$A = I - 2uu^T$

$A^T A = (I - 2uu^T)^T (I - 2uu^T)$

$I^T = I$

$A^T A$

$= (I - 2uu^T)(I - 2uu^T)$

$= I - 4uu^T + 4uu^T uu^T$

$= I - 4uu^T + 4u(u^T u)u^T$

$= I - 4uu^T + 4uu^T$

$= I$

$Thus, A = I - 2uu^T \; is \; orthogonal.$