

# CS 5220 Homework 3 Initial Report - Group 12

Amiraj Dhawan (ad867) Weici Hu (wh343)  
Sijia Ma (sm2462)

November 10, 2015

## 1 Profiling of Serial Performance

The table below summarizes the profiling result of the serial code. As expected, function square takes up the most of the run-time.

function	CPU time(s)
square_step	27.519
fletcher16	0.020
__intel_sse3_rep_memcpy	0.01
gen_graph	0.01
genrand	0.01

## 2 Parallel using openMP

While the code is given by the instructor, we perform strong scaling and plot the result in figure 1.

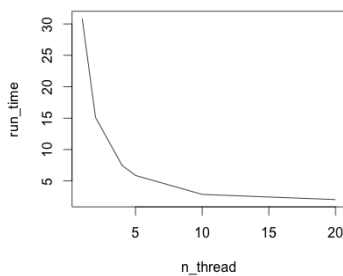


Figure 1:

### 3 Parallel using MPI

We specify thread 0 as our root which alone runs all the functions except the `shortest_paths_mpi` and `square_stripe`. We parallel the outermost loop in `square_stripe` by distributing the work to all the non-root thread according to their thread ID.

We also run strong scaling on the mpi code. The result is summarized in figure 2

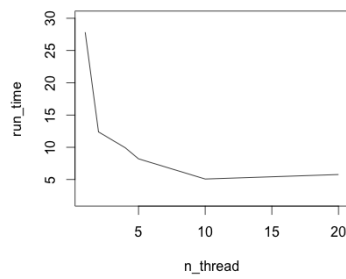


Figure 2: