Newton's Method for 3 Equations

$$d = \begin{bmatrix} f1(\theta1_{old}, \theta2_{old}, \theta3_{old}) \\ f2(\theta1_{old}, \theta2_{old}, \theta3_{old}) \\ f3(\theta1_{old}, \theta2_{old}, \theta3_{old}) \end{bmatrix}$$

$$a = \begin{bmatrix} \frac{df1}{d\theta1}() & \frac{df1}{d\theta2}() & \frac{df1}{d\theta3}() \\ \frac{df2}{d\theta1}() & \frac{df2}{d\theta2}() & \frac{df2}{d\theta3}() \\ \frac{df3}{d\theta1}() & \frac{df3}{d\theta2}() & \frac{df3}{d\theta3}() \end{bmatrix}$$

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

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

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

$$\theta3_{new} = \theta3_{old} - p(3)$$