



# Guy Blelloch

**Carnegie Mellon**

Friday, October 20, 2017

3:00 pm

Lindley Hall, Rm. 102

## Parallel Algorithms Come of Age

**Abstract:** With the advent of multicore processors there are almost no new computing devices, beyond perhaps the level of a toaster, that have a single processing core. Furthermore, it is easy and reasonably cheap to get machines with dozens or even hundreds of general purpose cores and these machines support algorithms that can run dozens or hundreds of times faster than their sequential counterparts. We are now at a point at which there are many elegant and simple parallel algorithms to solve a wide variety of problems, these algorithms can be theoretically analyzed using simple cost models, and the theoretically efficient algorithm often lead to practically efficient algorithms.

Furthermore there is adequate and improving programming language and library support for the algorithms. In the talk I'll overview the state of the art in parallel algorithms from the point of view of theory, programming and experimental analysis.

**Biography:** Guy Blelloch is a Professor of Computer Science, and Associate Dean of Undergraduate Programs at Carnegie Mellon University. He received a BA in Physics and BS in Engineering from Swarthmore College in 1983, and a PhD in Computer Science from MIT in 1988. His research interests are in algorithms and programming languages and how they interact, with an emphasis on parallel computation. He has developed a wide variety of parallel algorithms and techniques, formulated programming-language based cost models, worked on bounding costs in runtime scheduling and parallel garbage collection, and created the Nesl programming language. Recently he has been developing a sophomore level algorithms and data structures course at Carnegie Mellon in which parallelism is taught from the start. He is an ACM Fellow for his contributions in parallel computation, and was general chair of the ACM Symposium on Parallelism in Algorithms and Architecture (SPAA) from 2011--2015.



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