The Moving Frontier Questionnaire

response by

Jan Węglarz

Institute of Computing Science
Technical University of Poznań
Piotrowo 3a
60–965 Poznań
Poland

1. What kind of problems are you currently working on ?

Currently I am working on the following problems:

- mixed scheduling problems, i.e. problems of simultaneous allocation of resources of different categories, especially discrete (i.e. discretely-divisible) and continuous (i.e. continuously divisibles),
- problems of scheduling in flexible manufacturing systems, especially simultaneous job and vehicle scheduling,
- problems of scheduling multiprocessor tasks, i.e. tasks requiring more than one machine at a time,
- decision support systems (DSS) and expert systems (ES) for multiobjective project/machine scheduling.

2. What problems do you think are the most important to solve in your domain in the nearest future ?

Besides the problems mentioned above there are many problems which are important to solve in the area of (broadly understood) scheduling and DSS/ES. In particular, there are many classical machine scheduling problems for which the computational complexity question remains open, e.g. the famous problem of scheduling preemptible tasks on 3 machines under arbitrary precedence constraints to minimize schedule length. There are also many important problems of scheduling in distributed computer systems. In the area of DSS/ES the most important problem which still needs serious efforts concerns the so called preference (in particular, value) driven ES in which, shortly speaking, users can define explicitly their preferences in relation to many conflicting objectives.

3. Which of the recent applications of scientific results from your domain do you consider as most interesting ?

Scientific results from scheduling theory have been applied widely in a number of real–world situations arising in production, project and computer environment. Recently, very interesting applications concern flexible manufacturing systems.

4. To what extent is availability of definite computer hardware influencing your scientific work ?

Computers obviously facilitate my scientific work in a technical sense but they do not influence its intellectual part.