Newton's Method for 2 Equations

$$d = \begin{bmatrix} f1(\theta1_{old}, \theta2_{old}) \\ f2(\theta1_{old}, \theta2_{old}) \end{bmatrix}$$

$$a = \begin{bmatrix} \frac{\partial f_1}{\partial \theta_1}(\theta1_{old}, \theta2_{old}) & \frac{\partial f_1}{\partial \theta_2}(\theta1_{old}, \theta2_{old}) \\ \frac{\partial f_2}{\partial \theta_1}(\theta1_{old}, \theta2_{old}) & \frac{\partial f_2}{\partial \theta_2}(\theta1_{old}, \theta2_{old}) \end{bmatrix}$$

$$p = (a^{-1})d$$

$$\theta1_{new} = \theta1_{old} - p(1)$$

$$\theta2_{new} = \theta2_{old} - p(2)$$