

# Computer Science Seminar

## Parallel Balanced Binary Trees Using Just Join

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10:00 - 10:50 am

209 Computer Science Building

With the evolution of hardware and growth in the volume of data, parallelism has become imperative and the key to improving performance. As such, it is of great interest to have simple and efficient parallel algorithms and data structures for programmers to easily organize and process data. My research designs such simple and efficient parallel algorithms and data structures, with provable guarantees in theory, good performance in practice, as well as simplicity in programming. In particular, this talk will introduce my work on parallel tree structures, that are highly-parallelized, safe for concurrency, theoretically work-efficient, supporting a wide range of functions and augmentations and multi-versioned. The tree structure is also implemented in a C++ library called PAM, and applied to various areas such as computational geometry and databases.

**Bio:** Yihan Sun is currently a Ph.D. student in Computer Science Department at Carnegie Mellon University, advised by Prof. Guy Blelloch. Prior to that, she received her Bachelor's degree in Computer Science from Tsinghua University, working on data mining and social network analysis. Her research interests broadly lie in the theory and practice of parallel algorithms, data structures, as well as their implementations and applications.



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