

DM19 – Algorithms and Complexity – E04 – Lecture 8

Announcement

There will be a Computer Science and Industrial Applications Colloquium on “Protection of communication-networks using P-cycles”, by Tommy Thomadsen, from DTU, on Wednesday, November 10, at 14:15, in IMADA’s seminar room. Two days later there will be a colloquium on some problems in combinatorial optimization, entitled “Three problems and one theorem”, by Gerhard Woeginger from the Technical University – Eindhoven, on Friday, November 12, at 9:15 in U51. More information about these colloquia is available at http://www.imada.sdu.dk/Events/CS_Colloquia/schedule.html.

Lecture, October 25

Lecture was cancelled due to illness.

Lecture, November 1

We will finish with Huffman codes. Then, we will begin on NP-completeness from chapter 34 in the textbook and the section by Papadimitriou and Steiglitz from the first set of notes. This will include a brief introduction to undecidability. For more details on undecidability, see chapter 5 of the textbook by Lewis and Papadimitriou, which is on reserve for DM17 in the library.

Lecture, November 8

We will continue with NP-completeness from chapter 34 in the textbook and the section by Papadimitriou and Steiglitz from the first set of notes.

Problems to be discussed November 4 and 5

1. 16.3-7.
2. 34.1-3, 34.1-5.
3. Suppose that there is a language L for which there is an algorithm that accepts any string $x \in L$ in polynomial time and rejects any $x \notin L$, but this algorithm runs in super-polynomial (more than polynomial) time if $x \notin L$. Argue that L can be decided in polynomial time.
4. Define an algorithm to show that SATISFIABILITY is in NP.
5. 34.2-3, 34.2-5, 34.2-8, 34.2-10.
6. 34.3-2, 34.3-6.