List of common distributions

$\text{Geometric}(x|\theta) = \theta(1-\theta)^x \, \mathbb{1}(x \in \{0,1,2,\ldots\})$ for $0 < \theta < 1$

$\text{Bernoulli}(x|\theta) = \theta^x(1-\theta)^{1-x} \, \mathbb{1}(x \in \{0,1\})$ for $0 < \theta < 1$

$\text{Binomial}(x|n,\theta) = \binom{n}{x}\theta^x(1-\theta)^{n-x} \, \mathbb{1}(x \in \{0,1,\ldots,n\})$ for $0 < \theta < 1$

$\text{Poisson}(x|\theta) = \dfrac{e^{-\theta}\theta^x}{x!} \, \mathbb{1}(x \in \{0,1,2,\ldots\})$ for $\theta > 0$

$\text{Exp}(x|\theta) = \theta e^{-\theta x} \, \mathbb{1}(x > 0)$ for $\theta > 0$

$\text{Uniform}(x|a,b) = \dfrac{1}{b-a} \, \mathbb{1}(a < x < b)$ for $a < b$

$\text{Gamma}(x|a, b = \text{rate}) = \dfrac{b^a}{\Gamma(a)} x^{a-1} e^{-bx} \, \mathbb{1}(x > 0)$ for $a, b > 0$,

$\text{Gamma}(x|a, b = \text{scale}) = \dfrac{1}{b^a\Gamma(a)} x^{a-1} e^{-x/b} \, \mathbb{1}(x > 0)$ for $a, b > 0$,

$\text{Pareto}(x|\alpha, c) = \dfrac{\alpha c^\alpha}{x^{\alpha+1}} \, \mathbb{1}(x > c)$ for $\alpha, c > 0$

$\text{Beta}(x|a,b) = \dfrac{1}{B(a,b)} x^{a-1}(1-x)^{b-1} \, \mathbb{1}(0 < x < 1)$ for $a, b > 0$

$\mathcal{N}(x|\mu,\sigma^2) = \dfrac{1}{\sqrt{2\pi\sigma^2}} \exp\big(-\tfrac{1}{2\sigma^2}(x-\mu)^2\big)$ for $\mu \in \mathbb{R}$, $\sigma^2 > 0$

$\mathcal{N}(x|\mu,\lambda^{-1}) = \sqrt{\dfrac{\lambda}{2\pi}} \exp\big(-\tfrac{1}{2}\lambda(x-\mu)^2\big)$ for $\mu \in \mathbb{R}$, $\lambda > 0$

$\mathcal{N}(x|\mu, C) = \dfrac{1}{(2\pi)^{d/2}|C|^{1/2}} \exp\big(-\tfrac{1}{2}(x-\mu)^{\mathtt{T}} C^{-1}(x-\mu)\big)$ for $\mu \in \mathbb{R}^d$, $C \in \mathbb{R}^{d\times d}$ symmetric positive definite.

Other distributions

Suppose $\Sigma \sim \text{inverseWishart}(v_o, S_o^{-1})$, then

$$p(\Sigma) \propto |\Sigma|^{-(v_o+p+1)/2} \exp\{-\text{tr}(S_o\Sigma^{-1})/2\}.$$