



Multivariate Gaussians

1 Why

We generalize the Gaussian to n -dimensional space.

2 Definition

$f : \mathbf{R}^d \rightarrow \mathbf{R}$ is a **gaussian density** if there exists $\Sigma \succ 0$ and μ such that

$$f(x) = \frac{1}{(2\pi)^d \mathbf{det} \Sigma} \exp\left(-\frac{1}{2}(x - \mu)^T \Sigma^{-1}(x - \mu)\right)$$

2.1 Notation