

## Blog Entry © Tuesday, January 21, 2025, Rare Snow Day, by James Pate Williams, Jr. Gauss-Seidel Method and Successive Overrelaxation (SOR) Method for Solving Systems of Linear Equations

CPPLinearAlgebraIM

File Help

n (3 or 4):

Max Its:

Tolerance:

Prob (1 - 4):

**Gauss-Seidel**

**Solution Vector x**

0.3636363295    0.4545454322    0.4545454455    0.3636363614

X - Norm - 2 = 0.0000002136

b - Norm - 2 = 0.0000001236

Iterations = 10

Runtime = 73 Microseconds

**SuccessiveOverrelaxation**

**Solution Vector x**

0.3636360805    0.4545454582    0.4545455049    0.3636362690

X - Norm - 2 = 0.0000007258

b - Norm - 2 = 0.0000012735

Iterations = 29

Runtime = 36 Microseconds

CPPLinearAlgebraIM

File Help

n (3 or 4):

Max Its:

Tolerance:

Prob (1 - 4):

**Gauss-Seidel**

**Solution Vector x**

0.1861198471    0.3312302634    -0.4227129385

X - Norm - 2 = 0.0000004630

b - Norm - 2 = 0.0000001526

Iterations = 9

Runtime = 19 Microseconds

**SuccessiveOverrelaxation**

**Solution Vector x**

0.1861198327    0.3312301921    -0.4227129623

X - Norm - 2 = 0.0000005490

b - Norm - 2 = 0.0000007683

Iterations = 16

Runtime = 14 Microseconds

See source code for the two systems of linear equations or the textbook and web location mentioned in the C/C++ Win32 source code.