

$$\Omega = \begin{bmatrix} e_1 & e_2 \end{bmatrix} \begin{bmatrix} k_1 & 0 \\ 0 & k_2 \end{bmatrix} \begin{bmatrix} e_1^T \\ e_2^T \end{bmatrix}$$

where

$k_1 \in \mathbb{R}$  control the desired kernel variance in either edge or orthogonal direction

$k_2 \in \mathbb{R}$  control the desired kernel variance in either edge or orthogonal direction

$e_1 \in \mathbb{R}^3$  orthogonal direction vectors

$e_2 \in \mathbb{R}^3$  orthogonal direction vectors