IC **Final Project**

CSCI 434T
Fall, 2007

Overview

For the last part of the semester, you are free to pursue a project of your own choosing. Possible topics include, but are not limited to, new language features, additional optimizations, a new back end for a different architecture, and so on. Pretty much anything related to programming languages and compilation is fair game.

The scope of this project is roughly 2–2.5 weeks, so you should focus on a non-trivial, but not enormous, project.

Here are a few projects that have come to my mind in the past few weeks:

- Add an exception handling mechanism to IC.
- Add Java-style interfaces to IC. Evaluate the performance penalties for using interface methods. Time permitting, improve their performance by extending the IC run time to include polymorphic in-line caching (from HW 6).
- Add partial redundancy elimination and loop optimizations to your optimizer, and evaluate their performance.
- Implement low-level instruction selection and register allocation for basic blocks.
- Implement a garbage collector.
- Implement Class Hierarchy Analysis and measure its performance improvement.

There are many, many other options, depending on what you'd most like to learn more about. And if you are burned out on coding, a survey of literature on an appropriate topic is also perfectly fine.

Schedule

Monday, Nov. 19: We will talk about ideas in the tutorial meetings. Please think about and discuss in your group what you might like to do. Come to the meeting with a informal proposals, and we will narrow down the focus to something of the appropriate scale. After that meeting, I'll help you gather reading material and information on your topic.

Meetings Monday, Nov. 26, and Monday, Dec. 3: We'll spend the tutorial meetings discussing the project design and implementation strategy. You should have a one page summary of the project prepared by Dec. 3, and be able to clearly articulate the goals and any code design for the project.

Monday, Dec. 10: Discuss the project, as necessary.

Thursday or Friday, Dec. 13/14: Project presentations.