

21 LEDA: Library of Efficient Data Types and Algorithms

What is LEDA?

LEDA is a platform for combinatorial and geometric computing... It eases a programmer's life by providing powerful and easy-to-use data types and algorithms which can be used as building blocks in larger programs.

Motivation

- Much research in algorithms and data structures is practical. However, the intellectual and programming effort needed to implement an advanced data structure or algorithm is too large to be cost-effective.
- Combining implementations is difficult: “we asked two groups of students to read the chapters on priority queues and shortest path algorithms in a standard text book, respectively, and to implement the part they had read. The two parts would not fit, because the specifications were incomplete and not sufficiently abstract.
- Too much time is spent reinventing the wheel.

“We surveyed the amount of code reuse in our own small and tightly connected research group. We found several implementations of the same balanced tree data structure.”

Playing with a LEDA animation

1. Log on to one of the machines in the alamode lab.
2. Open a terminal.
3. Type: ssh alamode
4. Type: xlman
5. You'll get a small window with menu options.
6. Choose Run. Play with the programs.

Writing your own LEDA programs

See LEDA manual in alamode lab. Also see Nick Bory's sample code for minimum spanning tree to get you started.