Gaussian Process

Marshal Sinaga - marshal.sinaga@aalto.fi

Last update: March 1, 2024

This note aims to cover some materials on the Gaussian process. The primary references are Gaussian Process for Machine Learning by C. E. Rasmussen and CS-E4895 by Arno Solin.

1 Multivariate Normal Distribution

1.1 Linear transformation theorem for the multivariate normal distribution

Let x follow a multivariate normal distribution:

$$x \sim \mathcal{N}(\mu, \Sigma)$$

Then, any affine transformation of x is also multivariate normally distributed:

$$y = Ax + b \sim \mathcal{N}(A\mu + b, A\Sigma A^\top)$$

Proof:
TBA