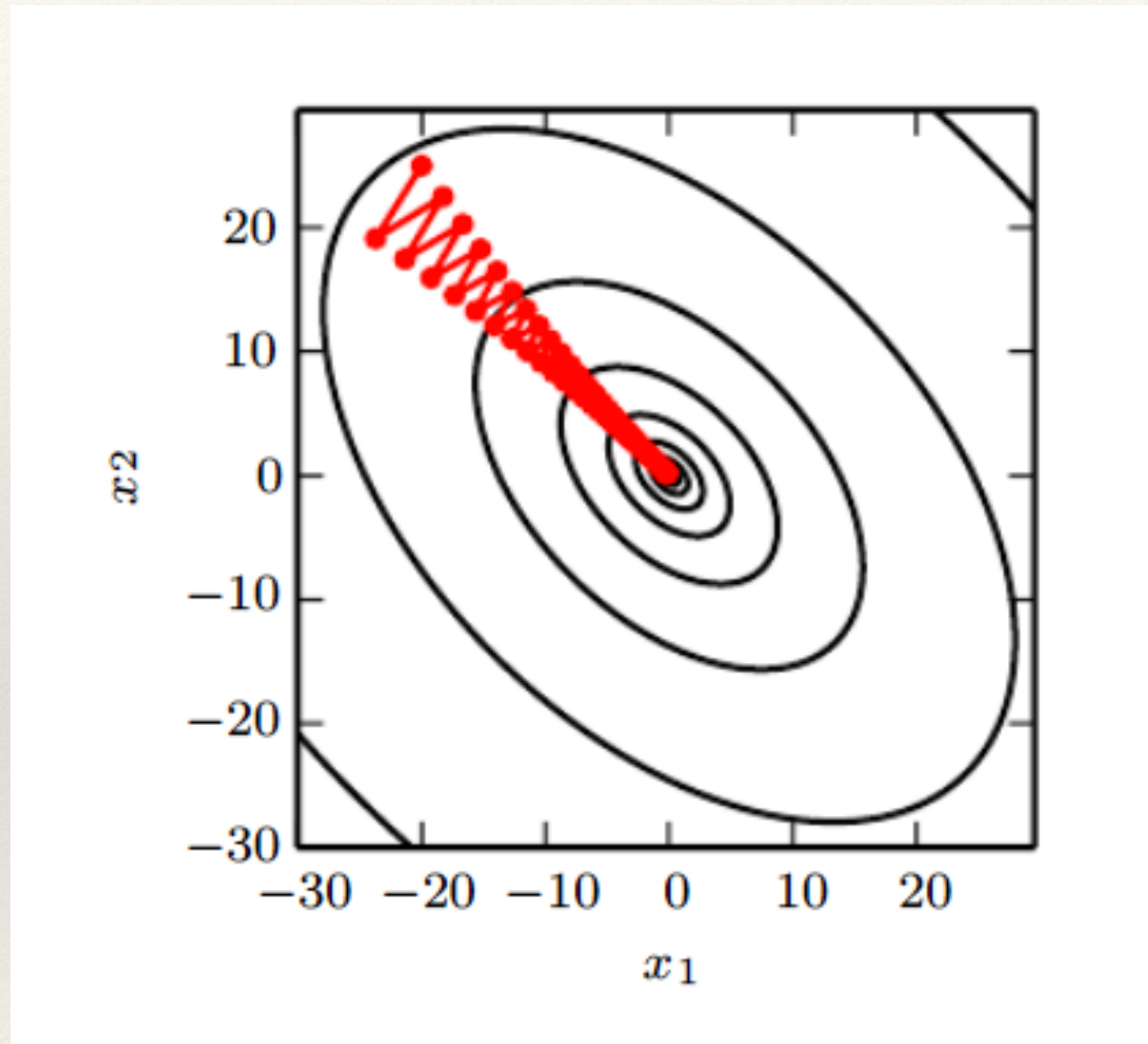


Directional Derivatives (Max and Min)



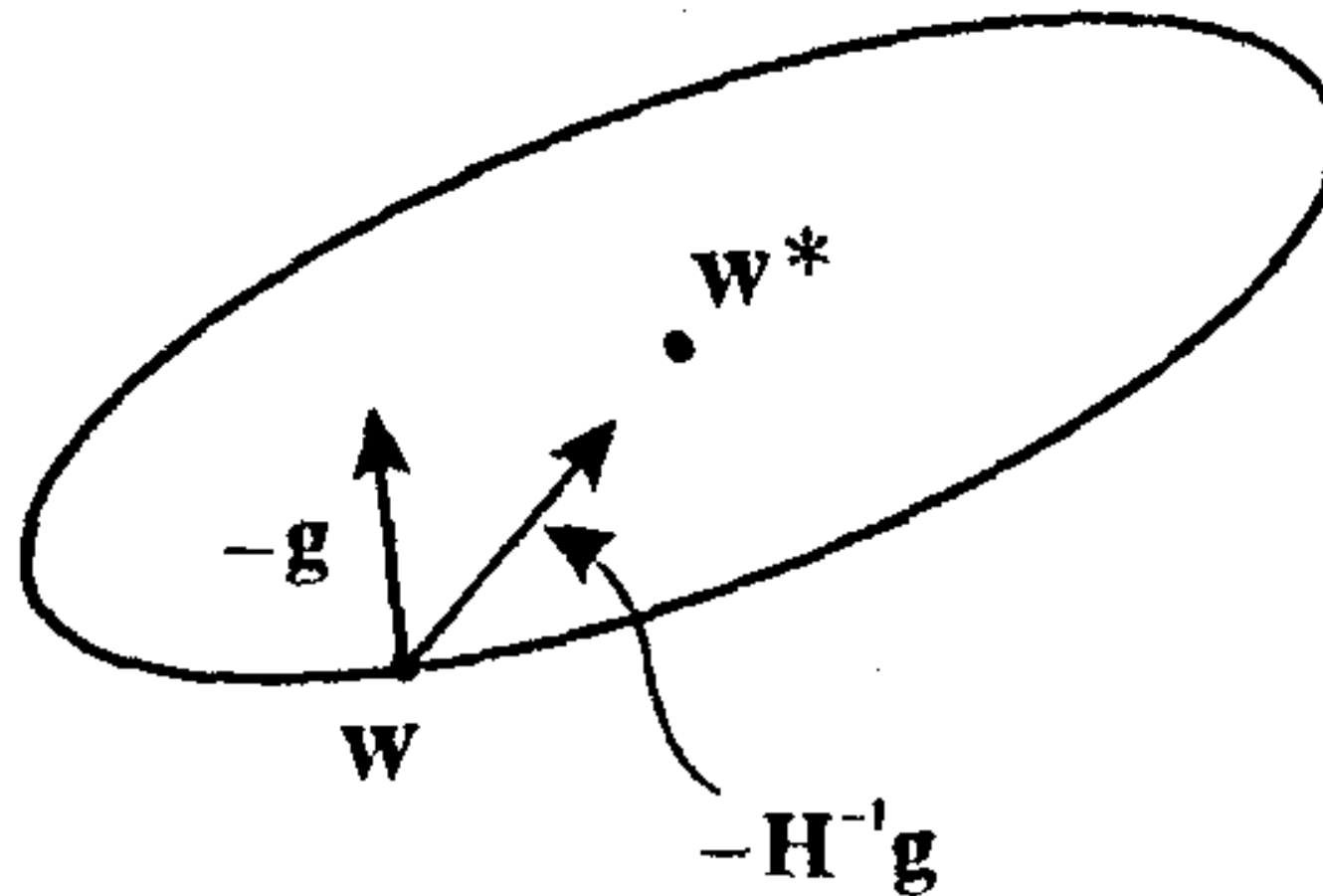
$$f(\mathbf{x}) \approx f(\mathbf{x}^{(0)}) + (\mathbf{x} - \mathbf{x}^{(0)})^\top \mathbf{g} + \frac{1}{2} (\mathbf{x} - \mathbf{x}^{(0)})^\top \mathbf{H} (\mathbf{x} - \mathbf{x}^{(0)}).$$

Issues with Gradient Descent



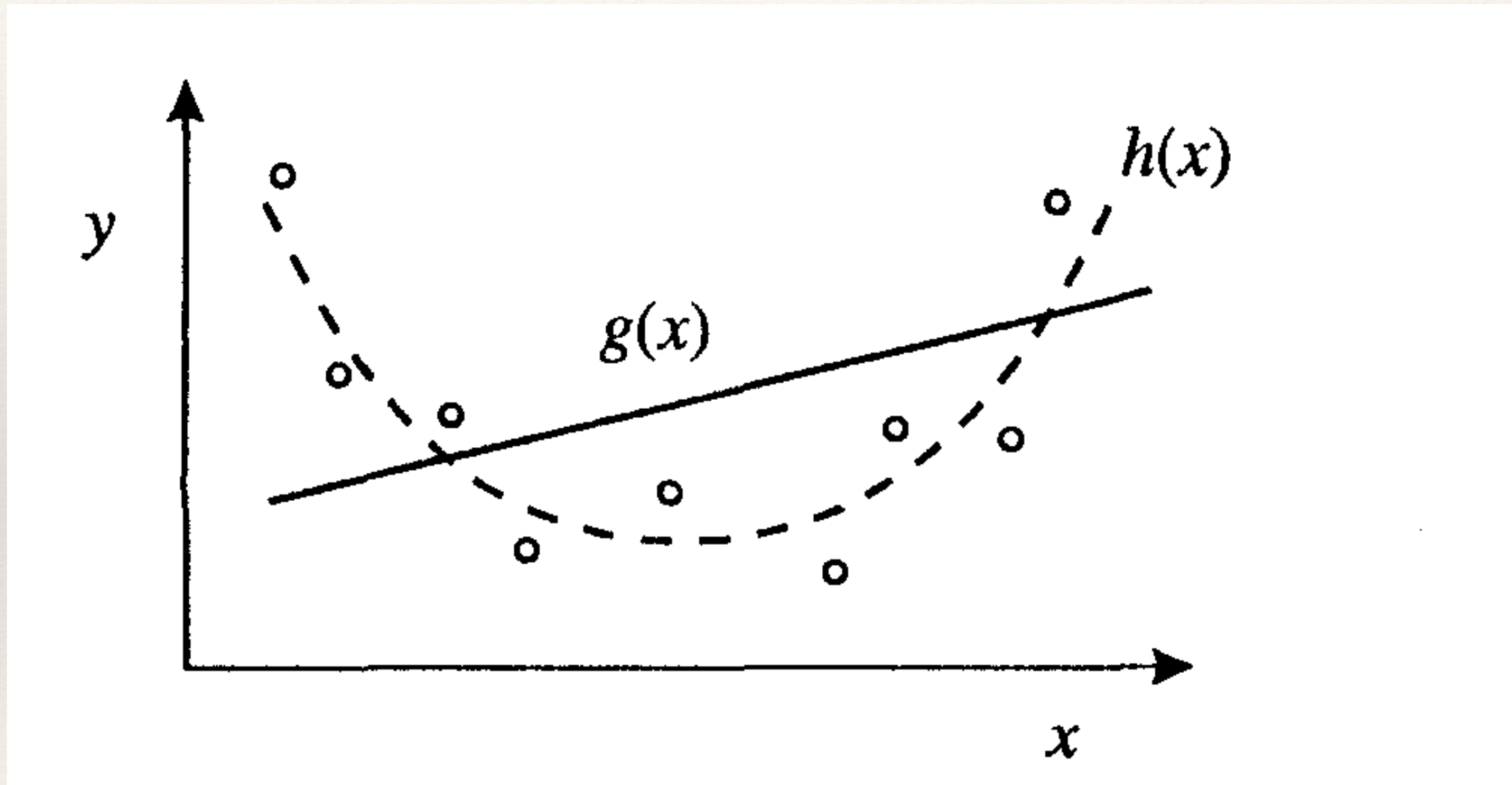
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Bias Variance Trade Off



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