

$$\begin{array}{ccc}
 T_p \mathcal{M} & \xrightarrow{h_*} & T_{h(p)} \mathcal{N} \\
 \ell_p^\phi \downarrow & & \downarrow \ell_{h(p)}^\psi \\
 \mathbb{R}^m & \longrightarrow & \mathbb{R}^n
 \end{array}$$