

CS229 Notes - [Date]

Your Name

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1 Section Title

Brief introduction or overview of the topic.

1.1 Definitions

Key Term: Definition here

Mathematical Definition:

$$\text{Formula} = \mathbb{E}_{(x,y) \sim D}[L(h(x), y)]$$

1.2 Important Concepts

- **Point 1:** Description with math θ
- **Point 2:** Another important concept
- **Point 3:** Final key point

2 Mathematical Derivations

2.1 Step-by-Step Process

Starting from the basic equation:

$$f(x) = ax + b$$

Taking the derivative:

$$\frac{df}{dx} = a$$

Result: The derivative is constant.

2.2 Example Calculation

Given data points $(x_1, y_1), (x_2, y_2), \dots, (x_n, y_n)$:

Step 1: Calculate the mean

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

Step 2: Expanding the sum:

$$= \frac{1}{n} [x_1 + x_2 + \dots + x_n]$$

3 Algorithms

3.1 Algorithm Name

Input: Data, parameters, etc.

Algorithm:

1. Initialize parameters $\theta = 0$

2. While not converged:

- Update: $\theta := \theta - \alpha \nabla J(\theta)$
- Check convergence: $|J(\theta^{(t+1)}) - J(\theta^{(t)})| < \epsilon$

3. Return $\hat{\theta}$

Output: Optimized parameters

4 Visual Elements

4.1 Including Figures

4.2 Key Insights

Important Note: Always remember that...

Practical Tip: In practice, you should...

5 Summary

Main Takeaways:

- Summary point 1
- Summary point 2
- Summary point 3

Next Steps: What to study next...