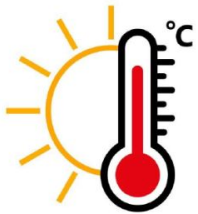
Predicting Solar Spectra

By Bo, Tyler, Brian, Joslyn, and Rancy

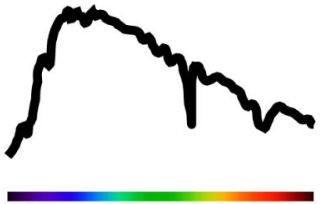
Predicting Solar Spectra



Weather

Machine Learning

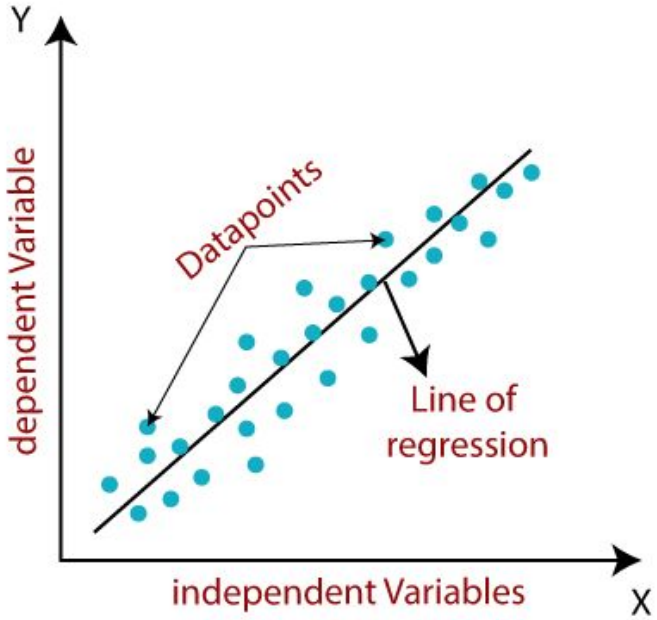
- Neural Networks
- Logistic Regression
- Support Vector Machines

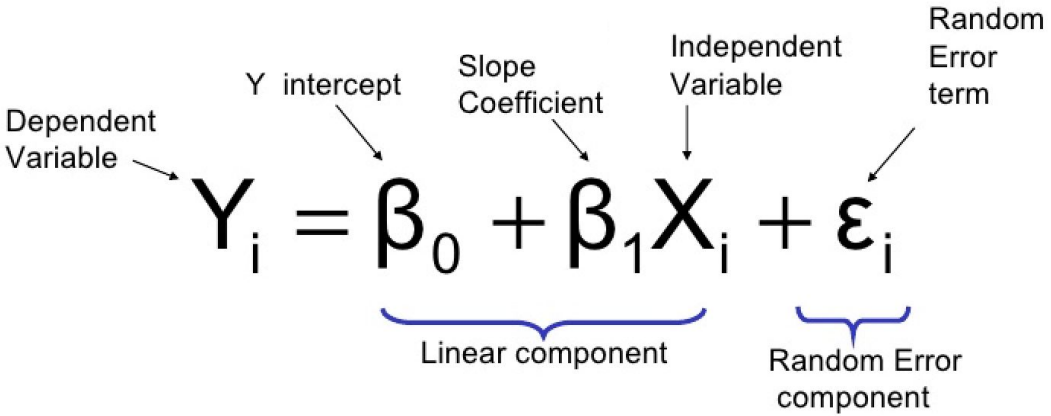


Predicted

Technology: Libraries and Frameworks

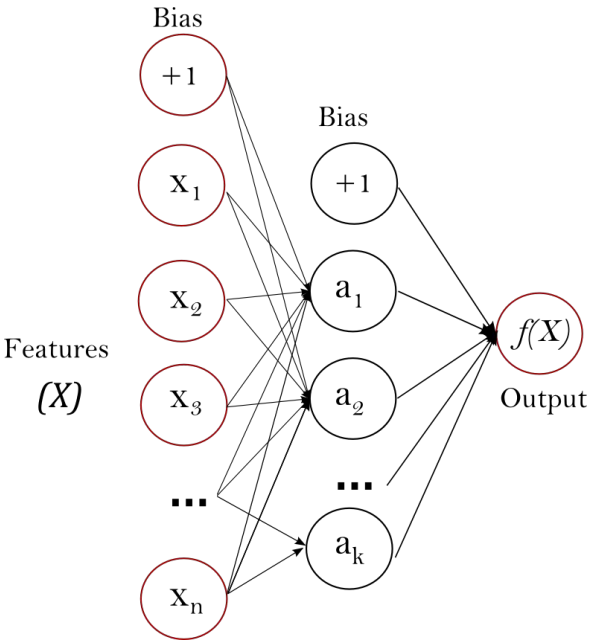
Models: Regression



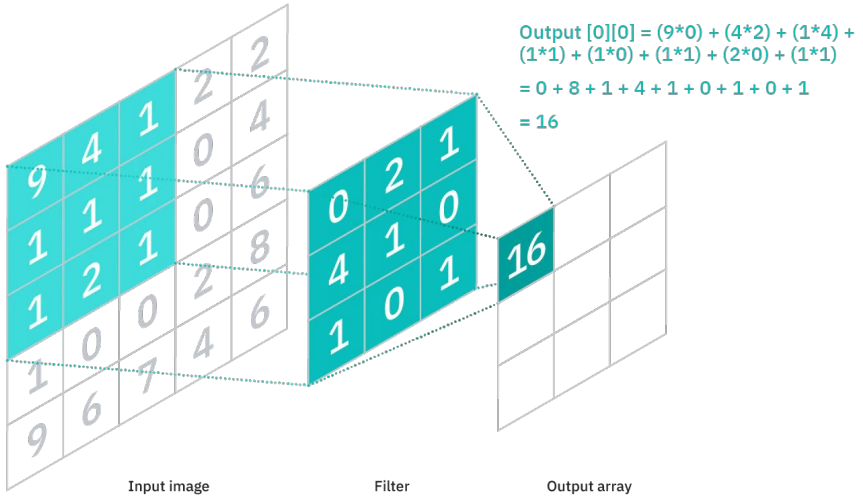


Models: Neural Networks

Multilayer Perceptron



Convolutional Neural Network



Comparison of Model Approaches

Model	Appeal	Drawbacks
Linear Regression	• Least computationally intensive	• Only able to return scalar estimates (CCT)
Non-Deep Neural Network (MLP)	• Returns vector (spectra) output	• Large jump in computational demand (compared to Linear Regression)
Convolutional Neural Network (CNN)	• Generally expect better estimators • Returns vector output	• Most computationally intensive

Computational Complexity