$$\Omega = \begin{bmatrix} e\_1 & e\_2 \end{bmatrix} \begin{bmatrix} k\_1 & 0 \\ 0 & k\_2 \end{bmatrix} \begin{bmatrix} e\_1^T \\ e\_2^T \end{bmatrix}$$

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