Application of Generative Models in Economics and Finance

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Abstract

Abstract. Sample references: Ref 1 [1], ref 2 Jebara [2].

1 Introduction

2 Methodology

2.1 Stochastic differential equations

Black-Scholes-Merton or geometric Brownian motion

Cox-Ingersoll-Ross

2.2 Generative and Discriminative models

Bayesian Inference

Support Vector Machines

3 Case study

3.1 Dataset description

3.2 Data preprocessing

3.3 Model description

3.4 Model training

3.5 Quality metrics and results of testing

4 Conclusion

References

[1] Y. Chen, Y. Wang, D. Kirschen, and B. Zhang. Model-free renewable scenario generation using generative adversarial networks. *IEEE Transactions on Power Systems*, 33(3), 2018. doi: 10.1109/TPWRS.2018.2794541.

[2] T. Jebara. *MACHINE LEARNING: Discriminative and Generative*. Kluwer Academic Publishers, 2004.