

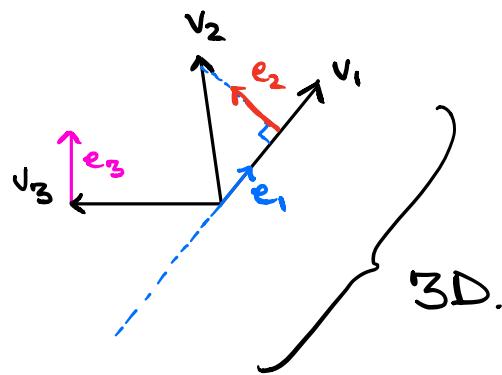
You can convert a set of vectors to an orthonormal set by the Gram-Schmidt Process.

$$V = \{v_1, v_2, \dots, v_n\}$$

$$u_1 = v_1 \quad e_1 = \frac{u_1}{\|u_1\|}$$

$$u_2 = v_2 - \frac{v_2 \cdot e_1}{\|e_1\|} e_1 \quad e_2 = \frac{u_2}{\|u_2\|}$$

$$u_3 = v_3 - \frac{v_3 \cdot e_1}{\|e_1\|} e_1 - \frac{v_3 \cdot e_2}{\|e_2\|} e_2 \quad e_3 = \frac{u_3}{\|u_3\|}$$



Basically project and remove the components of the remaining vectors which are yet orthogonal.