Course2_final Assignment

$$f(\mathbf{x}; \mu, \sigma) = \frac{1}{\sigma\sqrt{2\pi}}\exp\left(-\frac{(\mathbf{x}-\mu)^2}{2\sigma^2}\right)$$

$$\chi^2 = |\mathbf{y} - f(\mathbf{x}; \mu, \sigma)|^2$$

$$\mathbf{J} = \left[\frac{\partial(\chi^2)}{\partial\mu}, \frac{\partial(\chi^2)}{\partial\sigma}\right]$$

$$\frac{\partial(\chi^2)}{\partial\mu} = -2(\mathbf{y} - f(\mathbf{x}; \mu, \sigma)) \cdot \frac{\partial f}{\partial\mu}(\mathbf{x}; \mu, \sigma)$$

$$\frac{\partial(\chi^2)}{\partial\sigma} = -2(y - f(; \mu\sigma)) \cdot \frac{\partial f}{\partial\sigma}(x; \mu, \sigma)$$

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

$$f(x, \mu, \sigma) = \frac{1}{\sqrt{2\pi}}\sigma^{-1}\exp\left(-\frac{1}{2}(x-\mu)^2\sigma^{-2}\right)$$

$$\frac{\partial f}{\partial\sigma} = -\frac{1}{\sqrt{2\pi}}\sigma^{-2}\exp(\ ) + \frac{1}{\sqrt{2\pi}}\sigma^{-4}(x-\mu)^2\exp(\qquad)$$

$$-\sigma^{-1}f(\ ) + \sigma^{-3}(x-\mu)^2 f$$

$$f(\ $$