

Control and Cybernetics

VOL. 20 (1991) No. 4

The Moving Frontier Questionnaire

response by

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

I am currently working on applied mathematical cryptography, social choice and game theory. The applications range from voting procedures to bargaining and negotiation methods.

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

One of the most important problems is the design of a cryptographic method for conducting multi-object, multi-actor auctions so that minimal information about individual bids and selling prices would become public. Of course, the method should satisfy the normal optimality requirements.

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

I would like to mention two sets of results:

- (i) one stemming from modern mathematical cryptography and, more specifically, results based on the idea of public-key cryptosystems, and
- (ii) results based on rough sets theory.

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

Rather little. In some of my work I resort to large-scale simulations (of electorates) and in that work I am, of course, dependent on the availability of a main-frame computer and – to a limited extent – on a supercomputer. But the bulk of my work is independent of hardware.