

from trigonometry import atan2

$$\mathbf{a} = v_i - p$$

$$\mathbf{b} = v_j - p$$

$$\mathbf{c} = v_k - p$$

$$a = \|\mathbf{a}\|_2$$

$$b = \|\mathbf{b}\|_2$$

$$c = \|\mathbf{c}\|_2$$

$$\frac{\text{atan2}(\left| \begin{bmatrix} \mathbf{a} & \mathbf{b} & \mathbf{c} \end{bmatrix} \right|, (abc + (\mathbf{a} \cdot \mathbf{b})c + (\mathbf{b} \cdot \mathbf{c})a + (\mathbf{c} \cdot \mathbf{a})b))}{2\pi}$$

where

$$v_i \in \mathbb{R}^3$$

$$v_j \in \mathbb{R}^3$$

$$v_k \in \mathbb{R}^3$$

$$p \in \mathbb{R}^3$$