Product Matrices

$$A^* A = (V \Sigma^T \underbrace{U^*)(U} \Sigma V^*)$$

I_m

$$= V \Sigma^T I_m \Sigma V^*$$

$$= V \Sigma^T \Sigma V^*$$

$I_{n,\rho}$

$$= [V_R][S^2][V_R^*]$$

hyperbrink

Σ	$\Sigma^\dagger$	Σ	$\Sigma^\dagger$
full rank	(S)	(S^{-1})	
overdet	$\begin{pmatrix} S \\ 0 \end{pmatrix}$	$(S^{-1}\,0)$	

$$\begin{bmatrix} S^2 & 0 \\ 0 & 0 \end{bmatrix} \quad (n-\rho)\times(\rho)$$

Sigma matrix; sabot

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(S) (S^{-1})

$\Sigma^\dagger$ is a pseudomatrix

example

$$\frac{\Sigma \qquad \Sigma^\dagger}{\begin{pmatrix} S \\ 0 \end{pmatrix} \quad (S^{-1}\,|\,0)}$$

$$\Sigma^\dagger = \left(\begin{array}{c|c} S^{-1} & 0 \\ \hline 0 & 0 \end{array}\right)$$

$(S\,|\,0)$ ~~[illegible]~~ $\begin{pmatrix} S^{-1} \\ 0 \end{pmatrix}$

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$$\begin{pmatrix} S & 0 \\ 0 & 0 \end{pmatrix} \quad \left(\begin{array}{c|c} S^{-1} & 0 \\ \hline 0 & 0 \end{array}\right)$$