

SVD and the Generalized Inverse



The singular value decomposition of the generalized inverse X is

$$X = M^\dagger = V \Sigma^\dagger U^T,$$

where the symbol \dagger means generalized or pseudoinverse and the generalized inverse of Σ is given by the diagonal $n \times m$ matrix of the inverses of all the nonzero singular values σ_i , while the remaining diagonal entries are zero.