

# **Gaussian Mixture Models (GMMs)**

# Normal (Gaussian) Distribution

A random variable  $X$  has normal distribution with parameters  $\mu$  and  $\sigma^2$  if it has the following pdf:

$$f(x) = \frac{1}{\sqrt{2\pi\sigma^2}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$$

