Recent informatics such as large scale data analysis needs efficient computation. The developments in theoretical computer science give much advance in this task. These divisions and subsets include analysis of algorithms and formal semantics of programming languages. In order to deal with large scale data analysis, we need some mathematical tools from Discrete Mathematics.

Theoretical Computer Science is one of the most vibrant and active areas of scientific study today. Starting half a century ago, even before computers existed, theoretical computer scientists set out to define mathematically the concept of “computation”, and to study its power and limits. It is a division or subset of general computer science and mathematics which focuses on more abstract or mathematical aspects of computing. These divisions and subsets include analysis of algorithms and formal semantics of programming languages.

Discrete mathematics is the study of mathematical structures that are fundamentally discrete rather than continuous. In contrast to real numbers that have the property of varying “smoothly”, the objects studied in discrete mathematics such as integers and graphs do not vary smoothly in this way, but have distinct, separated values. It has been characterized as the branch of mathematics.

Dealing with discrete objects, questions from theoretical computer science inspired much interest in the combinatorics community, and for many of its leaders became a primary scientific goal. A typical goal is the P versus NP problem, which characterizes difficulties of various problems, and much research has been devoted to analyze complexities of the problems. This collaboration has been extremely beneficial to both the discrete math and theoretical computer science communities, with wealthy exchange of ideas, problems and techniques.

The aim of this special issue is to provide a forum for presenting current research and discussing future research directions in Theoretical Computer Science and Discrete Mathematics for developing academically challenging.

In response to Call For Papers for this special issue, we have received 9 papers, and we have accepted 6 papers out of them. The decisions on selecting papers are based on originality, technical contribution, practical contribution and relevance. In addition to the editors, at least two referees are assigned to each submitted paper. The submissions are thus formally refereed, and they are expected to be in the final format, and will not be published elsewhere.

Let us mention topics in this special issue. They include
1. Sorting algorithm.
2. Well quasi-orderings and better quasi-orderings.
3. Entropy estimation with suffix arrays.
5. Dynamic programming algorithm.
6. Minor and Immersion.

All the topics mentioned above are very relevant to Discrete Mathematics and Theoretical Computer Science.

We would like to thank all the authors who submitted papers for consideration. We also express our thanks to all the referees who dedicated to a significant amount of time and helped to improve the quality of the papers. Finally, we thank the stuff of the journal office, in particular, Ms Ayumi Shimizu, for their support throughout the editorial process.
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