

Due date 21 Dec 2011 16:00 pm.

1. Given a square, symmetric, and invertible matrix $B \in \mathbb{R}^{(n+1) \times (n+1)}$ that can be partitioned as

$$B = \begin{bmatrix} A & v \\ v^T & \sigma \end{bmatrix}$$

express the inverse of the matrix B in terms of the inverse of the matrix $A \in \mathbb{R}^{n \times n}$.

2. Prove a Lemma on the Lecture 2 slide page 39 in details.
3. Explain how the SVD can be used to compute the inverse of a nonsingular matrix.