Gaussian Process for Time Series Analysis

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Overview

Introduction

Multivariate Normal Distribution

$X = (X_1, \cdots, X_d)$ has a **multivariate normal distribution** if every linear combination is normally distributed. In this case it has density of the form

$$p(x|m, K_0) = \frac{1}{\sqrt{(2\pi)^d |K_0|}} \exp\left(-\frac{1}{2}(x-m)^\dagger K_0^{-1}(x-m)\right)$$

where $m \in \mathbb{R}^d$ is the **mean vector** and $K_0 \in M_d(\mathbb{R})$ is the (symmetric, positive definite) **covariance matrix**.
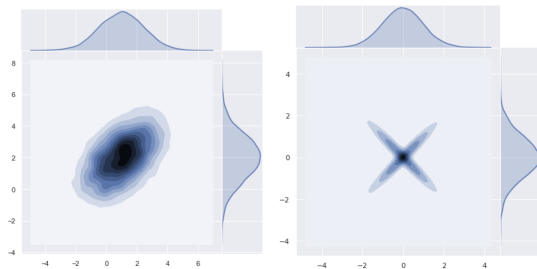

Figure: Left: Multivariate Normal Distribution, Right: Non-Multivariate Normal Distribution

References

Slides and notebook available at juanitorduz.github.io