

Step 03:

$$V_3 = U_3 - \text{Proj}_{W_2} U_3$$

$$V_3 = U_3 - \frac{\langle U_3, v_1 \rangle}{\|v_1\|^2} v_1 - \frac{\langle U_3, v_2 \rangle}{\|v_2\|^2} v_2$$

Step 04:

$$V_4 = U_4 - \text{Proj}_{W_3} U_4$$

$$V_4 = U_4 - \frac{\langle U_4, v_1 \rangle}{\|v_1\|^2} v_1 - \frac{\langle U_4, v_2 \rangle}{\|v_2\|^2} v_2 - \frac{\langle U_4, v_3 \rangle}{\|v_3\|^2} v_3$$

