Introduction to Gaussian Processes

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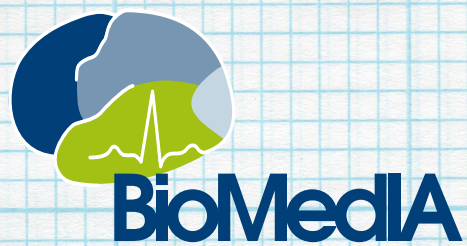
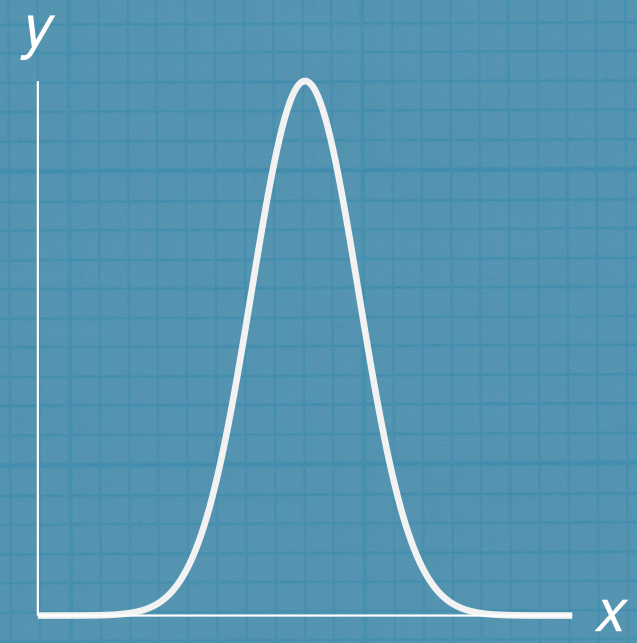
AIMS

- Constructing a GP
- A simple example
- Why is this useful?





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

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$$f_{\mathbf{x}}(x_1, \ldots, x_k) = \frac{1}{\sqrt{(2\pi)^k |\boldsymbol{\Sigma}|}} \exp\left(-\frac{1}{2}(\mathbf{x} - \mu)^{\mathrm{T}} \boldsymbol{\Sigma}^{-1} (\mathbf{x} - \mu)\right)$$

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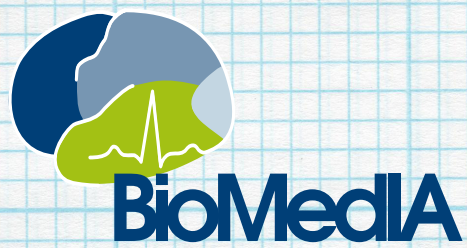
$$\lim_{k\to\infty}\left(f_{\mathbf{x}}(x_1,\ldots,x_k)=\frac{1}{\sqrt{(2\pi)^k|\boldsymbol{\Sigma}|}}\exp\left(-\frac{1}{2}(\mathbf{x}-\boldsymbol{\mu})^{\mathrm{T}}\boldsymbol{\Sigma}^{-1}(\mathbf{x}-\boldsymbol{\mu})\right)\right)$$



QUESTIONS?