

# **1<sup>st</sup> Workshop on Computer Science Competitions Reform**

## **Visualization, Antagonism and Opening**

### **— Towards the Future of the IOI Contest**

#### **Scientific Committee and Competition Committee of Chinese National Olympiad in Informatics, Beijing, China**

**Abstract:** Some concrete proposals and basic ideas for the IOI contest reform are discussed. They include how to make the IOI contest more visible, more antagonistic and more open, in order to attract more people.

After 17 years, the IOI has made good achievements: About 300 students from over 70 countries around the world gather together every year. More and more people are involved in the IOI activities in many countries. News on IOI appears on the press, radio and TV occasionally. However, compared with the development of the Information Technology, the achievements made by the IOI is not remarkable enough. The IT influences our life today and the future of our society. The Olympiad in Informatics should attract more attention from the society, influence more people, especially the young students. The IOI should help more students to be prepared for contracting to future of our world. To this end, the competition of the IOI should be more visible, more antagonistic, and more open, so that they are more attractive to the society, especially to the youth.

#### **1. Making the Competition More Visible**

In order to make it more attractive, the competition should be more visible so that it can be directly perceived by not only the contestants, but also the general audience. The visualization should include following aspects, i.e., the task, the result, the evaluation procedure, the competition procedure, and the supporting system.

(1) Most of the tasks should contain or reflect not only the content of algorithm design and analysis, the skill and art of computer programming, but also the visible features. The tasks and output results should be convenient to represent and evaluate by the way of some kind of curve, graphs or figures, tables, or animation.

(2) The evaluation procedure should be modified so that some or all tasks can be submitted and tested at any time during the contest. During the evaluation procedure of some tasks, it is better that some mid-results be produced with visible effects, rather than just only the final result be produced at the end of the evaluation with score forms handed to the contestants. The results should be suitable to display during the evaluation procedure, and they should be understood and admired easily by non professional audience or the common public.

(3) The corresponding platforms should be designed and developed. This includes visible interface, simulation or animation demonstration systems. These platforms should be able to meet the requirements for the visualization.

## **2. Introducing Direct Antagonism in the Competition**

Most sports are attractive because they are directly antagonistic. Most computer games are attractive because they are directly antagonistic. In order to make the IOI competition more attractive, direct antagonism needs to be introduced.

Some types of two-side antagonistic contest can be introduced in the competition tasks. The possible types include small group antagonistic competition, human-computer interaction, and so on. Some concrete examples include number guessing, treasure seeking, path finding and object tracking, etc. However, adding the antagonism doesn't mean to lead the IOI contest into a computer game playing competition. Algorithm design and programming skill will still be the core of the IOI tasks. Direct antagonism can also be introduced with the current type of the task. In this case, the competition and the evaluation form need to be modified and the supporting system needs to be developed.

## **3. Making the IOI Competition More Open**

At present, the IOI contest model is self closed. The procedure of contest is not open to the non contestants and the general public. This limits the influence of the competition and other IOI activities in a very small range, and it constrains the development of IOI. The IOI competition should be publicized by the network and the traditional media in different ways, especially the radio and the TV.

## **Some Principles in the IOI Competition Reform**

1. The IOI traditional competition model should not be changed in the near future. While we are making the IOI more attractive, it is also important to maintain the special feature and character of IOI competition. We would not hope the IOI contest to become another computer game playing contest or a variant of Robocup-alike competition.
2. The new ideas can be introduced only after they are fully considered, tested and evaluated. We are not in a hurry.
3. People should be encouraged to develop and test their new ideas, competition models and systems in their national competitions first. The IOI adopts the new ideas and models in proper time when people have enough experiences with these models and ideas in the national competitions.

## **Reference**

1. Summary of Chinese NOI development forum, Oct. 22-23, 2005, Beijing, China.
2. The Present Rules and Measures of Chinese NOI Competition, Chinese Computer Federation

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