

Undergraduate Summer Research Grant Program 2005
Research Plan
Due: June 13, 2005

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Work Sched.:	M-F 9am - 6pm	Lab Location:	Parasol Lab, Room #407

Research Goals:

The Standard Template Adaptive Parallel Library (STAPL) is a parallel library designed as a superset of the ANSI C++ Standard Template Library (STL). STL provides users with a collection of containers, algorithms and a mechanism to abstract data access - iterators. In a similar manner, STAPL provides users with parallel containers, parallel algorithms and parallel ranges.

My research will be focused on designing and implementing a set of parallel algorithms related to sort operation. The goal is to design the most appropriate algorithms for STAPL parallel library that will provide good efficiency without sacrificing genericity and portability.

Tasks:

First assignment is to design a parallel `nth_element` algorithm (selection problem). For this I will start by designing several generic sequential implementations in order to gain an understanding of how the algorithm works. The next stage is to choose the best sequential implementation and to design a parallel implementation based on that.

Future assignments will involve designing parallel implementations for the following algorithms: merge, inplace merge, and stable sort.

I will also participate in project group meetings, which include design discussions, presentations, and paper reviews.

Deliverables:

Sequential implementations of `nth_element` algorithm.
Parallel implementation of `nth_element` algorithm.
Parallel implementation of stable sort algorithm.
Poster.
Report.

Dates:

06/17/05
06/30/05
07/15/05
07/25/05
08/01/05

Signatures:

Student Researcher

Date

Faculty Mentor

Date