

# Assignment 1



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## ▣ Counting Triangles in an *undirected* Graph



### ▣ To Be Delivered:

- ▣ Sequential implementation (C/C++)

- ▣ Parallel implementation

  - Multi-threaded `std::threads` or OpenMP

- ▣ Report discussing performance figures of the proposed parallel implementation

  - varying graphs (small, large, sparse, dense)

  - varying number of threads

  - max 2 pages

# Sequential Algorithm

- TRIANGLES = 0
- For-each edge  $e=(u,v)$  in the graph  $G$ :
  - TRIANGLES +=  $N(u) \cap N(v)$
- TRIANGLES /= 3

- Try your optimizations!!
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- Datasets:
  - <http://snap.stanford.edu/data/>
- One of the many advanced algorithms:
  - <http://www.cs.cmu.edu/~jshun/triangle.pdf>

# Deadline and Evaluation

- Delivery before *March 24*:
  - **+1** point if positively evaluated, **+0.5** if sufficient, re-submit if insufficient
- Or, delivery at written exam
  - +1 point if positively evaluated, +0 if sufficient, exam not passed if insufficient
- Positive Evaluation means:
  - good report, good code, good analysis