

## CS594 Homework: iterative methods

In physics applications, communication is often only between neighbouring processors. However, iterative methods often require inner products and other global stages such as for the stopping test: all processors need to agree on when to stop iterating.

Your homework is to simulate a program that performs a stopping test without global communications. The structure of the program is

```
iterate indefinitely:  
  get a data item from your neighbour processors  
  perform some work  
  if every processor tests true on a stopping test,  
    stop the iterative process  
  otherwise, continue iterating
```

Write a parallel program that simulates a linear array of processors, so that each processor has two neighbours. Then implement the stopping test so that no global operations are used. Hint: there will be some wasted work.