Deployment of unsupervised learning in the search for new physics at the LHC with the ATLAS detector

by

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Abstract

Acknowledgments

Contents

Introduction

Outline of the Thesis

Chapter 1

Machine learning phenomenology

Neural Networks

Autoencoders

Autoencoders are a subset of neural networks. Where as a general neural network in principle can take any shape, autoencoders are more restrictive. This restrictiveness can in its most general sence we condensed into the following points:

- Same number of output categories as input categories
- A latent space with smaller dimensionality than the input/output layer

What we end up with two funnel shaped parts linked together.

Chapter 2

Standard model

Chapter 3

Implementation

Chapter 4

Results

Chapter 5

Discussion

Conclusion

Future work, more work

Appendices

Appendix A

Appendix B

Appendix C

Appendix D

Bibliography