

## **COP 4520 Spring 2016**

### **Algorithm Assignments**

Please find the list of algorithm assignments.

Next to every team name, you will find a link to the primary research paper that you are supposed to study and re-implement its algorithms.

Team 1:

“The SprayList: A Scalable Relaxed Priority Queue”

URL: [http://research.microsoft.com/pubs/209108/SprayList\\_full.pdf](http://research.microsoft.com/pubs/209108/SprayList_full.pdf)

Team 2:

“The SkipTrie: Low-Depth Concurrent Search without Rebalancing”

URL: <http://groups.csail.mit.edu/tds/papers/Oshman/oshman-shavit-podc13.pdf>

Team 3:

“Scalable Producer-Consumer Queues based on Elimination-Diffraction Trees”

URL: <http://people.csail.mit.edu/shanir/publications/ED%20Tree%20EuroPar%202010.pdf>

Team 4:

“The Baskets Queue”

URL: <http://people.csail.mit.edu/shanir/publications/Baskets%20Queue.pdf>

Team 5:

“Split-Ordered Lists – Lock-free Extensible Hash Tables”

URL: [http://people.csail.mit.edu/shanir/publications/Split-Ordered\\_Lists.pdf](http://people.csail.mit.edu/shanir/publications/Split-Ordered_Lists.pdf)

Team 6:

“Scalable Synchronous Queues”

URL: [https://www.cs.rochester.edu/~scott/papers/2006\\_PPoPP\\_synch\\_queues.pdf](https://www.cs.rochester.edu/~scott/papers/2006_PPoPP_synch_queues.pdf)

Team 7:

“Non-blocking Hashtables with Open Addressing”

URL: [http://link.springer.com/chapter/10.1007%2F11561927\\_10](http://link.springer.com/chapter/10.1007%2F11561927_10)

Team 8:

“A Scalable, Correct Time-Stamped Stack”

[https://www-users.cs.york.ac.uk/~miked/publications/scalable\\_correct\\_TS\\_stack.pdf](https://www-users.cs.york.ac.uk/~miked/publications/scalable_correct_TS_stack.pdf)

Team 9:

“Fast and Scalable, Lock-free k-FIFO Queues”

[http://link.springer.com/chapter/10.1007%2F978-3-642-39958-9\\_18](http://link.springer.com/chapter/10.1007%2F978-3-642-39958-9_18)

Team 10:

“Relativistic red-black trees”

URL: <http://web.cecs.pdx.edu/~walpole/papers/ccpe2013.pdf>

Team 11:

“Efficient Lock-free Binary Search Trees”

<http://arxiv.org/pdf/1404.3272v3.pdf>

Team 12:

“Lock-free Cuckoo Hashing”

<http://www.cse.chalmers.se/~tsigas/papers/ICDCS14.pdf>

Team 13:

“A Lock-Free Algorithm for Concurrent Bags”

<http://www.cse.chalmers.se/~tsigas/papers/Lock%20Free%20Bag%20SPAA11.pdf>

Team 14:

“Self-stabilizing distributed queuing”

[http://ieeexplore.ieee.org/xpls/abs\\_all.jsp?arnumber=1642641&tag=1](http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=1642641&tag=1)

Team 15:

“Non-Blocking Doubly-Linked Lists with Good Amortized Complexity”

<http://arxiv.org/abs/1408.1935>

Team 16:

“A Heap-Based Concurrent Queue with Mutable Keys for Simpler and Faster Parallel Algorithms”

URL: <http://www.cs.technion.ac.il/~mad/publications/opodis2015-heap.pdf>

Team 17:

“Practical Concurrent Binary Search Trees via Logical Ordering”

URL: <http://www.cs.technion.ac.il/~yahave/papers/ppopp14-trees.pdf>

Team 18:

“Lock-Free Dynamically Resizable Arrays”

URL: [http://link.springer.com/chapter/10.1007%2F11945529\\_11](http://link.springer.com/chapter/10.1007%2F11945529_11)

Team 19:

“Wait-free linked-lists”

URL: <http://dl.acm.org/citation.cfm?doid=2145816.2145869>

Team 20:

“A dynamic-sized nonblocking work stealing deque”

URL: <http://link.springer.com/article/10.1007%2Fs00446-005-0144-5>

Team 21:

“A scalable lock-free stack algorithm”

URL: <http://www.cs.bgu.ac.il/~hendlerd/papers/scalable-stack.pdf>

Team 22:

“The lock-free k-LSM relaxed priority queue”

URL: <http://dl.acm.org/citation.cfm?id=2688547>

Team 23:

“A lock-free, array-based priority queue”

URL: <http://dl.acm.org/citation.cfm?id=2145876>

Team 24:

“A lock-free B+tree”

URL: <http://dl.acm.org/citation.cfm?id=2312016>

Team 25:

“A Fast Lock-Free Internal Binary Search Tree”

URL: <http://dl.acm.org/citation.cfm?id=2684472>

Team 26:

“Lock-Free Resizeable Concurrent Tries”

URL: [http://link.springer.com/chapter/10.1007/978-3-642-36036-7\\_11](http://link.springer.com/chapter/10.1007/978-3-642-36036-7_11)

Team 27:

“Concurrent Wait-Free Red Black Trees”

URL: [http://link.springer.com/chapter/10.1007/978-3-319-03089-0\\_4](http://link.springer.com/chapter/10.1007/978-3-319-03089-0_4)