Methodology of Creating SVM Kernels from Scratch Using Python and NumPy

Austin Lackey and Tomy Sabalo Farias

DSCI 320, Colorado State University

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Abstract

This paper presents a methodology for creating Support Vector Machine (SVM) kernels from scratch using Python and NumPy. We discuss the implementation of linear, sigmoid, polynomial, and radial basis function (RBF) kernels in a binary SVM and a multiclass SVM.

1 Introduction

In this section, provide an introduction to SVMs, their applications, and the importance of kernels in SVMs.

2 Methodology

In this section, describe the methodology used to create the SVM kernels from scratch.

2.1 Binary SVM

Discuss the implementation of the Binary SVM class, including the implementation of the different kernels.

2.2 Multiclass SVM

Discuss the implementation of the Multiclass SVM class, which uses the Binary SVM class.

3 Results and Discussion

In this section, present and discuss the results obtained using the implemented SVM kernels.

4 Conclusion

In this section, provide a conclusion summarizing the work done and its implications.

References

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