Advanced Methods of Data Analysis: Normalizing Flows

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In this paper, the expressiveness of fully connected neural networks is used in a class of transformation known as normalizing flows in order to construct density estimator. Further these estimators are utilized to classify stars.

more explizit

I. INTRODUCTION

Normalizing flows is a powerfull method that utilizes the transformation of random variables for either density estimation or for generativ sampling.

II. THEORY

want to classify and density estimation

A. Normalizing flows

To estimate the density distribution we make us the formula of transformations of random variables.

Let z be a random variable distributed as $r(z)$ th random variable $x = f(z|\theta)$, where f is a invertible differentiable function with parameters θ, is distrib as $q(x)$ with:

$$q(x) = r(z)\left|\frac{\mathrm{d}z}{\mathrm{d}x}\right| = r(z)\left|\det J_f(z)\right|^{-1}$$

Dataset erklären

classifier by density estimation

To get a density estimation of data x' with some features we would vary θ until $q(x)$ is close to the target distribution of the data, then we could compute $r(f^{-1}(x'|\theta))$ which is the estimate for the probability of the data.

III. METHODS

DKL

citations

wie classifier bzw. was für auswertungen

IV. NORMALIZING FLOW CATEGORIES

V. RESULTS

VI. SUMMARY

VII. CONCLUSION

training erklären

wie classifier

versch. NF erklären