

Genetic Algorithm for Multiprocessor Scheduling

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Project Proposal: Genetic Algorithm for Multiprocessor Scheduling

We propose to implement the Genetic Algorithm for scheduling in multiprocessors discussed in “A genetic algorithm for multiprocessor scheduling”[1]

Problem Statement as mentioned in paper :

The problem of multiprocessor scheduling can be stated as finding a schedule for a general task graph to be executed on a multiprocessor system so that the schedule length can be minimized. The genetic operator proposed is based on the precedence relations between the tasks in the task graph.

Team Members:

Akshay Kumar Dixit: 2020CSM1003

Anamika: 2020CSM1004

Work Plan:

1. Thorough reading of the paper to understand the algorithm.
2. Generating the dataset for implementation.
3. Implementing the algorithm using python 3.4.6
 - (a) Implementing modules of genetic algorithm (population generation,mutation and crossover)
 - (b) Creating modules for generating clusters, finding schedules and generating them.
4. Running implemented algorithm on the dataset generated.
5. Creating the final implementation report in a tabular form.

Work Distribution:

1. Reading of paper by both and paper discussion on google meet.
2. Generating Dataset : Akshay
3. Generating Algorithm modules:
 - (a) Mutation and Crossover: Anamika
 - (b) Finding and generating schedule: Both
4. Running and testing : Anamika
5. Creating report: Akshay

References

- [1] E. S. H. Hou, N. Ansari, and Hong Ren. A genetic algorithm for multiprocessor scheduling. *IEEE Transactions on Parallel and Distributed Systems*, 5(2):113–120, 1994. doi: 10.1109/71.265940.