INTERNATIONAL FEDERATION FOR HUMANITY SUPPORTED BY AUTOMATIC CONTROL

– Multimedia presentation –

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Abstract: The presentation is a multimedia program about the fundamental contributions of science and technology to the elevation of human values, the system control orchestral symphony of these high intellectual achievements. Multimedia tools, multilingual voice, still and motion pictures are coordinated in an effort to make difficult mathematical, theoretical ideas understandable and creating new contexts of those propagating a positive and convincing future perspective. The following draft is a partly completed outline and the final DVD version should be ready within the next half year. *Copyright 2005 IFAC*

Keywords: e-government, cryptography, legal aspects, social effects

1. APOCALYPTIC TRADITION

Paintings, drawings following biblical, mythological representation of human evil continued by those of Middle Ages, modern times, Orwellian visions, Holocaust, Beslan.

2. CONTRADICTORY PRESENTATIONS AND VISIONS

Contradictory presentations and visions about the menaces and futuristic blessings of technology, robots. The pictures are partly familiar representations by well known masters (e.g. Breughel, Goya, Blake, etc. and partly less known but nearly similar quality ones, for the broader audience, to create an exciting environment, e.g. predecessors like Luca Cambiaso).

3. SHORT DEMONSTRATION

Short demonstration of progress in quality of human life, thanks technology. Historical data and pictures, partly based on the lessons of the Annales school, esp. Febvre, Bloch and Braudel. The necessity and values of a cooperative, empathically cross-understanding global world. Technology connecting this world, diminishing distances and time-delays.
The presentation will be ostentiously different from advertisement-style!

4. BASIC THEORETICAL IDEAS

Basic theoretical ideas of system performance types, supporting understanding of social, economic mass phenomena. Nonlinearities, nature of static and dynamic stability, feedback mechanisms, filtering methods, chaos, linearization and other approximation methods , scale-dependent and independency, emerging structures.

The presentation is basically motion picture demonstration of these phenomena, their transition, connected with physical-biological-psychological effects (flow, turbulence, behavior of human and animal masses, trajectories, developmental schemes), referring to their mathematical symbolism (esp. role of different types of infinitesimal, approximation methods). *This is the longest chapter of the presentation.*

5. SHORT OVERVIEW

A very short overview of the most advanced technological tools, pen drives, nanoelectronics, robots, teleoperation, telecom, automatic vehicle control, different types of medical imaging, etc.) *This is a real, advertisement type chapter.*

Change to earnest style: Computational methods of three-dimensional geometrical picture restoration, Godfrey Hounsfield's and Allen McCormack's Nobel Prize example.

6. THEORETICAL AND PRACTICAL TOOLS OF E-SOCIETY

The role of number and complexity theory, earlier the most abstract, nonpractical chapters of math. Cryptography, demonstration of basic ideas and social-philosophical message of public key cryptography, theory of algorithms, role of large prime numbers, Hamilton circles, elliptic curves and other geometrical methods. The RSA algorithm and further developments, how do they work, a visual presentation of the ideas and the man-machine relations. The message: mathematics can harmonize seemingly contradictory human values: safety from malevolent human and nature related power by automatic control of activities and saving privacy, personal integrity.

Application of fundamental mathematical ideas for predictive, filtering, adaptive society and economy control: Condorcet, Pareto, Neumann-Morgenstern, Buchanan-Tullock, Nash, etc. their basic continuity in theoretical-practical ways of thinking, a search for dynamically changing equilibria, suboptima. The presentation will not be the usual enumeration of faces, catchwords but a dynamic geometrical representation of multidimensional surface-formations, search procedures. Similar representation of some basic metaphors, e.g. traveling salesman, Crusoe-Robinson, etc.

This is another long chapter.

7. THE FUNDAMENTAL HUMAN INTERFACE: NATURAL LANGUAGE

Efforts and results in natural language understanding, voice understanding, written character-recognition, support by body-language.

The presentation is a self-explanation of the whole draft's representation idea, the linguistic part should be multilingual, as far as possible, English as the current lingua-franca, German, French, Spanish, Russian, Czech and Chinese, extendible and to be extended according to time and personal, financial possibilities.

The list of references is an essential part of the multimedia concerned. For similar purpose a 75 titles list is prepared, the next version will contain much more a possibly comprehensive assembly of the following lists: preliminaries in history, literature, fine arts, philosophy, computer science, mathematic, law, sociology. List of papers referring to the current efforts in science, practice and plans. Surveys listed by countries, updated to 2005 status and open for further efforts.