Machine Learning Study Guide

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1 Preliminary Notation

- 1.1 Linear Algebra and Calculus
- 1.1.1 General Notation
- 1.1.2 Matrix Operations
- 1.1.3 Matrix Properties
- 1.1.4 Matrix Calculus
- 1.2 Convex Optimization
- 1.2.1 Convexity
- 1.2.2 Calculus
- 1.2.3 Optimization
- 1.3 Probability and Statistics
- 1.3.1 Basics
- 1.3.2 Conditional Probability
- 1.3.3 Random Variables
- 1.3.4 Jointly Distributed Random Variables
- 1.3.5 Parameter Estimation
- 1.4 Information Theory
- 1.4.1 Basics
- 1.4.2 Cross-Entropy and KL Divergence

2 Machine Learning Basics

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- 2.2 Types of Learning
- 2.3 Metrics
- 2.3.1 Classification
- 2.3.2 Regression
- 2.4 Bias and Variance
- 3 Linear Regression
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- 3.4 Locally Weighted Linear Regression
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- 5 Generalized Linear Models
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