COL380 Assignment 1
A Study on Parallelizing LU Decomposition

Tejas Anand

Indian Institute of Technology, Delhi

May 28, 2024

Presentation Overview

About me

- ▶ JEE Advanced 2021 AIR 119
- ▶ Incoming 4th year CS Student (Integrated Dual Degree) at IIT Delhi
- ▶ Previously worked as a research intern at the Algorithms, Biology Structure Lab at INRIA, Cote d'Azur, Nice France.
- ▶ Working with Professor Kohei Suenaga and Atsushi Igarashi on extending approximation algorithms for model counting to integers and lists.
- ▶ Hobbies include playing the piano, table tennis and relaxing.

Research Topic at Kyoto University

▶ Model counting is the problem of counting the number of solutions to a given set of constraints.

▶ For instance, we might want to count the number of equivalence classes of the given relation

$$x \sim y \Leftrightarrow x \equiv y \equiv 0 \mod 8 \tag{1}$$

▶ Recently, a scalable algorithm for model counting over boolean constraints was propsed by Meel et al.

▶ We want to generalize this algorithm to simple arithmetic constraints like modulo, addition, subtraction, etc. over integers (finite fields like Z_n) and lists, using SMT solvers (SAT modulo theory) like Z3.

▶ Applications include approximating the information lost as entropy by a given computer programme.

Essential things at Kyoto University for research