COT 4501 Homework 4, Fall 2009

Assigned Thurs Sept 24, Due Thurs Oct 1

See the HW Policy at: http://www.cise.ufl.edu/∼davis/cot4501

Review problems: R2.74 and R2.75

Exercises: E2.35 and E2.37 (hint: use the definition that A is positive definite if $x^T Ax > 0$ for any nonzero vector x).

Computer problems: Starting with the 2-by-2 block matrix B given in E2.37, derive a recursive Cholesky factorization algorithm. No `for` or `while` loops. Implement the algorithm in MATLAB, and test it (either compare your result with the MATLAB `chol` statement, or check the norm of $A - LL^T$). An n-by-n test matrix can be constructed in MATLAB via:

```
A = rand (n) ;
A = A'*A ;
```

Refer to my lecture notes for details.