$$T(\mathbf{q},t) = \begin{pmatrix} \mathbf{t}(M^{*-1}(t)M(\mathbf{q})) \\ u_{\theta}(R^{*-1}(t)R(\mathbf{q})) \end{pmatrix}$$

$$M(\mathbf{q}) \qquad J = \frac{\partial T}{\partial \mathbf{q}}$$

$$\mathbf{p}$$

$$\mathbf{q}$$

$$\mathbf{p}$$

$$\mathbf{q}$$

$$\mathbf{p}$$

$$\mathbf{p}$$

$$\mathbf{q}$$

$$\mathbf{p}$$

$$\mathbf{p}$$

$$\mathbf{p}$$

$$\mathbf{q}$$

$$\mathbf{p}$$

$$\mathbf{p}$$