

# **MACHINE LEARNING**

## **WEEK 1: INTRODUCTION**

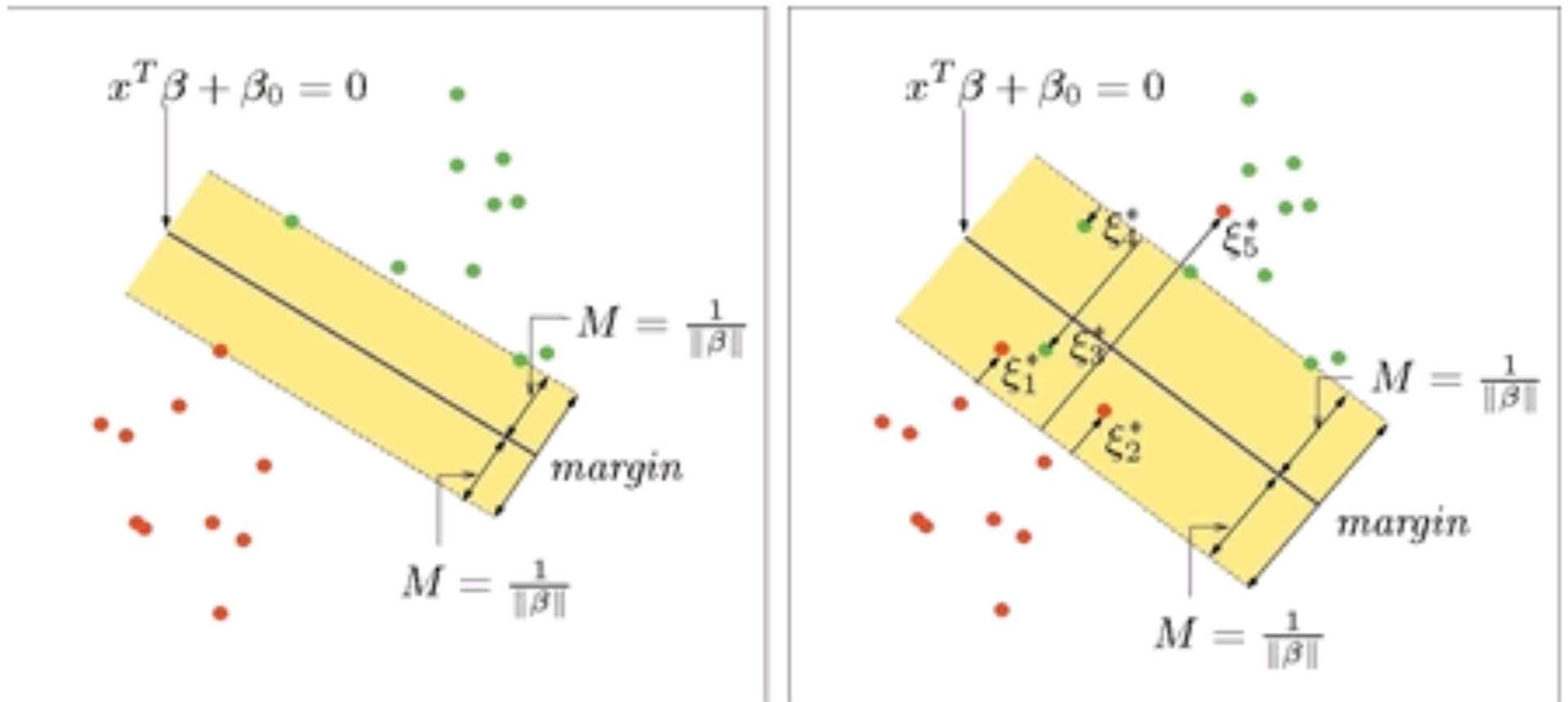
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### **LECTURE 2: SVM RESULTS**

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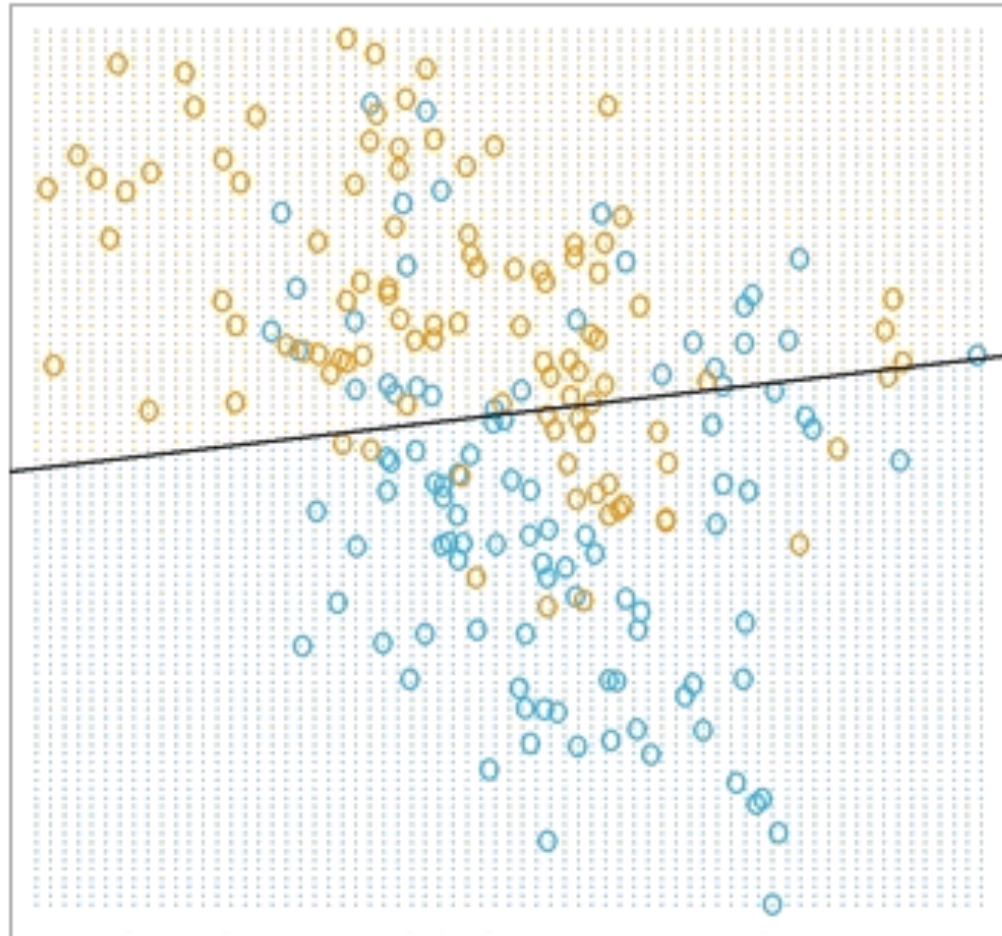
# Margins

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# Linear separation using least squares

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NN

k=15

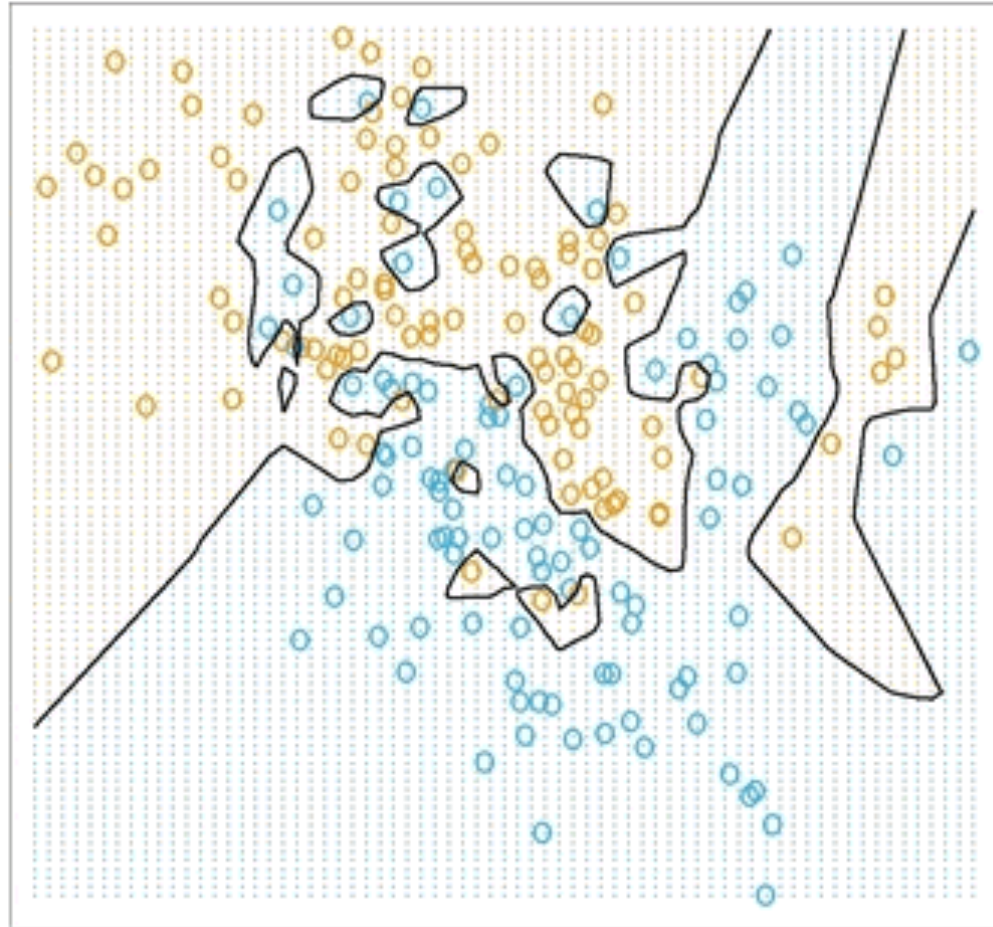
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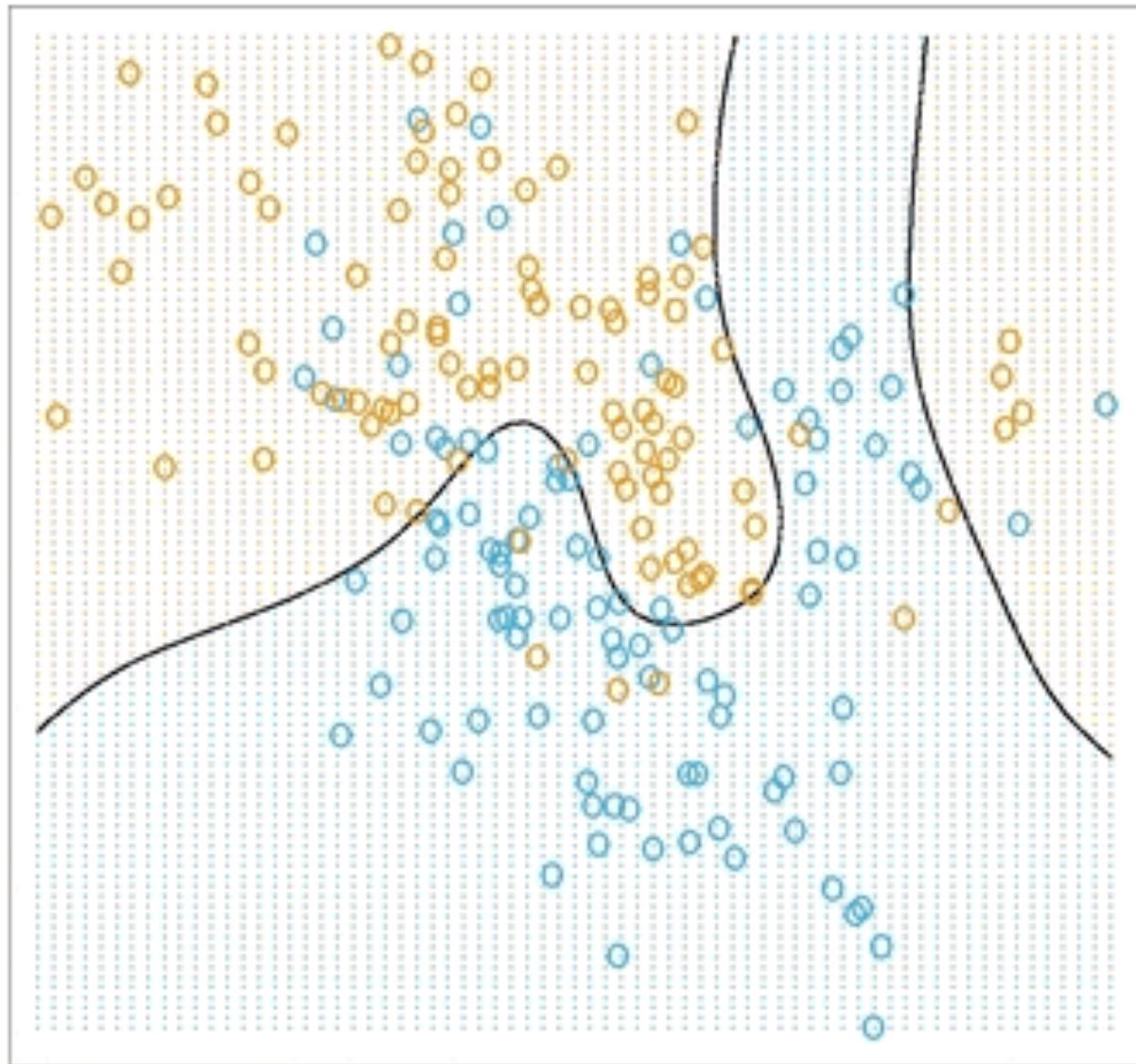


NN  $k=1$

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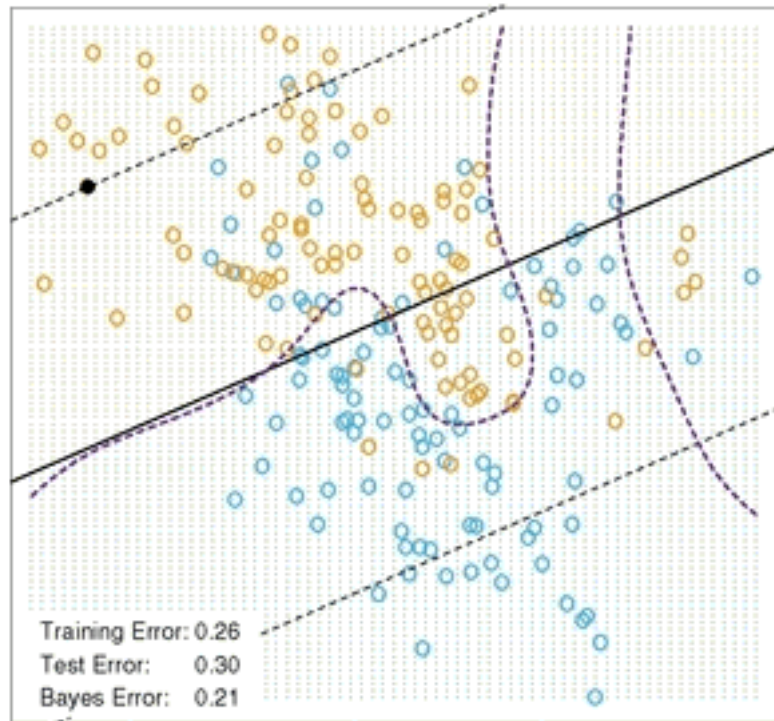


# Bayes Optimal Classifier

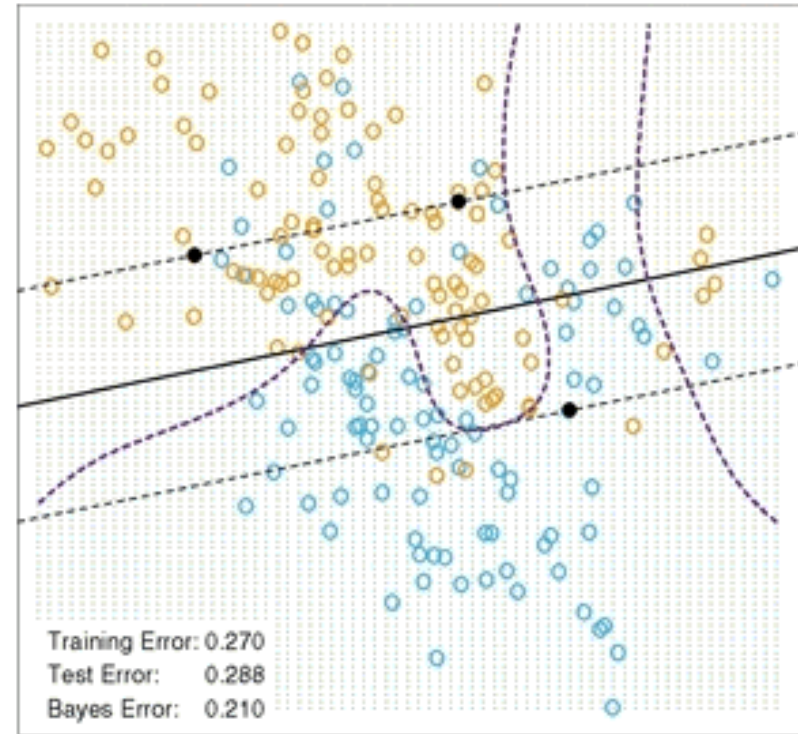


# Testing support vectors

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$C = 0.01$



$C = 10000$

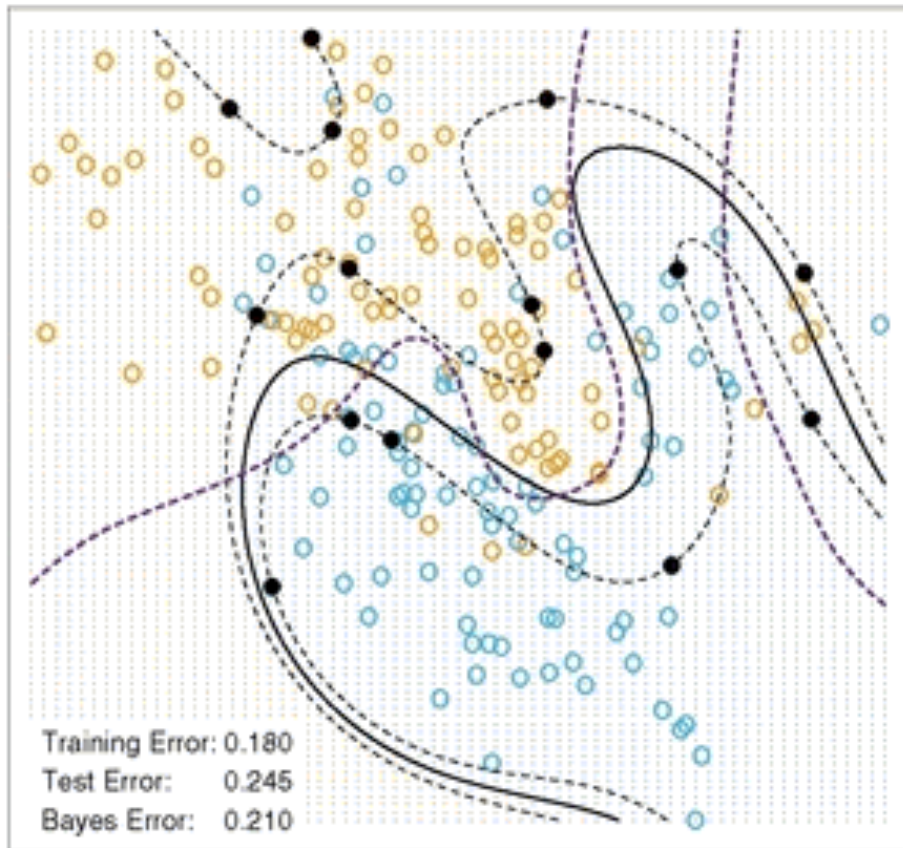
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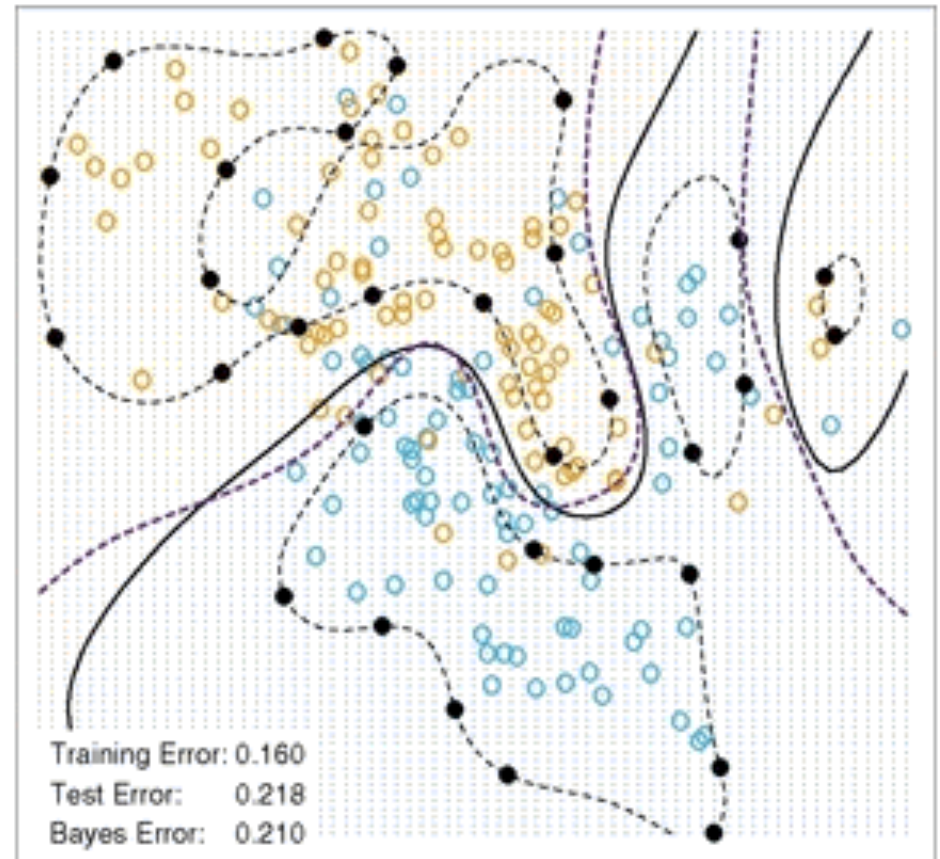
# SVM with different Kernels

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SVM - Degree-4 Polynomial in Feature Space



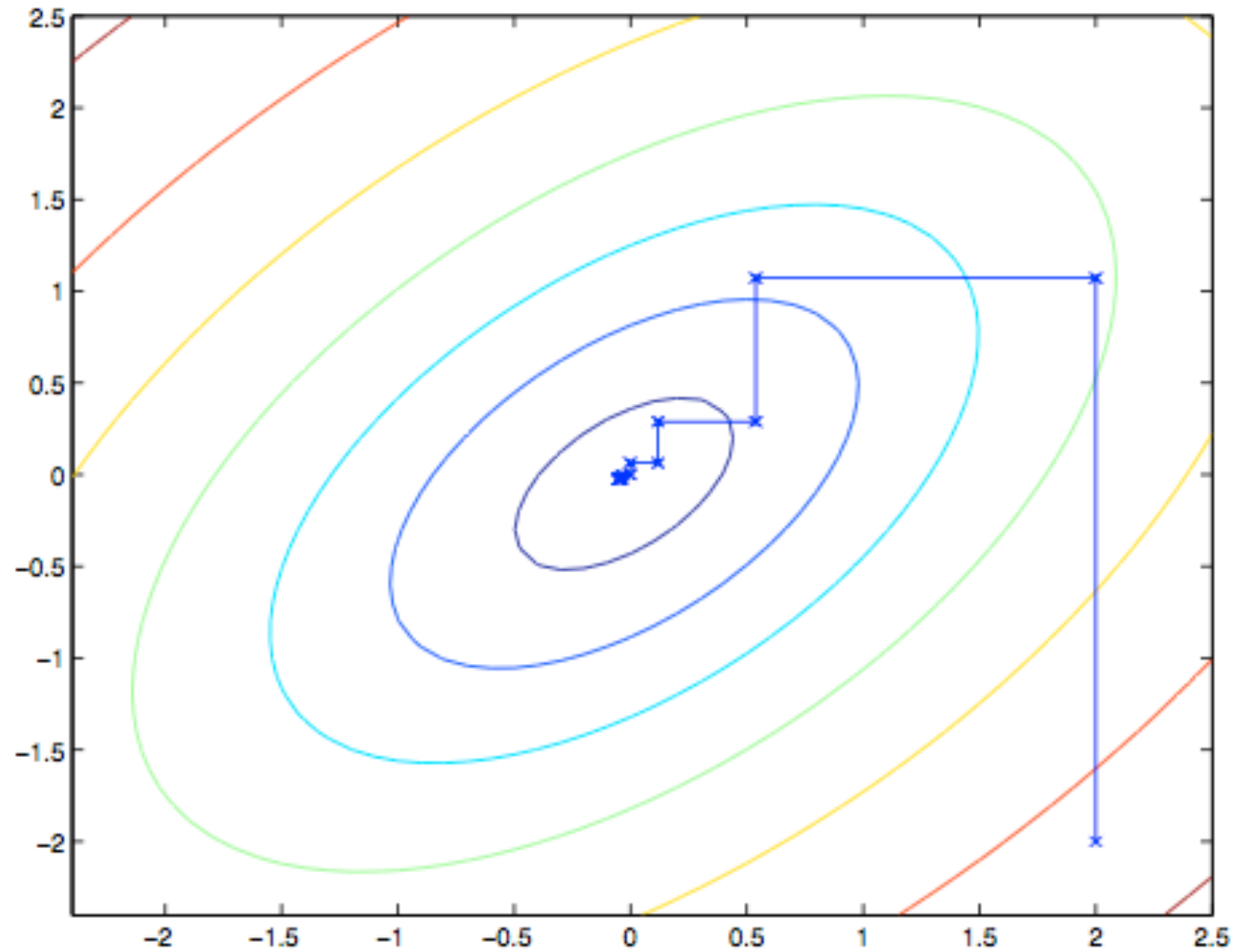
SVM - Radial Kernel in Feature Space





# Optimization via coordinate descent

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# Constraint for just $\alpha_1$ and $\alpha_2$

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