

$$A_{m \times n}$$

=

$$U_{m \times m}$$

$$\begin{matrix} \sigma_1 & & & \\ & \sigma_2 & & \\ & & \sigma_3 & \\ & & & \ddots \\ & & & & \sigma_r \end{matrix}$$

$$\Sigma_{m \times n}$$

$$V_{n \times n}^*$$