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Sell state of the sell state o

$$S = A^T A = \begin{bmatrix} 2 & 0 \\ 3 & 2 \\ 0 & 2 \end{bmatrix}$$

Eigenvalus 4,7

$$= \frac{\lambda^2 - 17\lambda + 16}{\lambda^2 + 16}$$

$$= (\lambda - 16) (\lambda - 1)$$

$$(\lambda-16)(\lambda-1)=0$$

$$61 = 4$$
 $62 = 1$ 
 $5 = 5407$ 

eigenverbrs

$$V_2 \cdot \begin{bmatrix} -2 \\ 1 \end{bmatrix}$$

Nomelise

$$V_1 = \begin{pmatrix} \gamma_1 \\ \gamma_2 \end{pmatrix} = \begin{pmatrix} \gamma_2 \\ 1 \end{pmatrix} = V_1$$

$$V_{2^{2}}\left(\frac{\alpha_{1}}{\alpha_{2}}\right)\cdot\left(\frac{-2}{1}\right)=V_{2}^{1}$$

$$=\sqrt{\binom{1}{2}\binom{1}{2}}=\frac{\sqrt{5}}{2}$$

1+7

$$||V_2|| = |V_2|V_2|$$

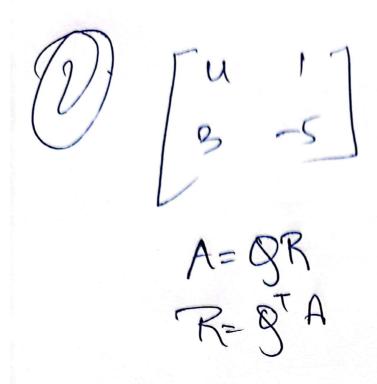
$$= |V_2| |V_2|$$

$$|V_2|| = |V_2| |V_2|$$

12 2 62 AV2 = 1 [2 3 [-2]  $\sqrt{\frac{1}{2}} = \begin{bmatrix} -1\\2 \end{bmatrix}$ [(U,1) = (V,, U,) - / /2 //2 U/1 = 5 J2 = \(\v\_2, \v\_2\)

Scanned with CamScanner

-5  $\begin{pmatrix} u & 0 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} \frac{1}{2} \\ -2 \end{pmatrix}$ VEVT= JO 



$$(-2,3,1), (-1,2,0), (-1,4,2)$$

$$(00) = \frac{V \cdot V}{|V|}$$

$$(-1,2,0)$$

$$(-1,4,62)$$

$$= (-1,2,0) - (-1,4,2) (-1,4,2)$$

$$(-1,4,2) (-1,4,2)$$

$$= (-1,2,0) - (1,8,0) (-1,4,2)$$

$$(-1,16,4) (-1,4,2)$$

$$= (-1,2,0) - (-1,2,0) (-1,4,2)$$

$$(-1,2,0) - (-1,8,0)$$

$$= (0,-6,0)$$

$$= (0,-6,0)$$

$$= (-2,-3,1) (0,-6,0) (0,-6,0)$$

$$= (-2,-3,1) (0,-6,0) (0,-6,0)$$