$$\boldsymbol{F}_{x+h} = \boldsymbol{F}_x + (grad\ F)_x^T H + \boldsymbol{o}(H) \quad , \quad grad\ F_x = \begin{bmatrix} \frac{\partial F}{\partial x_1} \\ \vdots \\ \frac{\partial F}{\partial x_n} \end{bmatrix} \in \mathbb{R}^n \tag{A.16}$$