IN5550: Neural Methods in Natural Language Processing
Sub-lecture 2.1
Supervised Machine Learning

Andrey Kutuzov

University of Oslo



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1 Introduction

2 Basics of supervised machine learning

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- recurrent neural networks (RNNs) and contextualized embeddings

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I am also partially responsible for the obligatory assignments.

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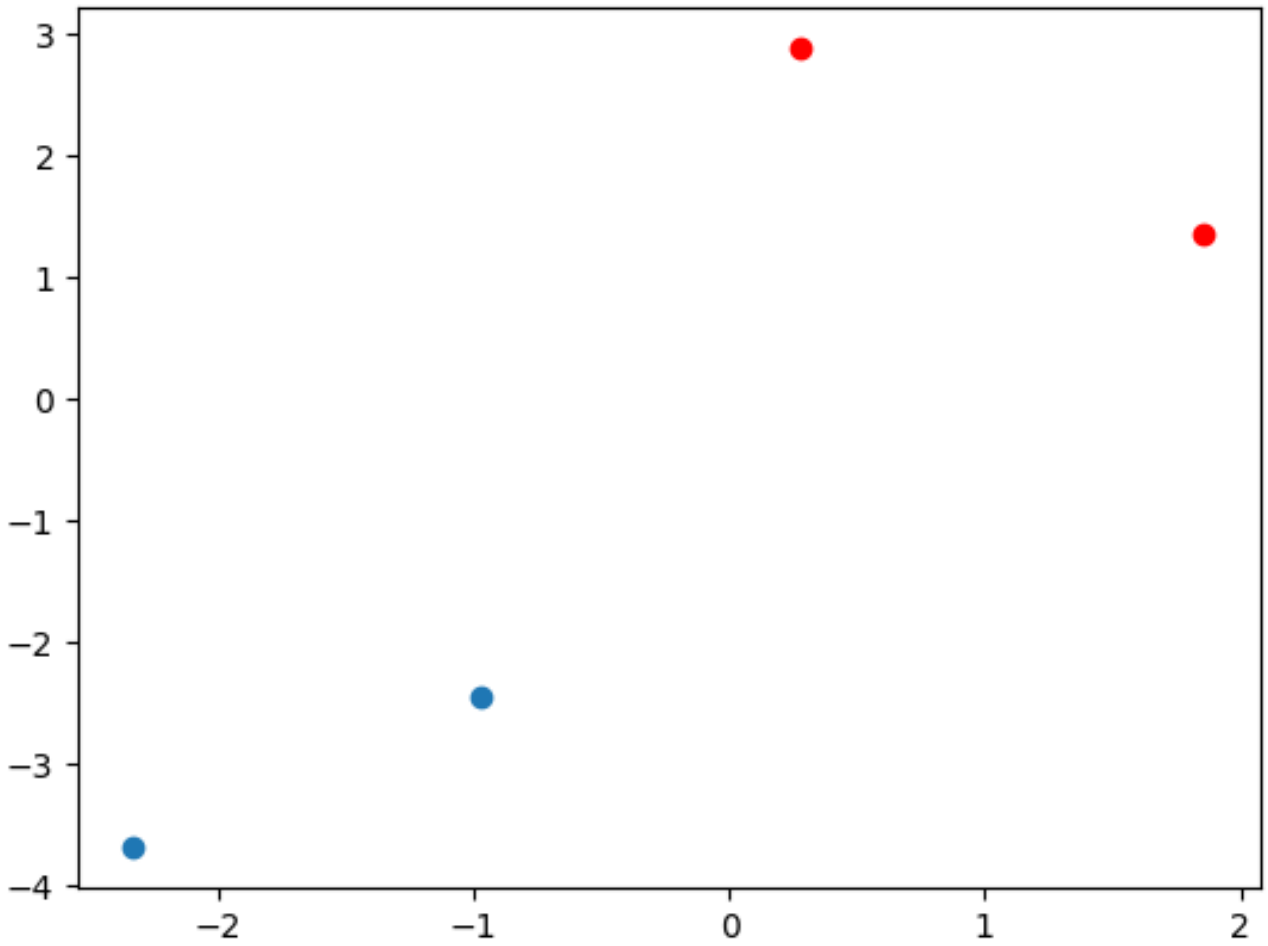
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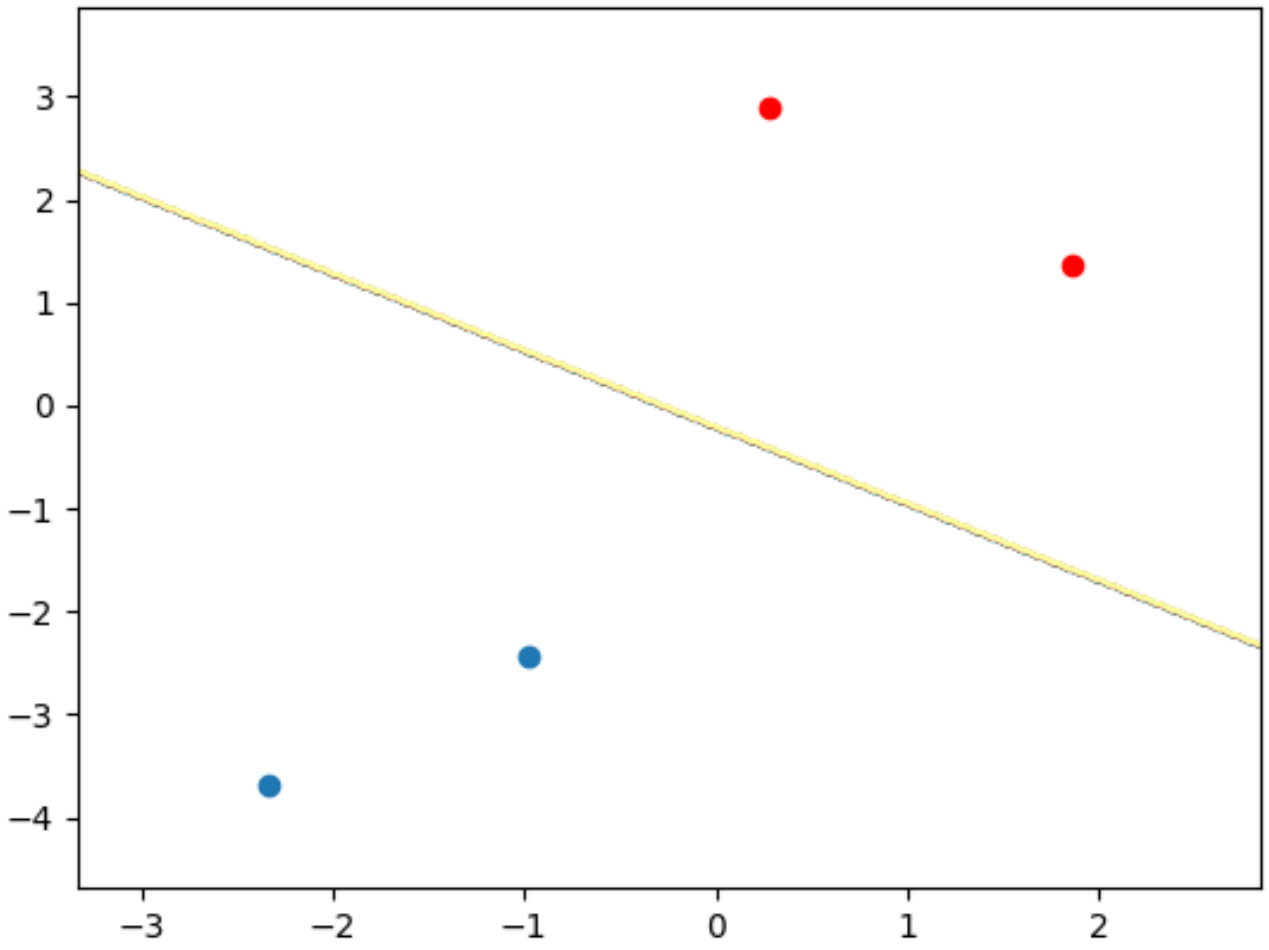
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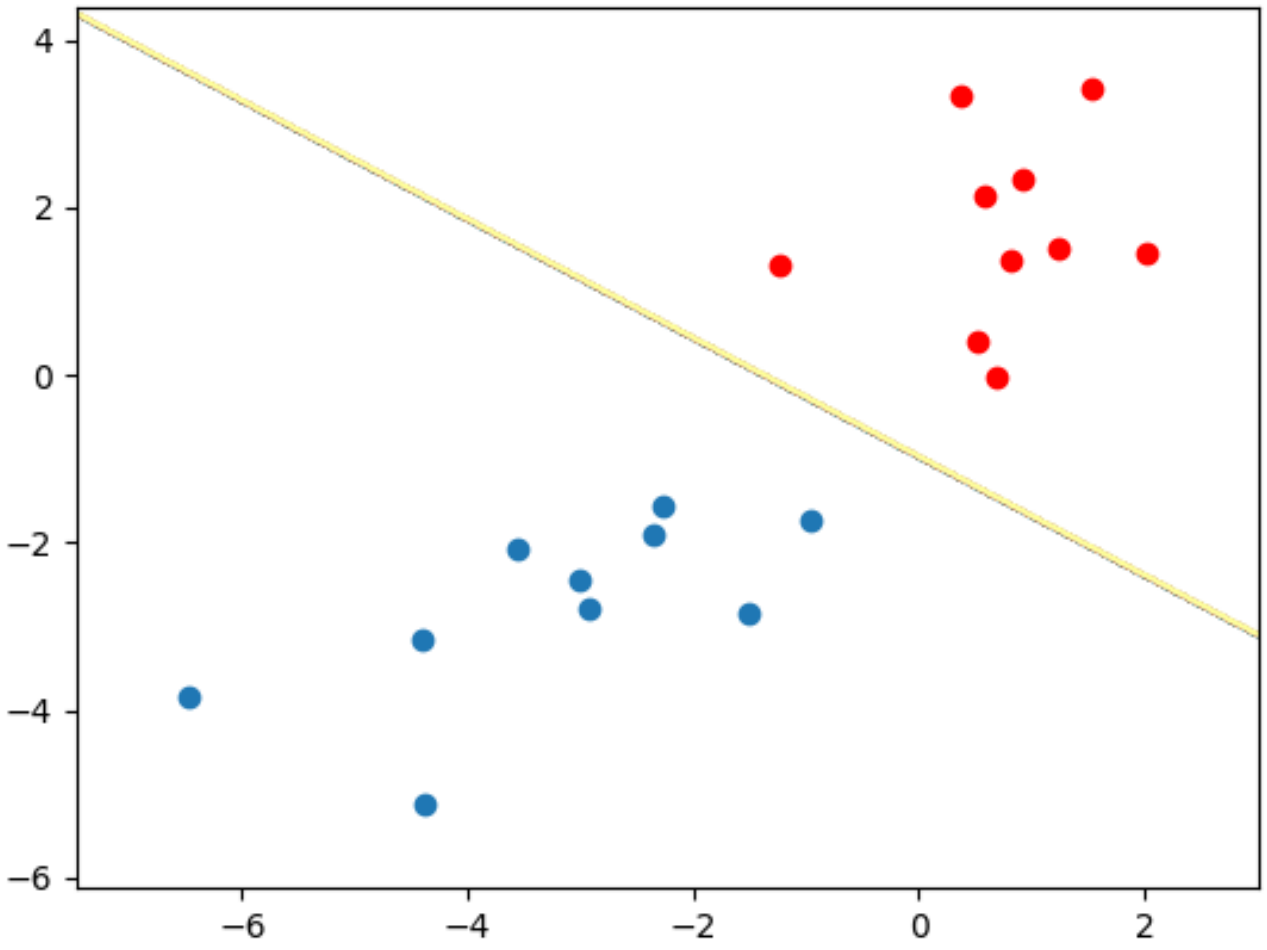
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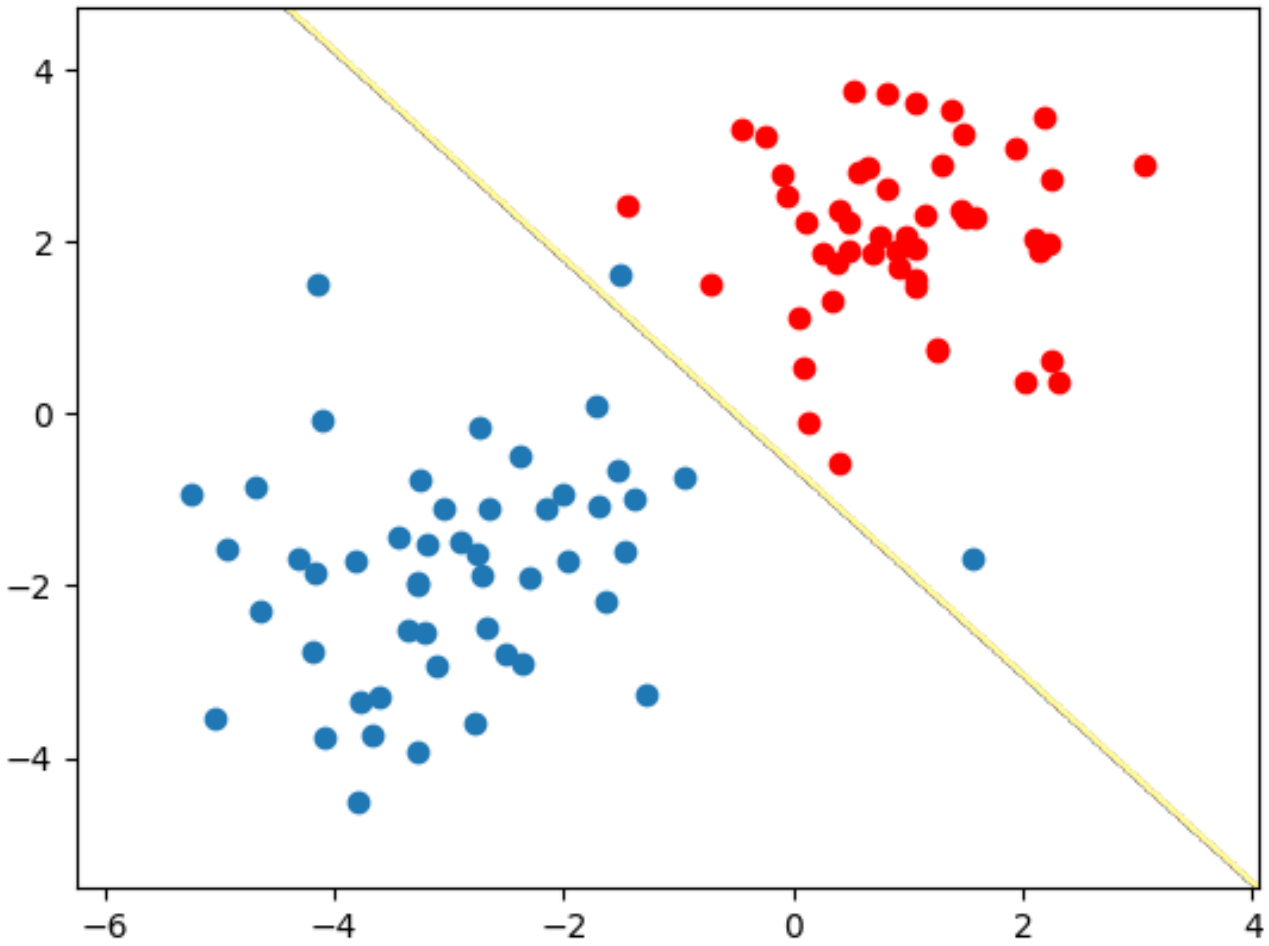
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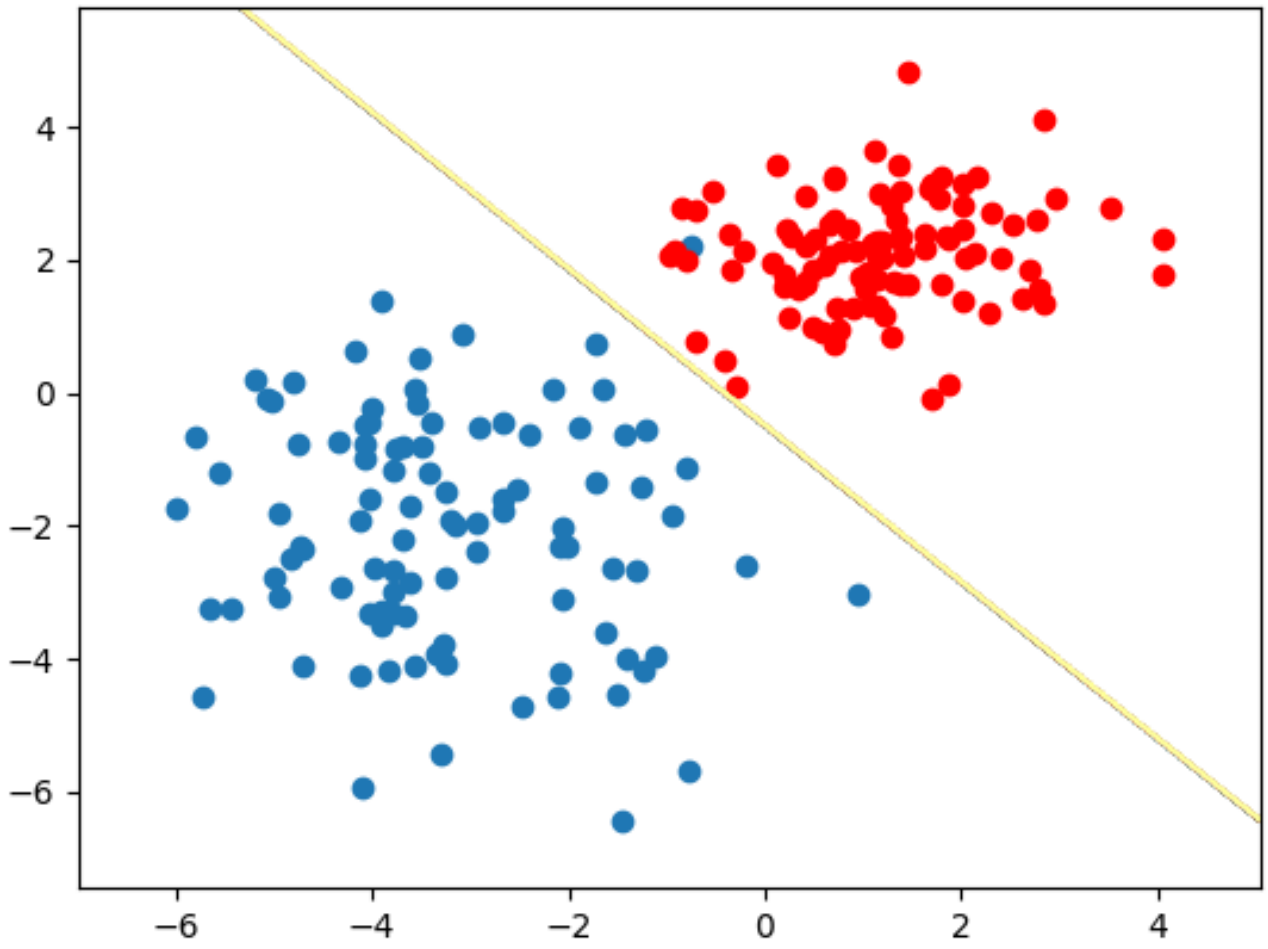
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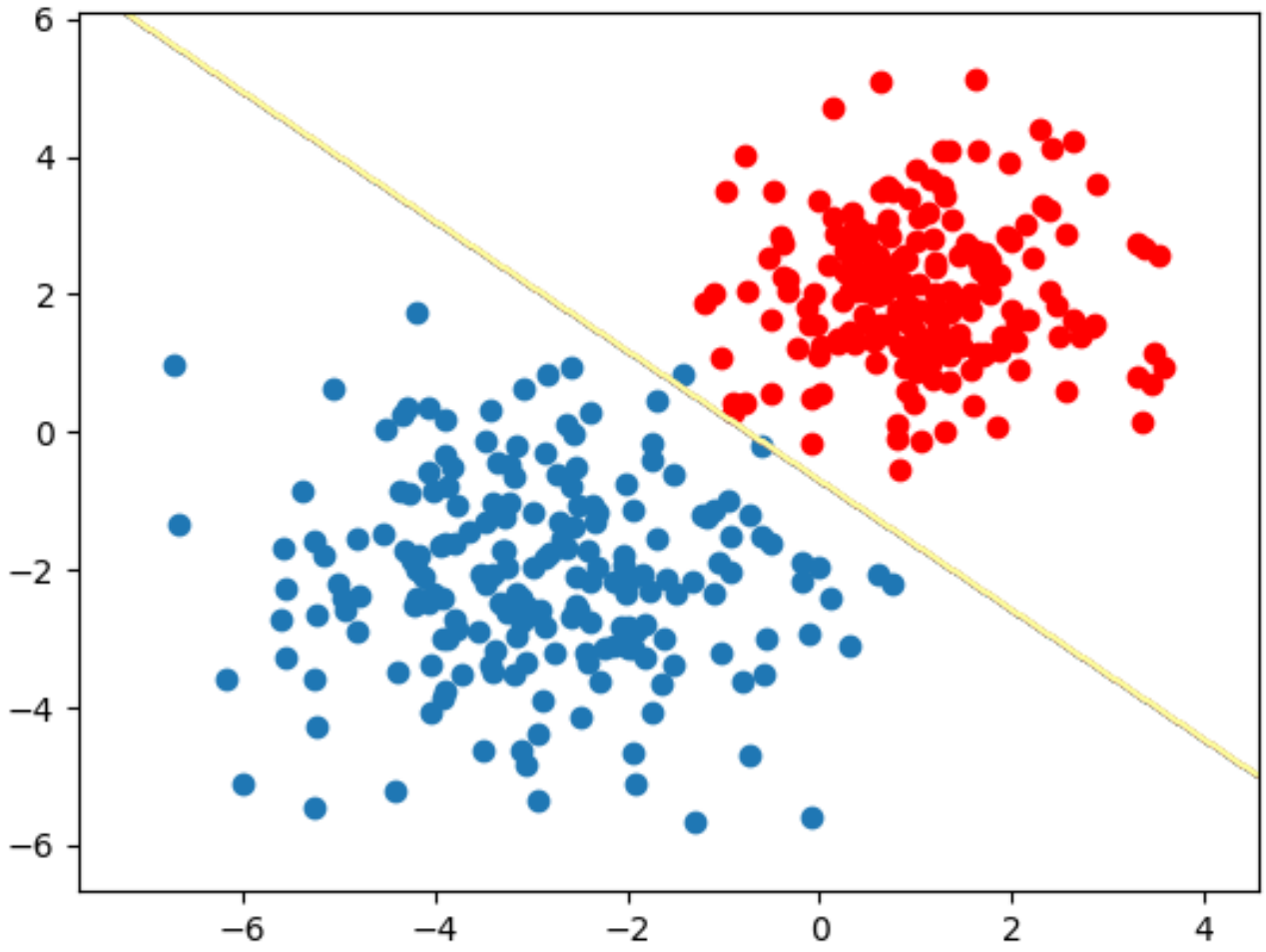
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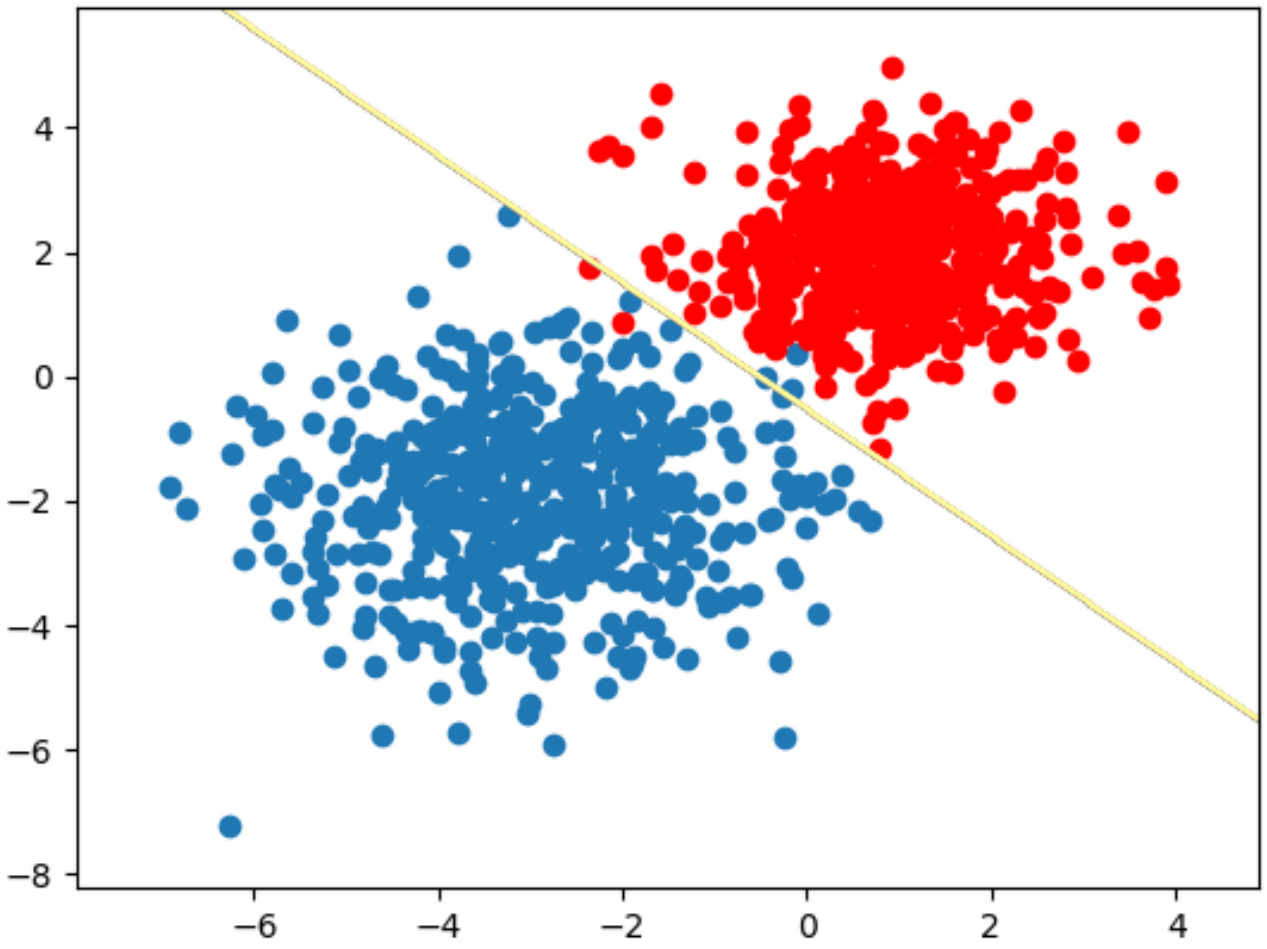
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- Generally: some program for mapping instances to labels.

Basics of supervised machine learning

Recap on data split

- Recall: we want the model to make good predictions for unseen data.

Basics of supervised machine learning

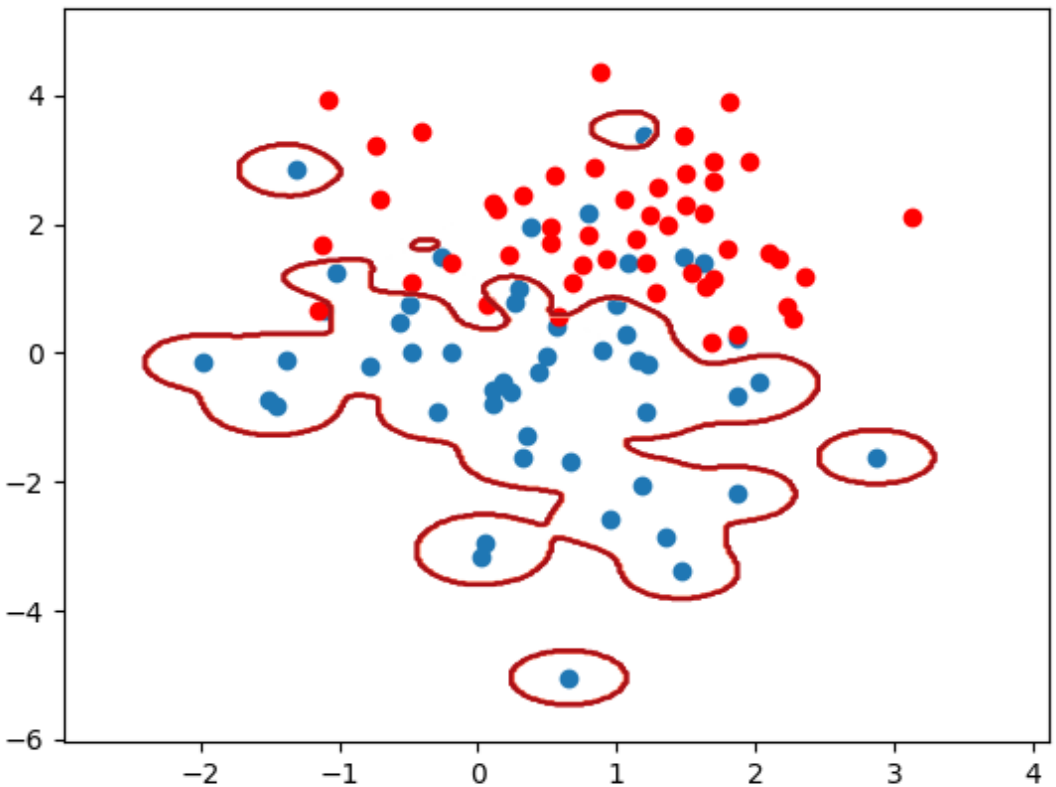
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Basics of supervised machine learning

Remember: we want models that generalize

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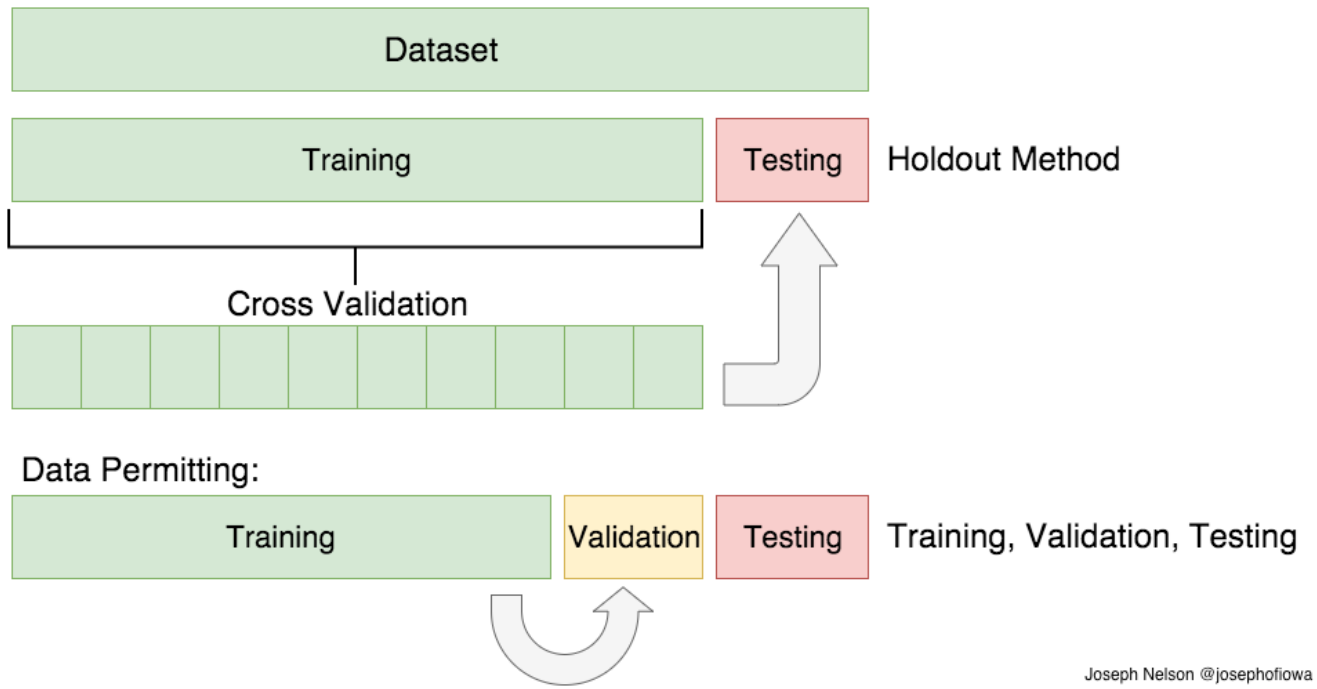
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  3. test/held-out data.



Basics of supervised machine learning

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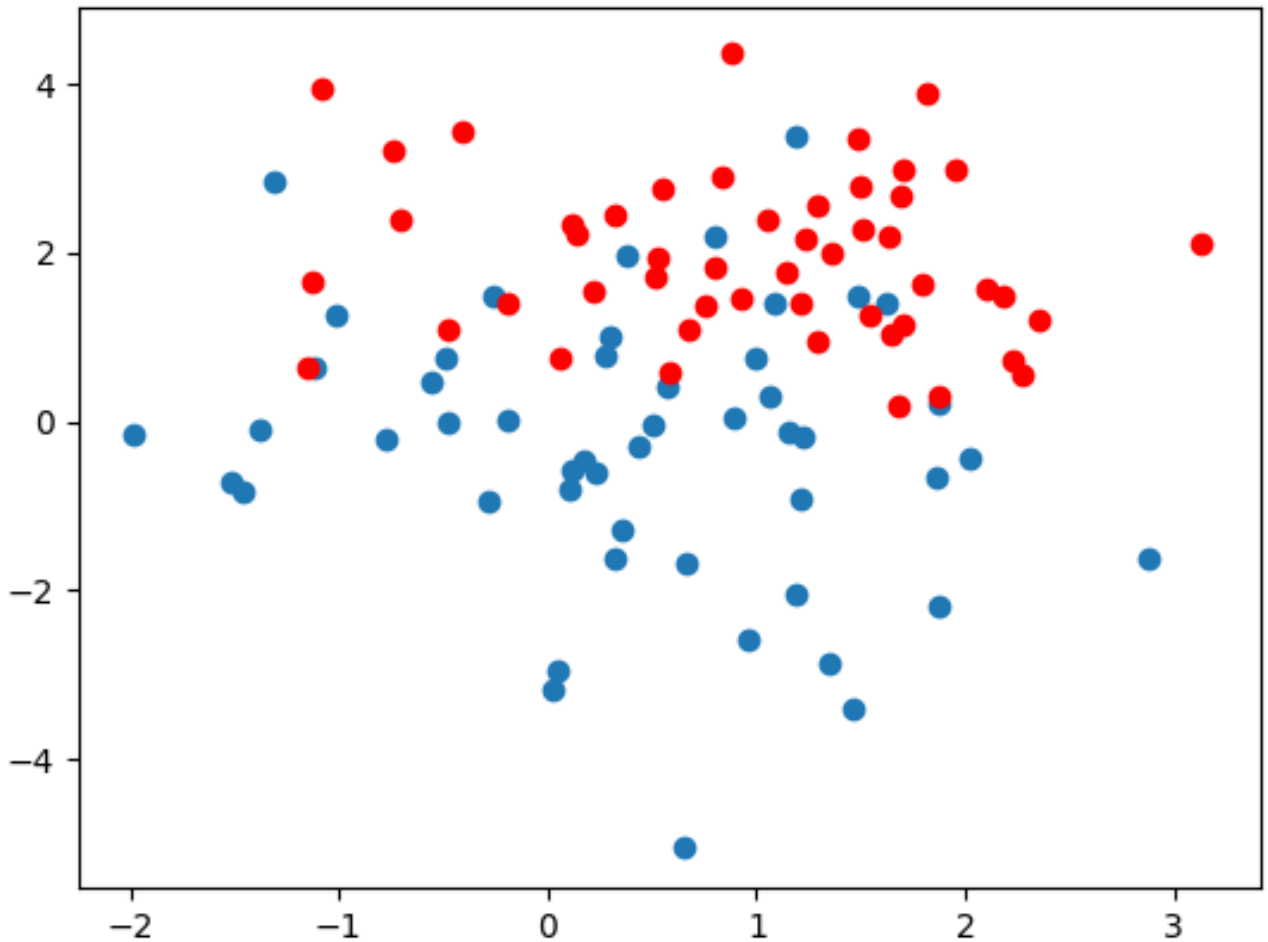
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- Searching among all possible functions is unfeasible.
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- ...and set some hypothesis class...
- ...to search only within this class.

Basics of supervised machine learning

What do you think a good model would look like for this data?

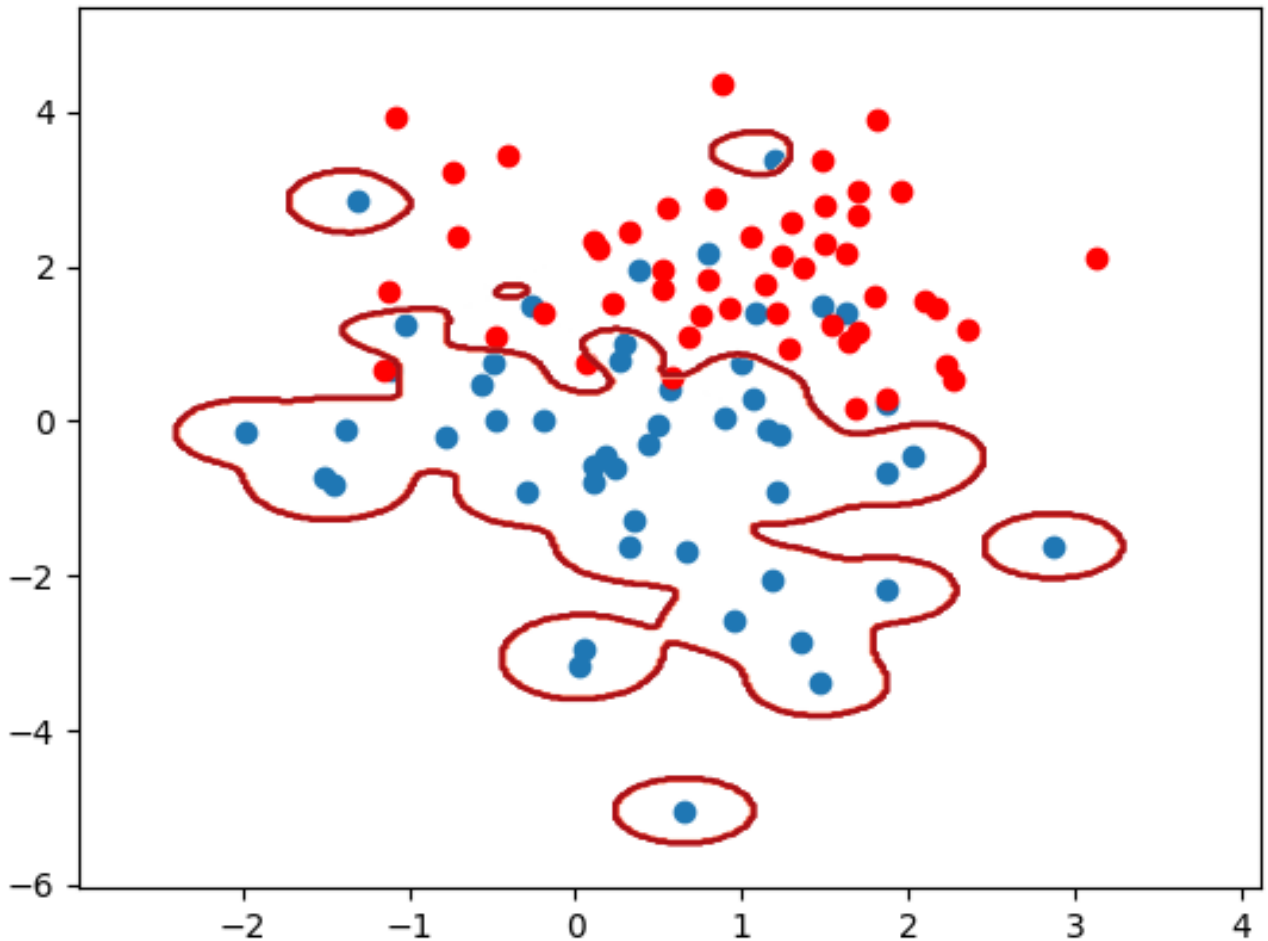
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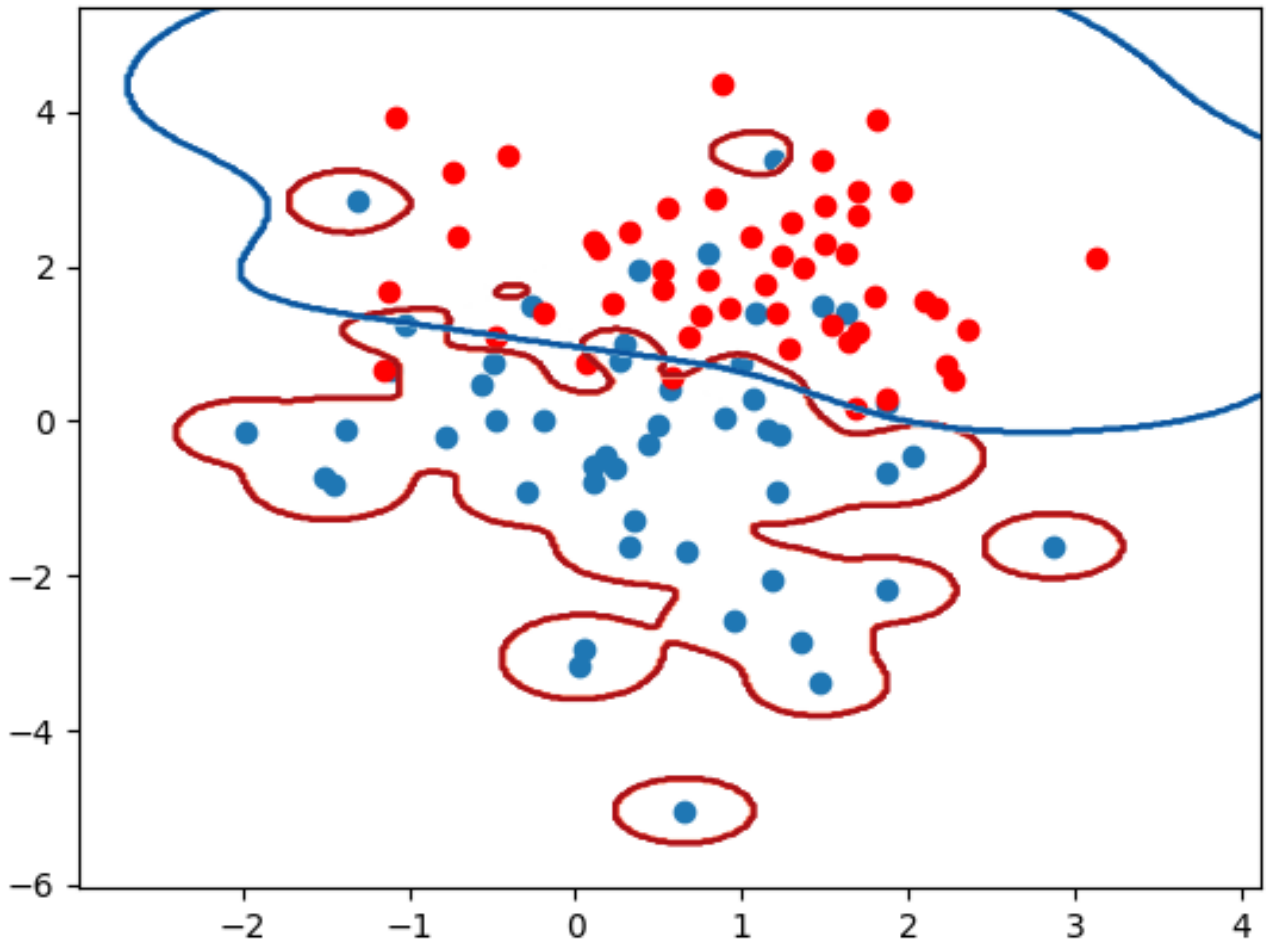
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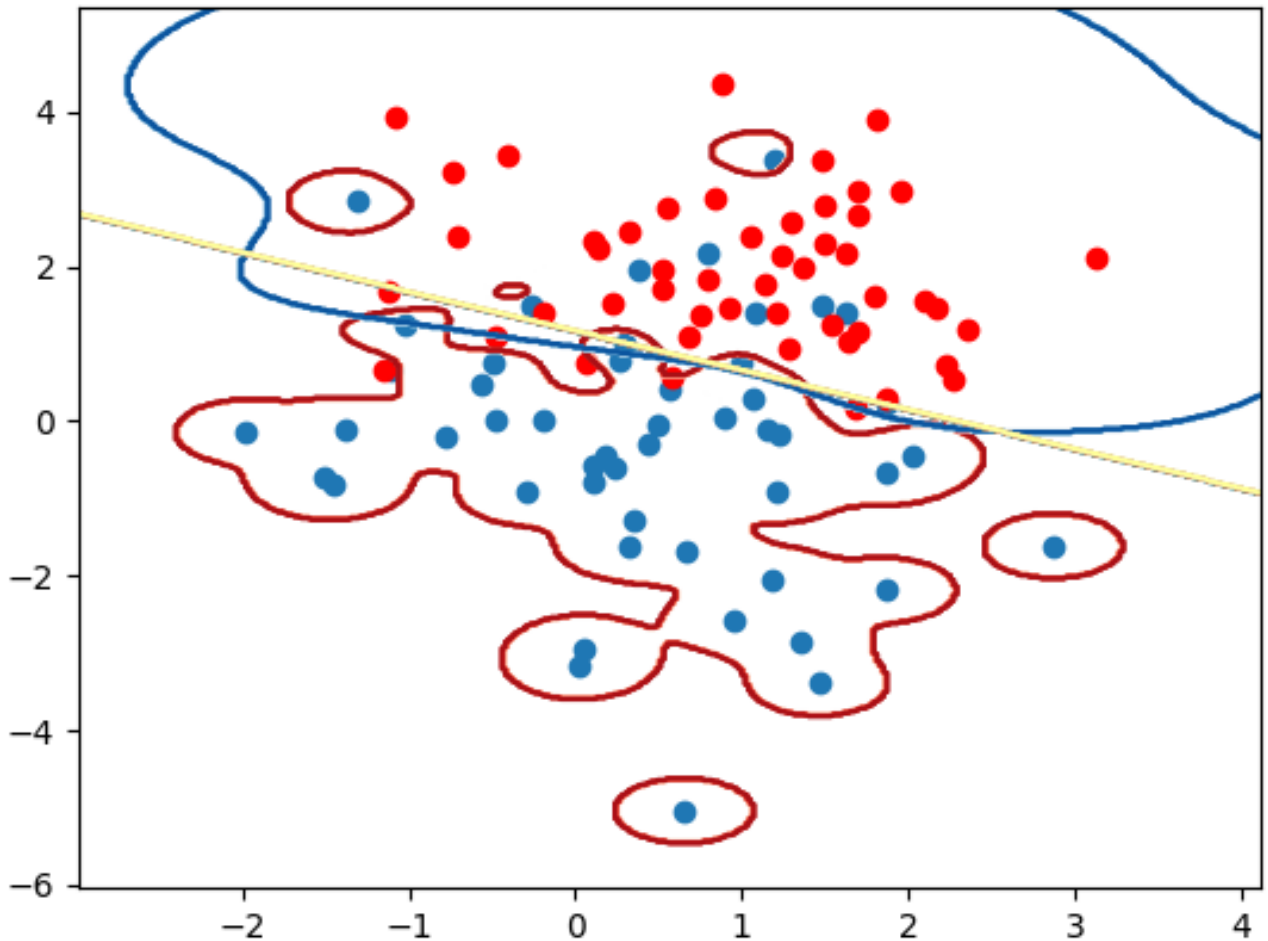
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What do you think a good model would look like for this data?



Basics of supervised machine learning

What do you think a good model would look like for this data?



Linear functions: a popular hypothesis class

(move on to sub-lecture 2.2)

References I


Goldberg, Y. (2017).
Neural network methods for natural language processing.
Synthesis Lectures on Human Language Technologies, 10(1):1–309.