



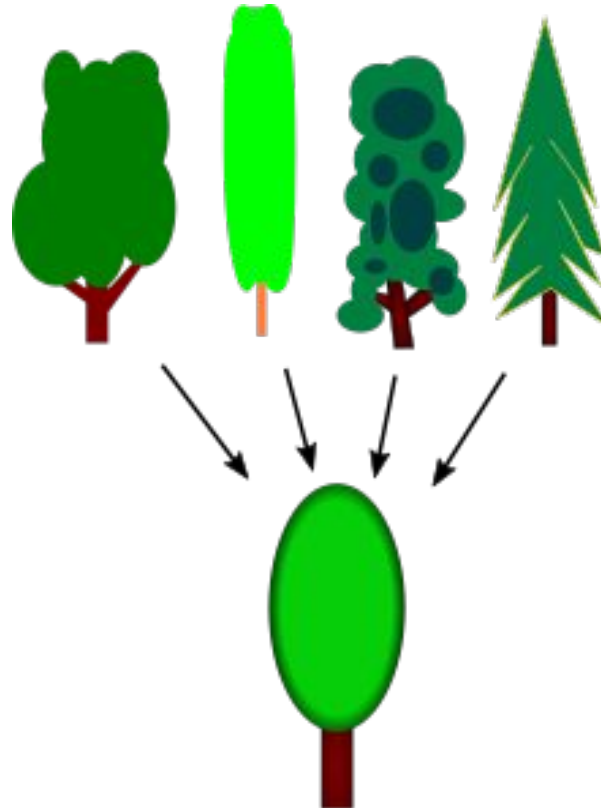
The
University
Of
Sheffield.

Understanding Generalisaiton through Visualisation

Christopher Wild

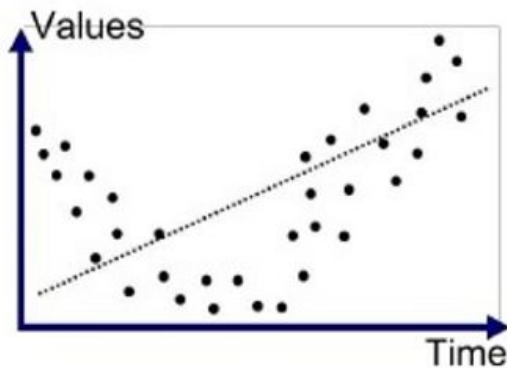


What is Generalisation?

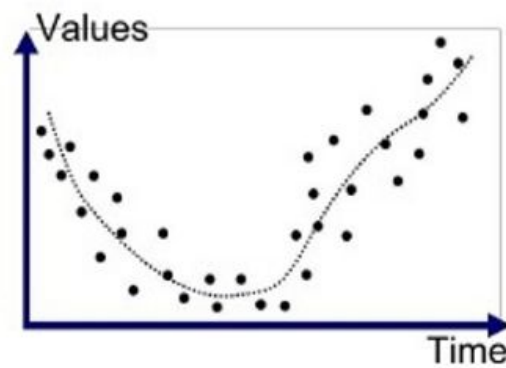


How do models overfit?

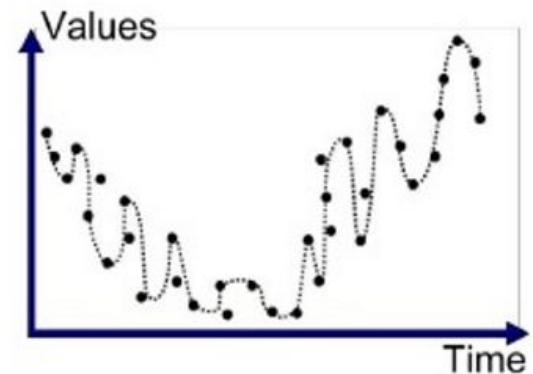
Regression



Underfitted



Good Fit/Robust

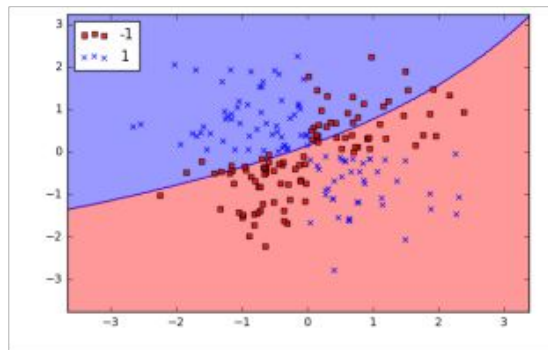


Overfitted

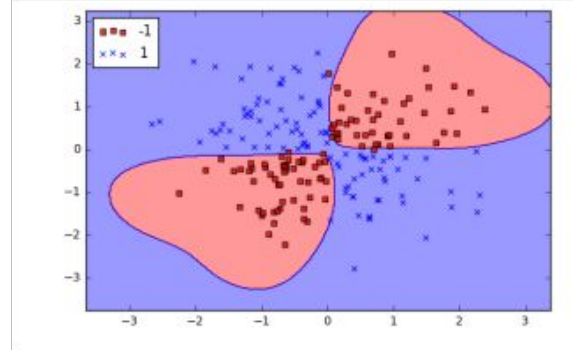
<https://medium.com/swlh/machine-learning-how-to-prevent-overfitting-fdf759cc00a9>

How do models overfit?

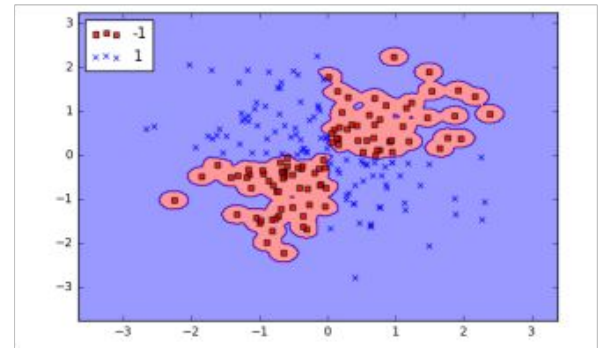
SVM



$\gamma = 0.01$



$\gamma = 1$



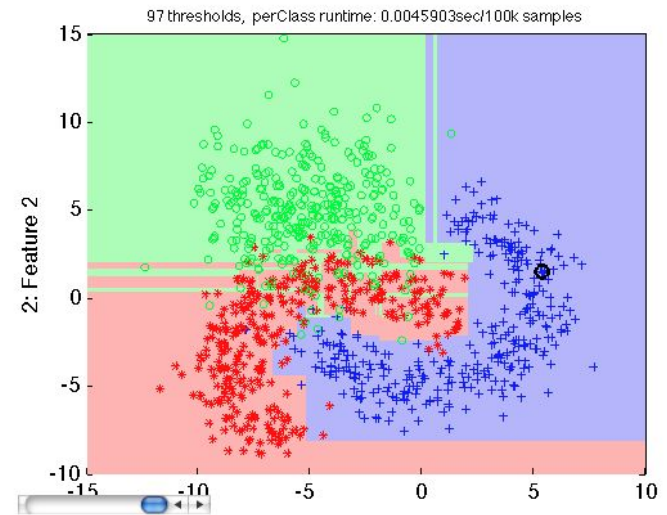
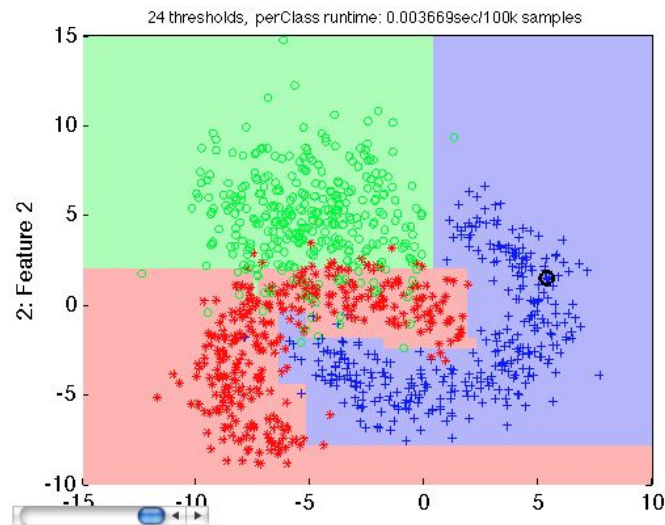
$\gamma = 100$

<https://towardsdatascience.com/understanding-support-vector-machine-part-2-kernel-trick-merciers-theorem-e1e6848c6c4d>



How do models overfit?

Decision Tree

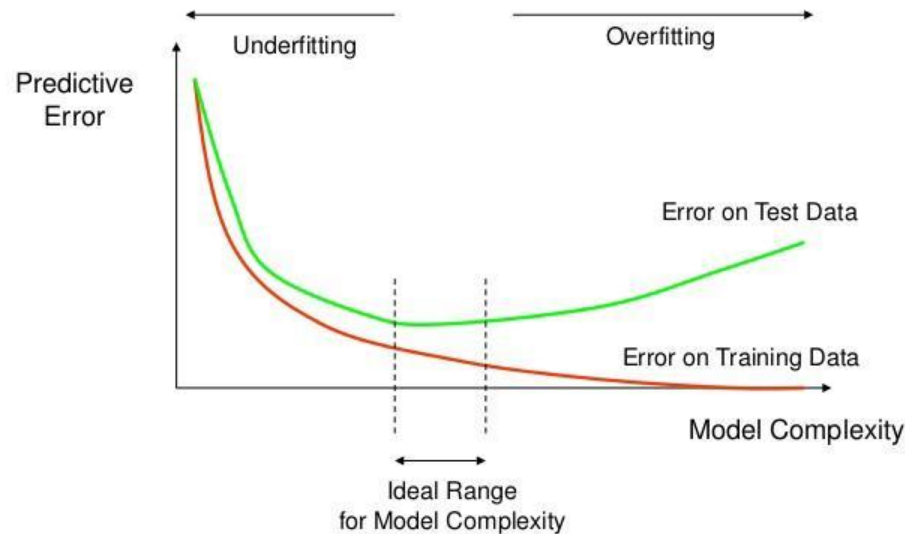


https://doc.perclass.com/perClass_Toolbox/guide/classifiers/decision_trees.html



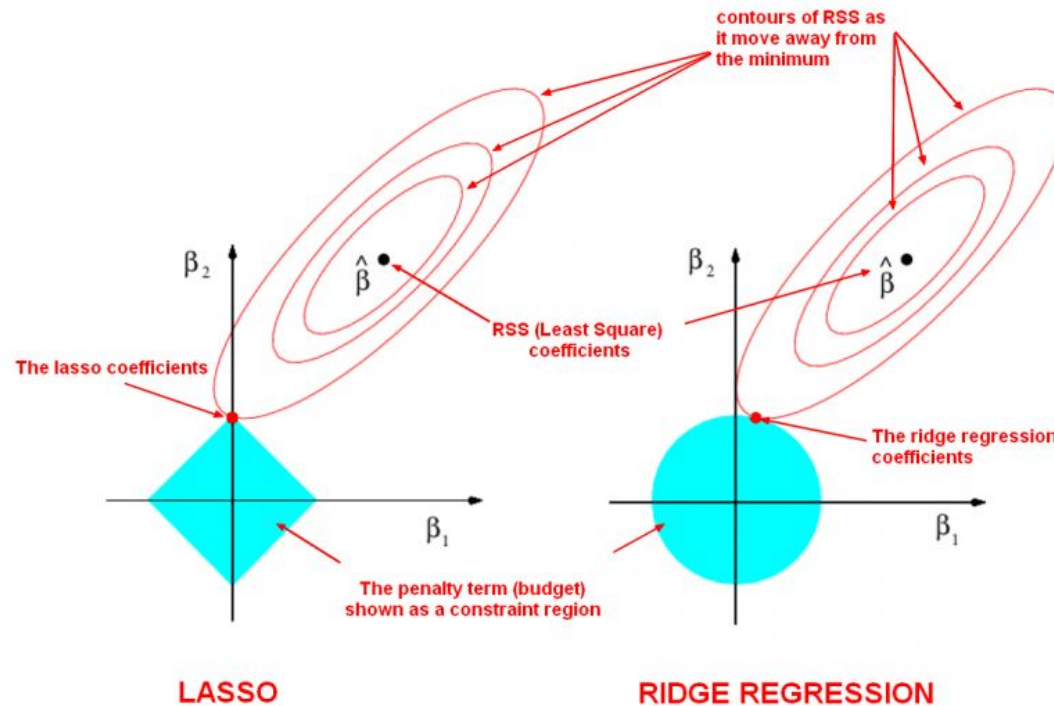
How to spot overfitting?

How Overfitting affects Prediction



<https://towardsdatascience.com/food-for-thought-paper-tuesday-d163f8339d26>

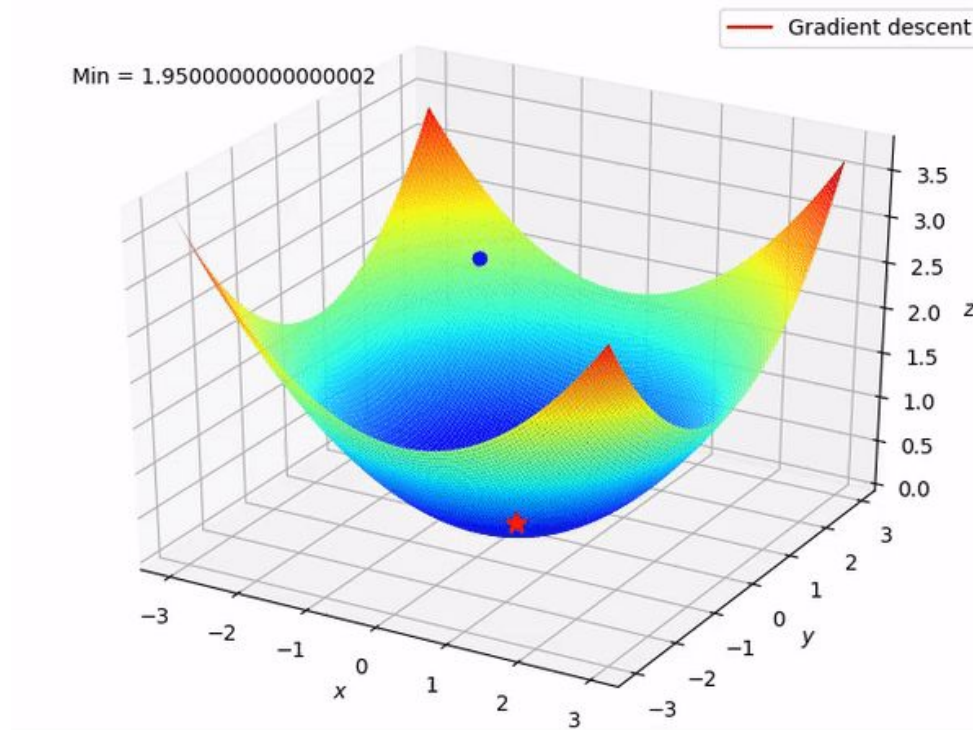
Regularization Through Visualisation!



<http://ethen8181.github.io/machine-learning/regularization/regularization.html>

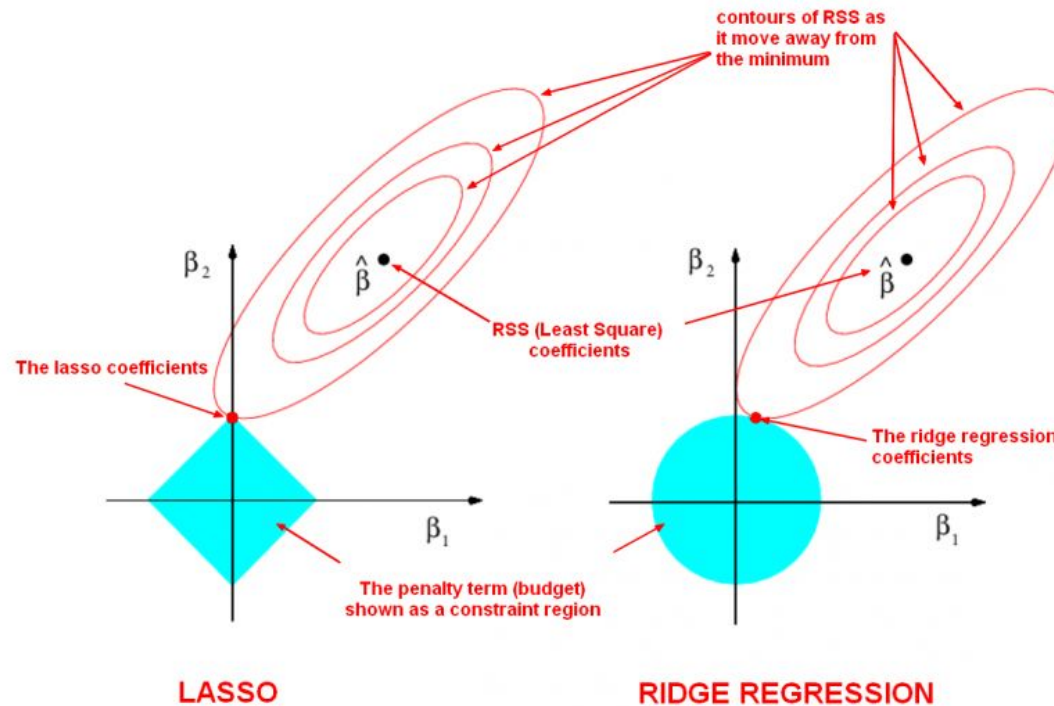


Gradient Descent Quickly



<https://suniljangirblog.wordpress.com/2018/12/03/the-outline-of-gradient-descent/>

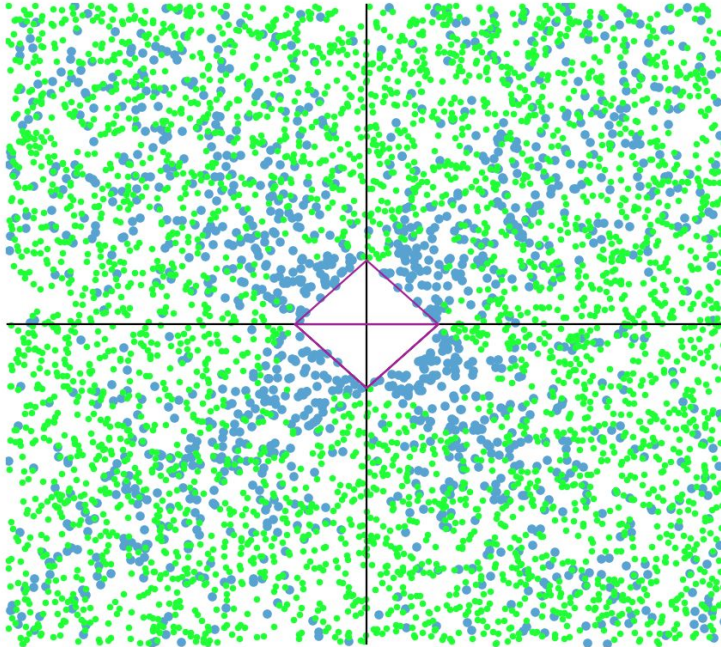
Regularization Through Visualisation!



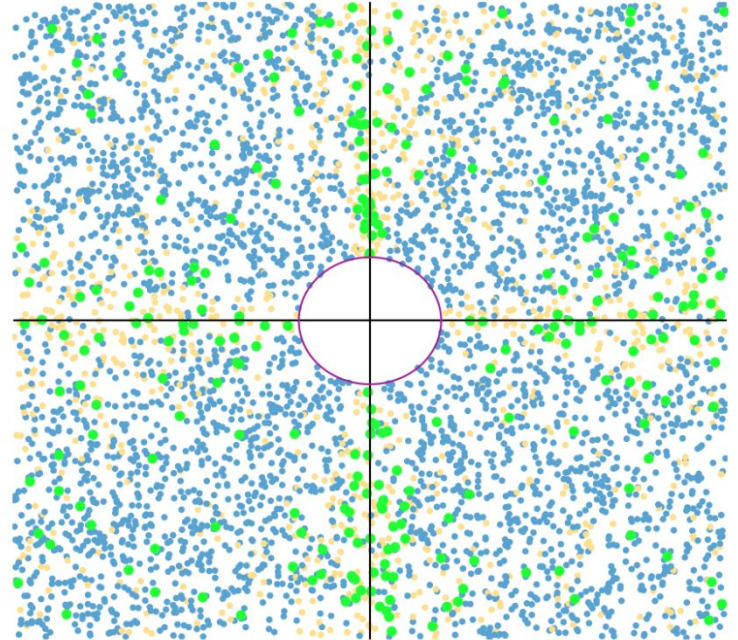
<http://ethen8181.github.io/machine-learning/regularization/regularization.html>

Regularization Through Visualisation!

Loss function min cloud
L1 gives 72% zeroes



Loss function min cloud
L2 gives 5% zeroes



<https://explained.ai/regularization/index.html>