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EAST - WEST CONFERENCES AS SCIENTIFIC AND INDUSTRIAL COLLABORATION STRATEGIES[#]

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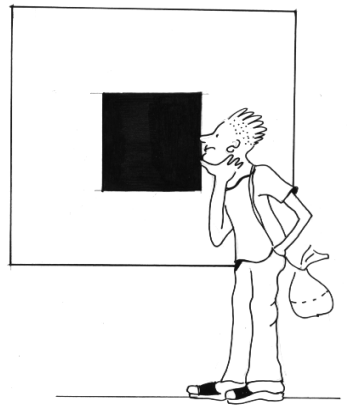
Abstract. A unique practical experience of organizing and arranging more than 10 East-West Conferences on Pattern Recognition, Image Analysis, Logic Design, Applications of Computer Systems, and Educational Problems is represented for the first time. A difference in quality estimations of West and East European reviewers is analyzed. Possible directions of collaboration are offered. A role of the International Organizations in East-West collaboration is indicated.

Key words. *East-West collaboration, pattern recognition, image analysis, logic design, biometric technologies, education*

1. INTRODUCTION



East-West collaboration by eyes of our colleague from Germany

It is widely known that fundamental technical capabilities of the scientific centres in East European countries, especially in theoretical and mathematical field, were and still remain on quite a high level. During last 6-7 years there happened many changes in these countries that had an influence on science too. It was not easy for many East European scientists to adapt to the new conditions but it seems this process (from our point of view) will be close to its end in near future.

In this paper we present one of possible ways - strategies - to East-West (E - W) collaboration via joint conferences. Our experience is based on organizing and arranging more than 10 E-W conferences during last 6 years as Chairs, Co-Chairs and members of Committees of these conferences.

Among all the organized E - W conferences with our active role we indicate the following: *Pattern Recognition & Information Analysis* - PRIA'93,'95,'97; *New Information Technologies in Education* - NITE'94,'96,'98; *Computer-Aided Design of Discrete Devices* - CAD DD'95,'97 (Belarus); *Application of Computer Systems* - ACS'94,'95,'96,'97; Workshop *Banking Information Technologies & Financial Telecommunications* - BIT & FT'96 (Poland).

[#] One of young designers *Mrs. Lidia Pottosina* (BELARUS) has especially created original ironic pictures for E-W Conferences Proceedings; she kindly allowed using them in this paper

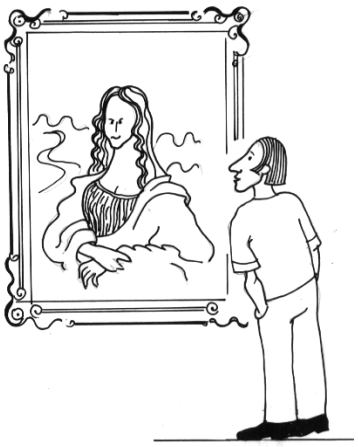
[3] Support as *James Chair Professor* from the St. Francis Xavier Univ., Dept. of Math. Comp. & Information Systems, CANADA

[4] Support from the St. Francis Xavier Univ., CANADA, is acknowledged

When organizing E - W conferences we faced with the problems connected with the unreliable performing of telecommunications (all conferences were held in Belarus and Poland), language problems, differed criteria of reviewing the papers, insufficient information about results of each other, insufficient organizing activity of East colleagues, financial problems, etc.

The unique practical experience of organizing E - W conferences can help us to better understand the current situation and to make next, more effective steps towards the scientific and industrial E - W collaboration. The indicated above is the motivation of the present paper.

2. THE FOCUSES OF THE CONFERENCES

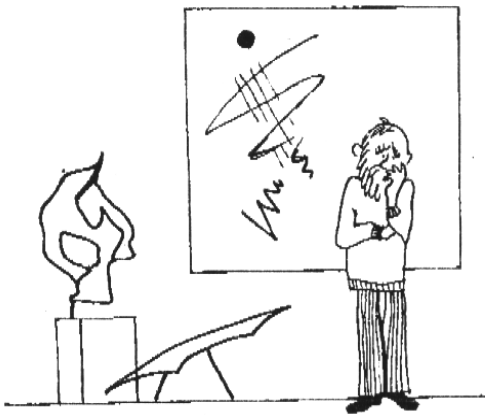


East-West collaboration by eyes of our colleague from Canada

2.1. Pattern Recognition & Image Analysis. The topics of a number of conferences on *Pattern Recognition & Information Analysis* were: pattern recognition, image processing, signal processing, modelling & visualisation, document recognition, architectures for image processing, knowledge-based decision support systems, logic recognition & logic design, applications of pattern recognition & image analysis.

The first conference on *Pattern Recognition & Information Processing* was held in 1993, and we continue this tradition for 5 years. At the 4th Int. conference on *Pattern Recognition & Information Processing* papers from about 20 countries around the world were presented. PRIP'97 attracted about 200 participants from academia, industry and government

A number of papers on the subject were prepared under the European programs, for example, TEMPUS, TACIS, INTAS, COPERNICUS.



Caricature of one of the leading specialists in Logic Design

2.2. Logic Design. Results scientific centers of the former SU in the field of Logic Design were always very strong. That is why a section on *Logic Design* was organizing at all the conferences. For example, on the Session *Logical Recognition & Logic Design* at the conference PRIP'97, the following problems were considered: inductive inference in systems of logical recognition, algorithms for minimization of weakly specified Multiple-Valued Logic (MVL) functions. Papers [3,4] can be used to obtain information in detail.

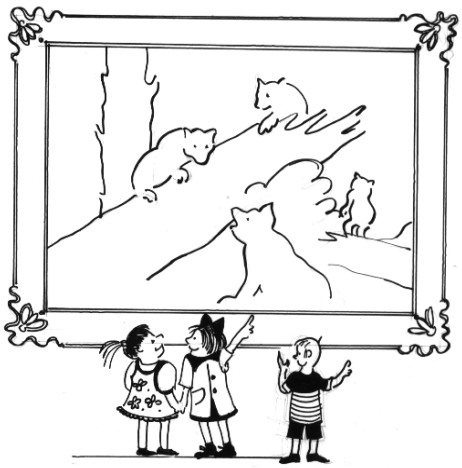
Let us give some statistical data on results of reviewing process of E - and W - papers. 36 papers on *Logic Design* were submitted to the ACS'97 conference, and 14 of them were published (Table 1). The main motivation of the negative results of reviewing can be sorted as below: (a) insufficient experimental study, (b) pure English, (c) insufficient reference information (for E-papers), (d) pure presentation. Note, that all joint E-W papers were evaluated as *strongly accepted.*

Table 1: Results of reviewing process for the session on *Logic Design*, ACS'97 conference

	E-papers	**W-papers**
Strongly accept	10 %	66 %
Strongly reject	48%	0%
Final results	*5 joint E-W papers*	
	5 W-, 4 E-papers	

The conferences CADDD'95,'97 were devoted to the problems of *Logic Design.* The main directions were: fundamental problems of CAD, problems of development of perspective element bases, generalization of experience in CAD systems elaboration using new information technologies. Special emphasis of the conferences was the initial stages of design, including logic and topological levels: *linguistic support, verification, testing, simulation, silicon compilers, CAD systems.*

2.3. Application of Computer Systems. A series of conferences on *Application of Computer Systems* is oriented towards a wide circle of participants. Let us consider, for instance, the 4th E - W conference ACS'97. The submitted papers were divided into the following Chapters: information systems, image & signal processing systems, mathematical aspects in enterprise management, modeling & simulation, logic design, control systems, neural networks & fuzzy systems, knowledge-based decision support systems.



The East-West collaboration by eyes of our colleague from France

The interest discussions, which have been transformed into a cooperation, took place in the area of *Biometrics Technologies* (BTs) (Fig.1). Nowadays term BTs means: *voice and speech recognition, dynamic signature and handwriting capture, eyes (iris and retinal) identification, hand geometry, fingerprint (palm print) identification, face recognition and keystroke dynamics.* These questions are explained in detail in [1,5-8].

For the first time we have realized the idea to combine the synergy of the W - and E - participants at the ACS'97 and PRIP'97. The idea consists in that, firstly, to support the establishing contacts and the preparing joint E - W papers using reviewing results and, secondly, to lift the quality of papers for this account. The result was that all submitted joint E - W papers were strongly recommended for publication (Table 1).

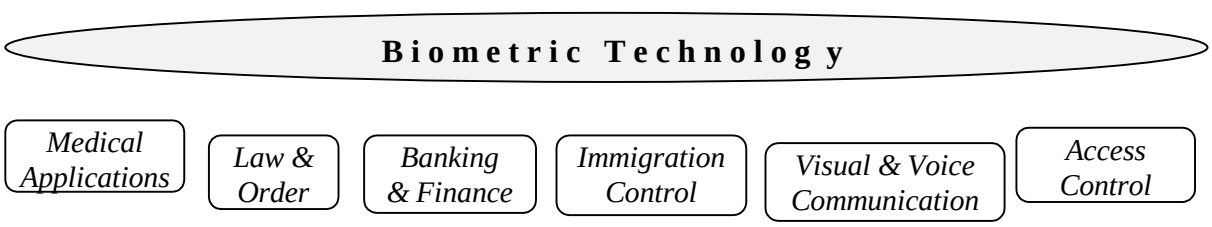


Fig.1. Applications of Biometric Technologies

3. EDUCATION

3.1. Current situation. Our estimations show that E - technical universities, especially in NIS, are facing a situation in which they are constantly losing personal and financial resources. This has a major impact on the quality of the education and the fundamental and applied research. In a broader extend it also has a negative impact on the W - enterprises, because the technical universities are currently unable to offer major support to those product – and process innovations which are necessary to catch up with their W - competitors. At this moment this support is lacking because the demand of industry often does not correlate with the scientific results.

3.2. Main principles. Many discussions on the educational problems at our conferences allow us to affirm that E - and W - universities are like each other in:

Newton apples for joint East-West teams by eyes of our colleagues from USA

(a) One of the modern principles of the advanced education is attained through *individualized and interactive teaching.* Universities conduct a wide variety of research into educational methods, and in developing courseware based on research to advance knowledge in science and culture centered around computer science and engineering.

(b) Researches in the universities are conducted through cooperative, open and international studies to produce scientific discoveries and engineering inventions jointly by faculties and the students in cooperation with international open professional communities.

(c) Positive effects will be spread to neighboring areas, creating a greater community by attracting supporting cultural, industrial and commercial sectors. Since advancing knowledge covers, in addition to scientific and engineering fields, cultural aspects, the ethical integrity of the community grows continuously.

The accelerating changes which are taking place in particular the much vaunted information superhighways with their promise of global interconnectivity, require universities to examine critically their academic operations.

Example. For instance, let us consider a features of organizing the E - W conferences on *New Information Technologies in Education* - NITE'94,'96,'98. We have followed principles of Society for Research in Higher Education (UK) to organize these E - W conferences on educational problems: there are seven teaching functions - *orienting, motivating, presenting, clarifying, confirming, consolidating, and elaborating*. An opinion on these conferences can be formed from the chapters titles of the first volume of the NITE'96 Proceedings: using IT to revolutionize education, artificial intelligence: aspects of study, modeling & simulation, IT in manufacturing, modern IT in financial systems & education, logic design: experience of study, document understanding technology in modern education, recognition and identification: aspects of study, strategies & technologies of general language teaching. The approving the education problems to industry is one of priority tasks of the East European education system [1-10].

4. REVIEWING PROCESS

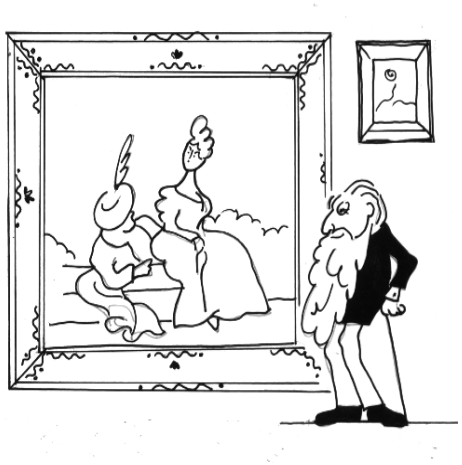
Table 2: The comparison of the results of reviewing the E- and W-papers **(%)**

Evaluation criteria for papers	**West reviewer**		**East reviewer**	
	W	**E**	**W**	**E**
Newness	26	16	32	46
Theoretical results	28	48	5	48
Practical results	39	8	47	11
Clearness	65	8	95	85
Presentation	78	4	98	70
References	95	12	21	75
Strongly accept	68	2	38	54
Strongly reject	3	85	6	28

A simple experiment allows us to understand more deeply the difference between E - and W - approaches and estimations to evaluate the submitted papers. We have chosen 46 W - papers and 46 E - papers from various directions of applied Computer Science, and a group from 18 W - and 28 E - reviewers. Note that the authors and affiliation were not hidden for the reviewers. The results of reviewing evaluated for 8 parameters, are given in Table 2. These results are essentially differ for W - and E - reviewing process. Although reviewer's

opinion are sometimes strongly different, we assume that some of the opinions should be quite similar. On our mind, the main cause is a traditional difference in the style to explain results, their presentation, insufficient information of W - and E - researchers about the results of each other. Some additional statistical results of the reviewing process is given in [2].

5. A ROLE OF THE INTERNATIONS ORGANIZATIONS



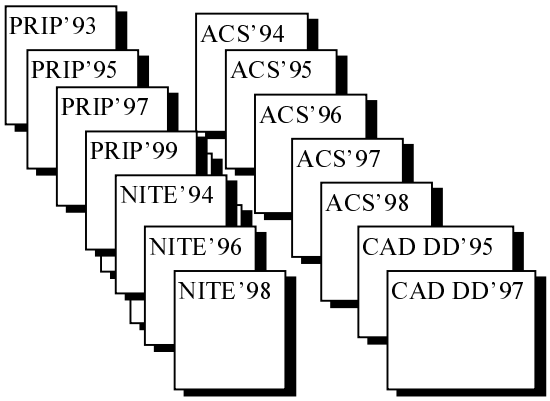
East-West collaboration by eyes of the International Organizations in our interpretation

Many international organizations support the E-W conferences. Among them: IEE - Institution of Electrical Engineers, IAPR - Int. Association of Pattern Recognition, IEEE Technical Committee on Multiple-Valued Logic, Int. Informatization Academy. For example, to organize the conferences on *Systems & Signals in Intelligent Technologies*, the great role was played by AMSE - Int. Association for Advancement of Modeling & Simulation (France), SIGEF - Int. Association for Fuzzy-Set Management & Economic (Spain), and AEDEM - European Association for Economy & Management (Spain).

Some international funds such as Fulbright Commission, Soros Scientific Fund, and also National Education Funds of Germany, UK, USA, France uses our conferences to discover more perspective young researchers and student to support their research. Generally speaking, the help of the international institutions allows us to lift the E - W conferences to new stage.

6. SUMMARY

Today in East European countries, especially in NIS there is no special mechanism for conduction of the cooperation between universities and industrial companies, including foreign companies, or in a broader sense, between science and industry in new economic situation. Old approaches to this cooperation are now completely irrelevant, as both science and industry has changed very much. However, newer approaches to it has not been developed yet. Furthermore, there is no global awareness or it least practical models for such activity as well as compete professionals able to conduct it. Therefore, use of Western knowledge and experiences could be very relevant to solve all this problems.



East-West Conferences is a strategy for better understanding East and West scientists

We explain in this paper, for the first time, our practical experience to organize and hold more than 10 E - W conferences on some areas of the applied Computer Science. About 300 organizations from 30 countries around the world have participated in these conferences.

Due to the experience of preparing and arranging these E - W conferences, we have also found a solution to overcome the language difficulties (special sessions and additional Proceedings in Russian), additional reviewing and help, especially to young researchers, etc.

We have many examples of the successful development of the contacts started owing to the

E - W conferences within the frameworks of European, American and Canadian programs.

Acknowledgments. These E - W conferences and would not have been possible without the help of many people. We would like to express our appreciation to all the contributors for their participation and co-operation. Many people spent their precious time to review papers under extremely tight time schedule. Particular thanks for supreme efforts in the organization of E - W Conferences *Prof. S. Ablameyko* and *Prof. V. Krasnoproshin* (Belarus), *Prof. J. Soldek* (Poland), *Dr R. Drechsler* (Germany). We would have a hard time without help of our old friends from UK *Eur.Eng. Phil Phillips* and *Dr. J. Miller*.

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