Geometric Interpretation of ML

Introduction

Steps:

- idea (elevator pitch)
- proof (formalize, existence, unique)
- compute (runtime, Big-O notation)
- useful (solves a real problem)

Algorithm Development:

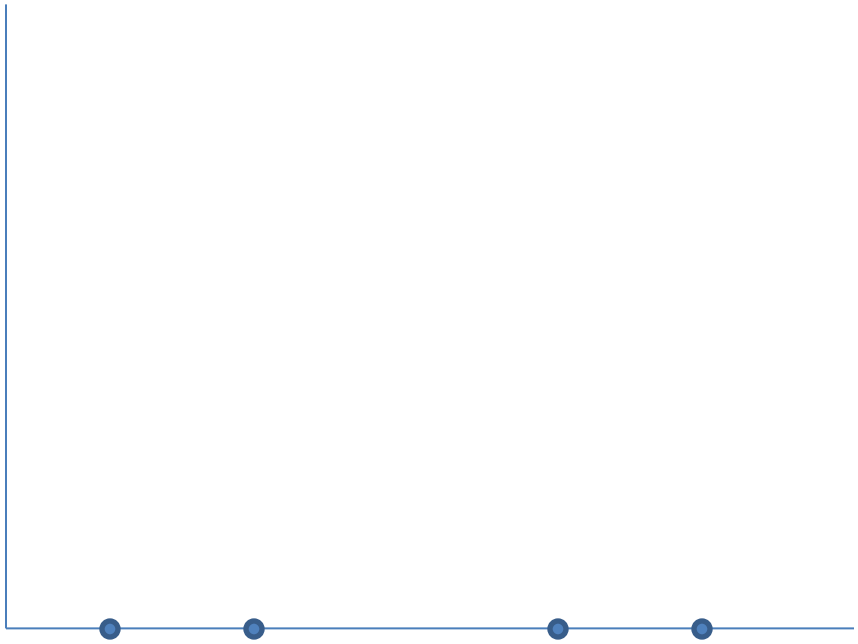
- generalization
- extension

Introduction

1. **Fit**
    1. Average
    2. Linear regression
    3. Piecewise linear regression
    4. Logistic curve
2. **Axis transformation**
    1. Logistic
    2. PCA
    3. SVM
    4. Perceptron
    5. Multilayer perceptron
3. **Separation**
    1. LDA
    2. SVM
    3. Logistic Regression

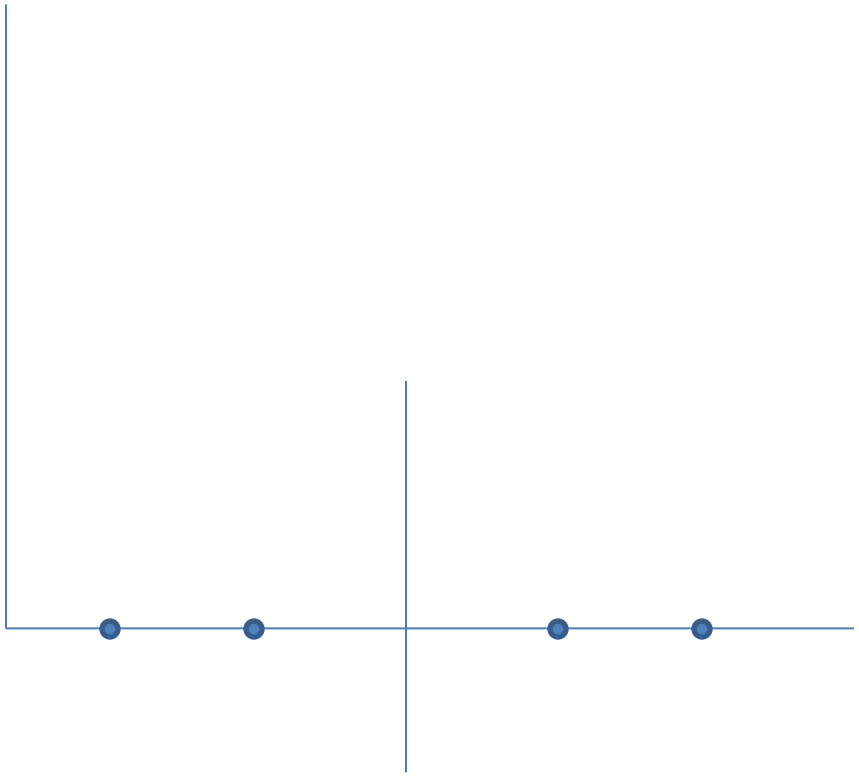
Fit the Middle

Average



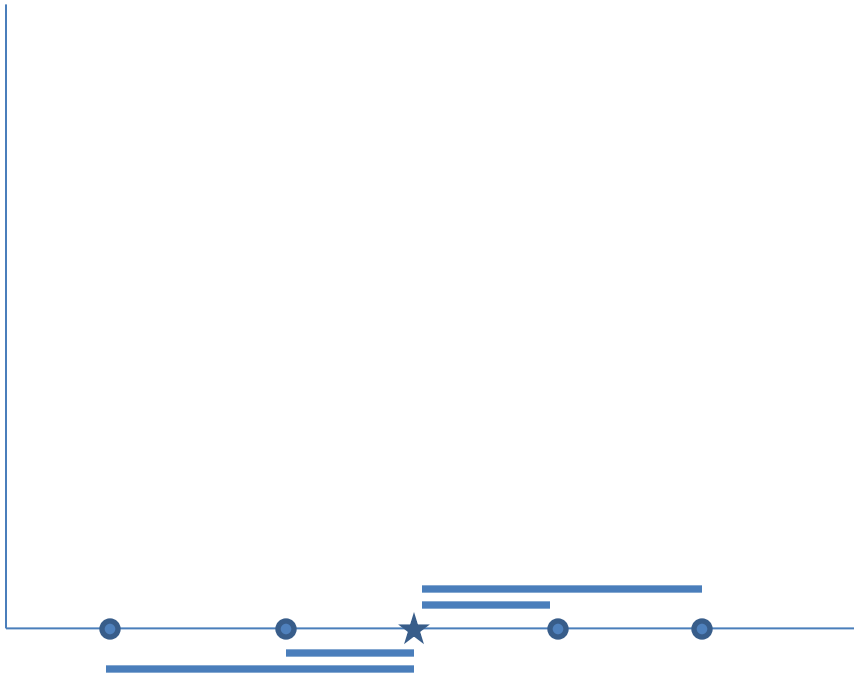
Fit the Middle

Average



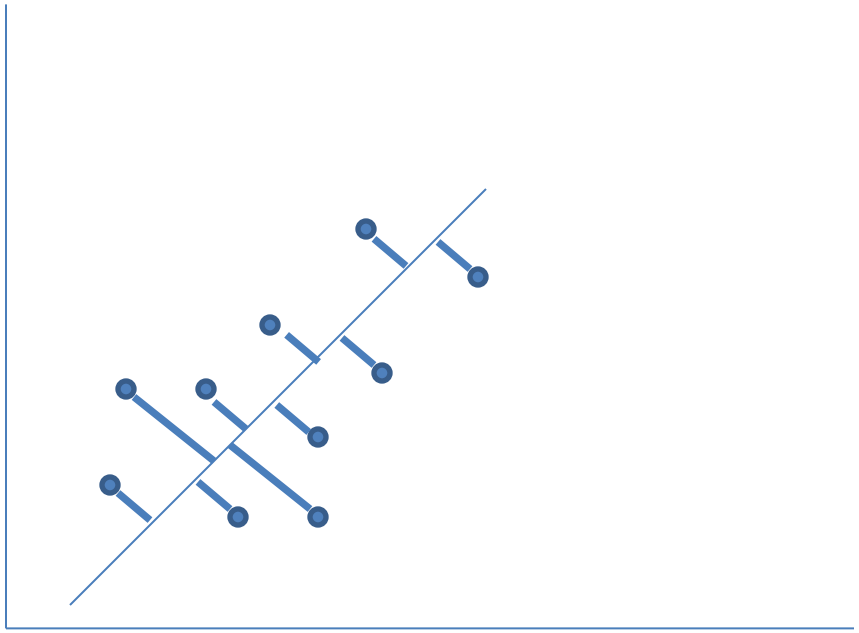
Fit the Middle

Average



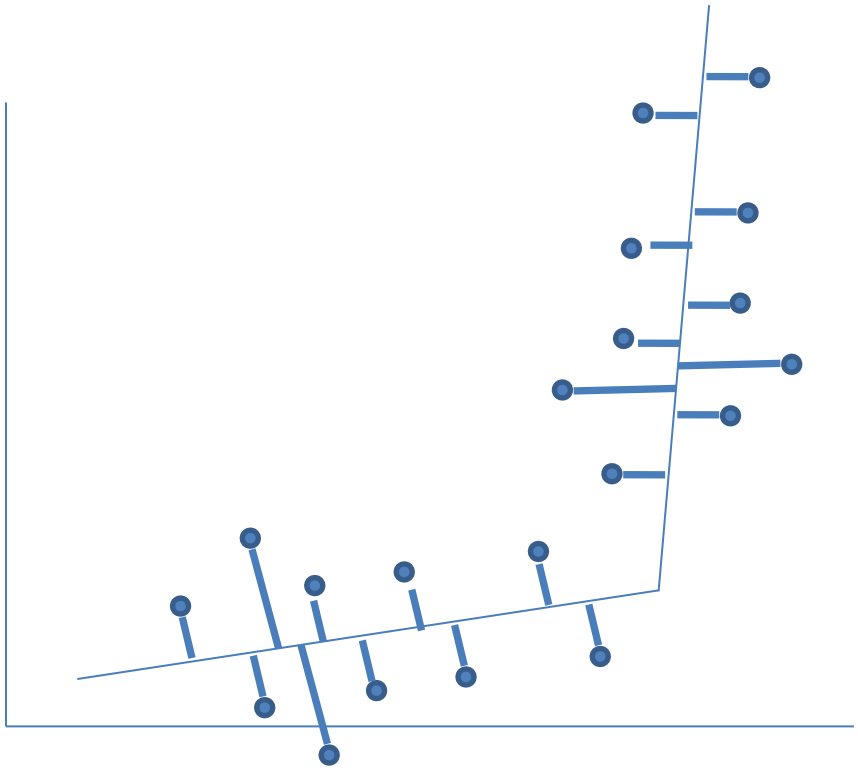
Fit the Middle

Least
Squares



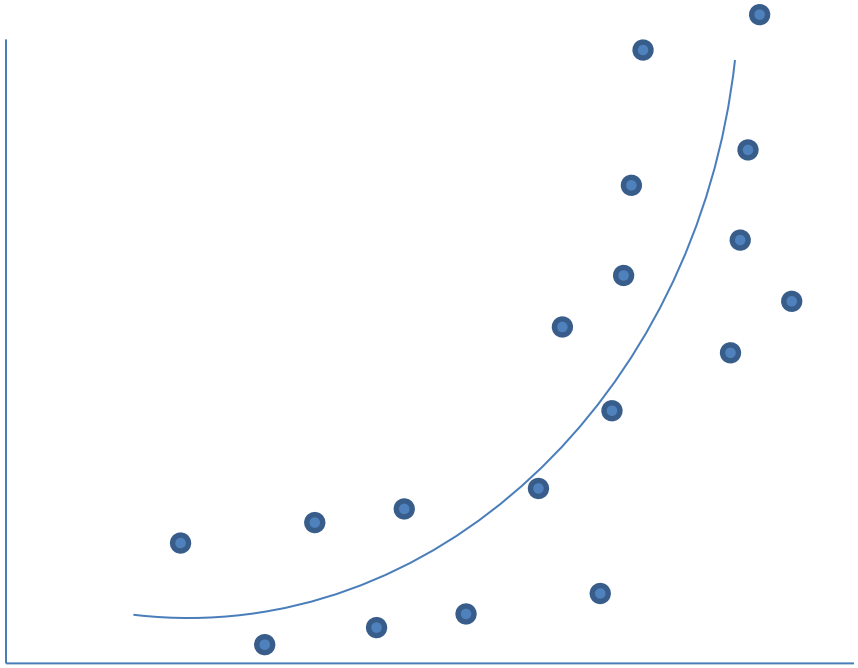
Fit the Middle

Piecewise
Linear
Regression



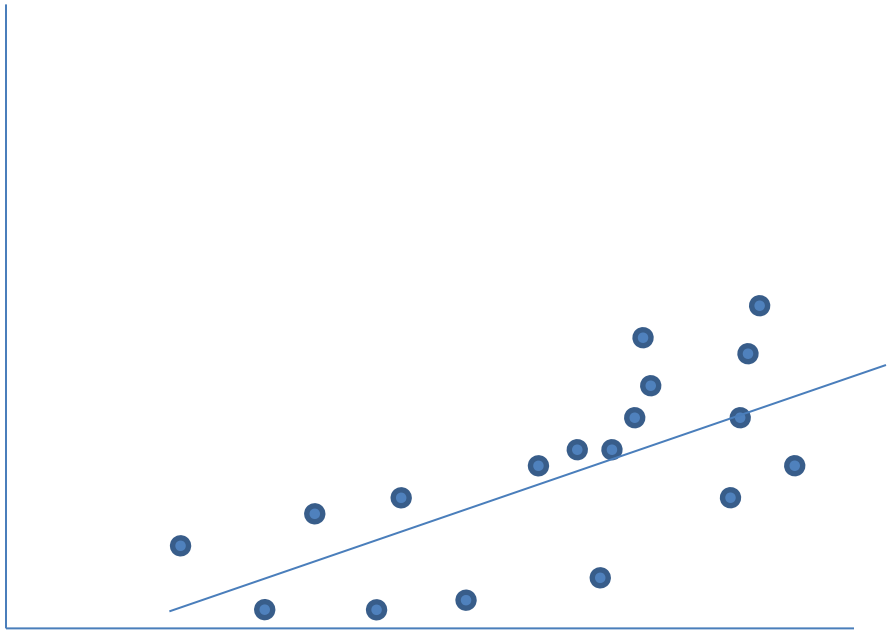
Fit the Middle

Logarithmic Curve



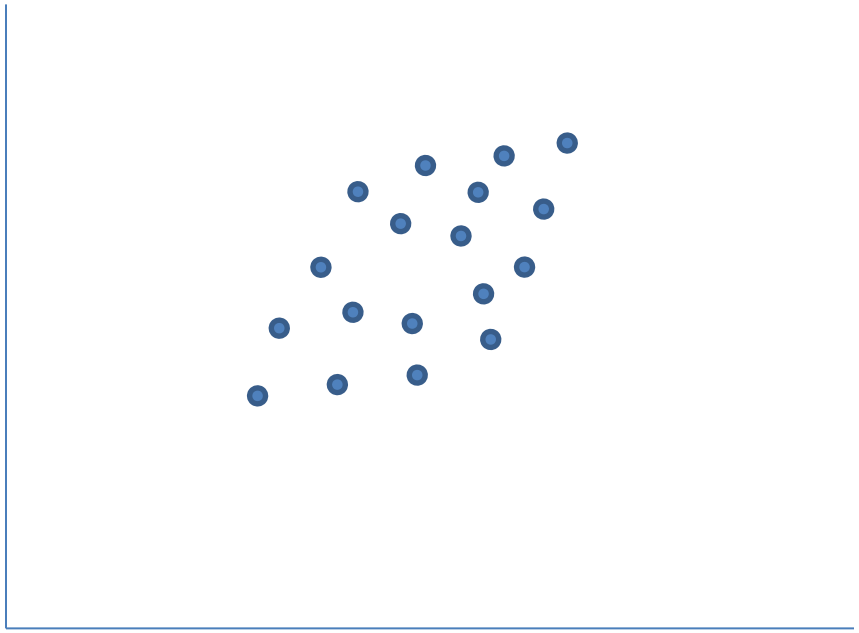
Axis Transformation

Logistic axis



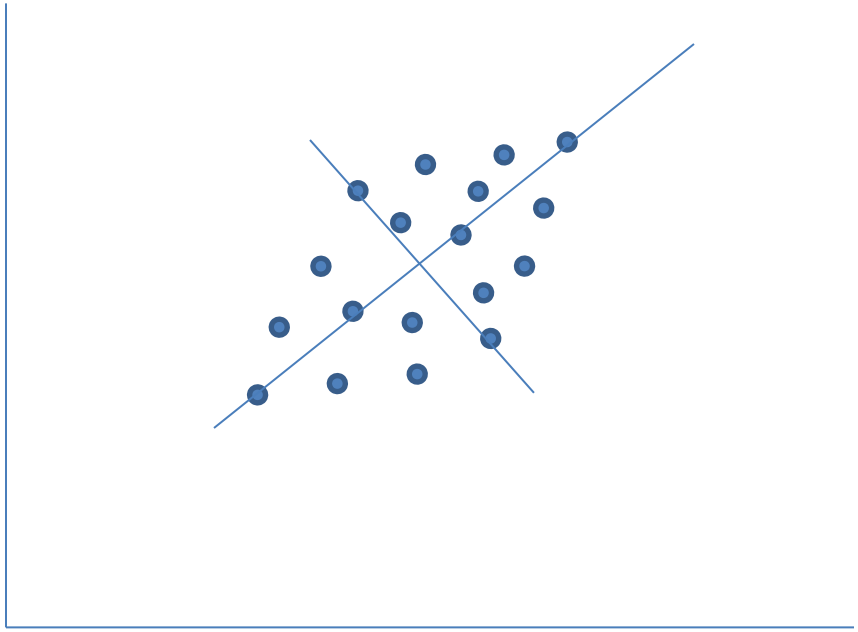
Axis Transformation

Logistic axis



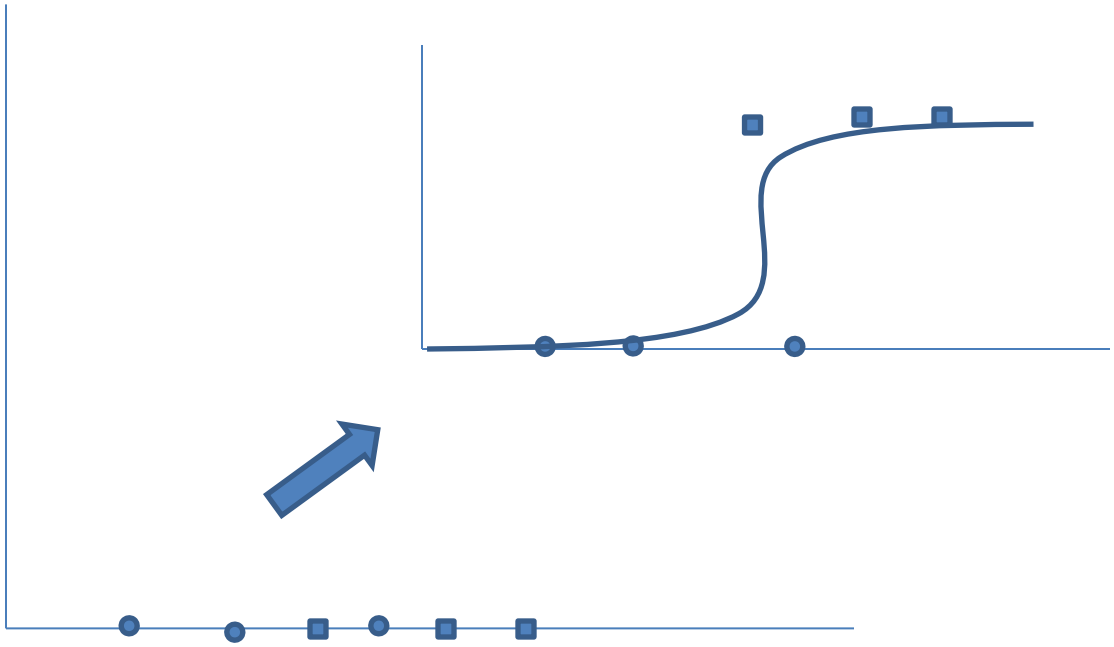
Axis Transformation

Principle Component Analysis



Axis Transformation

Logistic
Regression

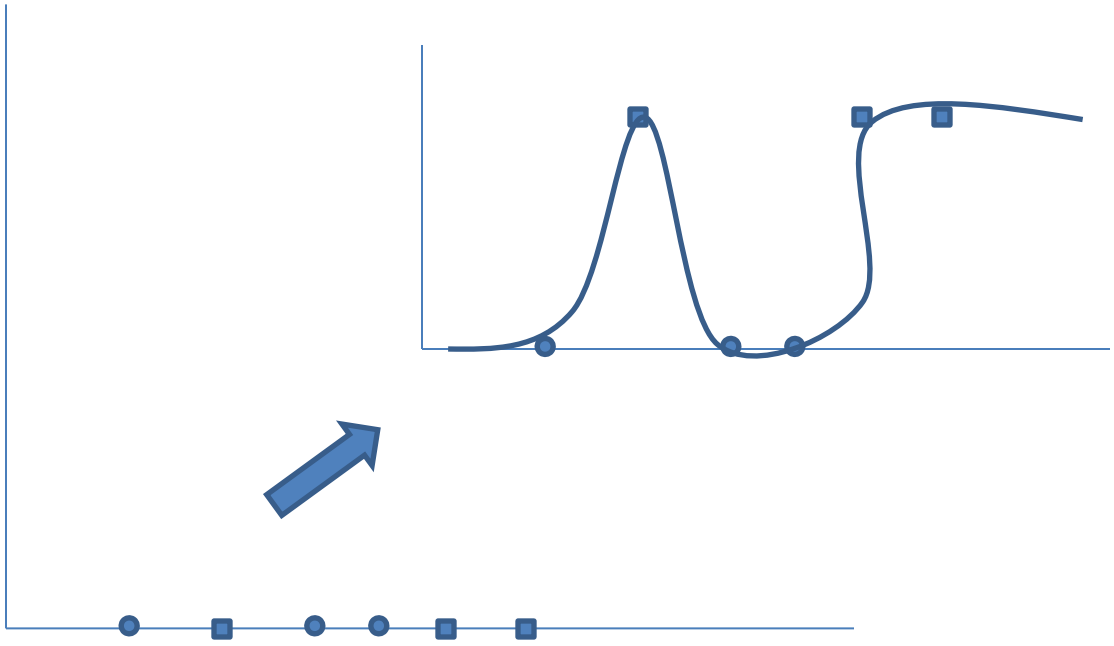


Axis Transformation

Support

Vector

Machine



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