Data for Machine Learning

Using Large Data Sets

Advice for Applying Machine Learning:

Designing a high accuracy learning system

E.g. Classify between confusable words.

{to, two, too}, {then, than}

For breakfast I ate _____ eggs.

Algorithms

- Perceptron (Logistic regression)
- Winnow
- Memory-based
- Naïve Bayes

[Banko and Brill, 2001]

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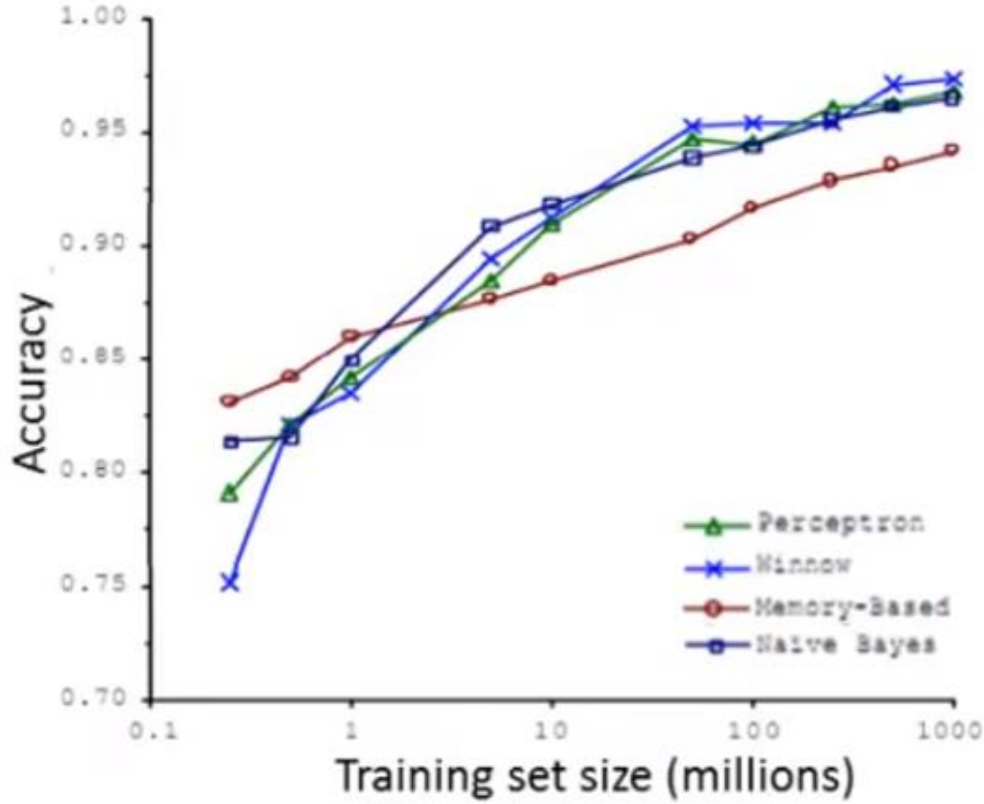

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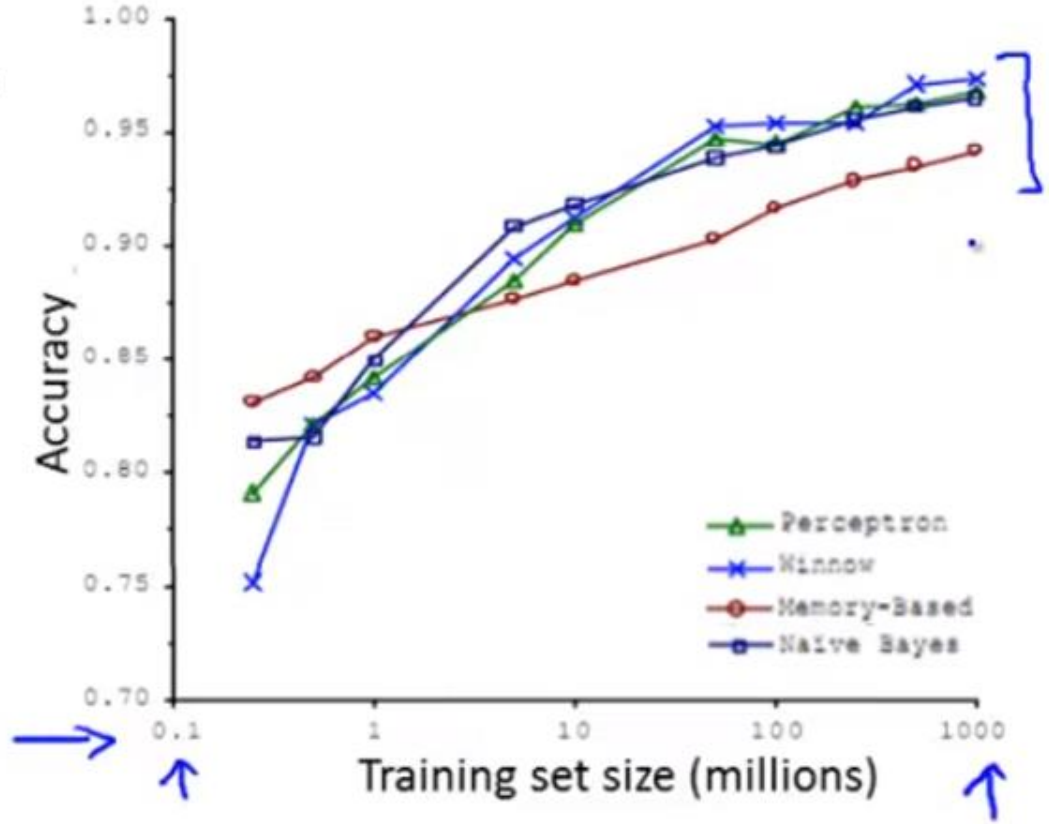

"It's not who has the best algorithm that wins.
It's who has the most data."

[Banko and Brill, 2001]

Large data rationale

Assume feature $x \in \mathbb{R}^{n+1}$ has sufficient information to predict y accurately.

Example: For breakfast I ate _____ eggs.

Counterexample: Predict housing price from only size (feet^2) and no other features.

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→ $J_{train}(\theta)$ will be small.

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Use a very large training set (unlikely to overfit) low variance

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