

# ***IFSA2005 World Congress***

**July 28-31, 2005, Beijing China**

## **Preliminary Announcement**

### **Honorary Chair**

Lotfi A. Zadeh, USA

### **General Chair**

Yingming Liu, China

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The 11<sup>th</sup> World Congress of International Fuzzy Systems Association (IFSA 2005) will be held in Beijing China, July 28-31, 2005. As a major bi-annual event of IFSA, the Congress aims at bringing together scholars and practitioners from academia and industries to present the latest development in theories and applications of fuzzy logic and soft computing. The scientific program will include keynote/plenary talks and technical parallel sessions that address important issues of interest in the fields. The Congress will serve as a platform not only for knowledge sharing, but also for stimulating new ideas in broadening and deepening theoretical and applied explorations of fuzzy logic and soft computing. Notably, IFSA2005/Beijing will take place in the year of IFSA's 20<sup>th</sup> anniversary, which may well be an event of memory and celebration in the course of its evolution.

This IFSA World Congress is to be the first-time-ever in Mainland China. China is a dynamic nation with a rapid economic growth and huge market. The conference site is Beijing, which has been the capital of China for about five hundred years, and is now one of the largest international cities in the world. Nowadays, as the cultural, educational and Hi-tech center of the nation, Beijing possesses a large number of world-class conference facilities, communication infrastructures and hotels, and has successfully hosted many important international conferences. In addition, Beijing is an ideal place for sightseeing. Its rich cultures and historical attractions such as the Great Wall, Forbidden City, Summer Palace, and Temple of Heaven will provide participants with unique experiences for social activities.

**Topics:** We solicit papers on theoretical issues and their applications related to fuzzy logic and soft computing. Suggested topics include, but are not limited to:

- ◆ Mathematical Foundations of Fuzzy Set Theory
- ◆ Fuzzy Logic and Approximate Reasoning
- ◆ Neural Networks, Genetic Algorithms and Soft Computing
- ◆ Fuzzy Control, Robots and Intelligent Techniques
- ◆ Expert Systems and Computational Intelligence
- ◆ Knowledge Discovery and Data Mining
- ◆ Rough Sets and Evidence Theory
- ◆ Uncertainty in Decision Sciences and Optimization
- ◆ Signal/Image Processing and Pattern Recognition
- ◆ Fuzzy Databases and Information Retrieval
- ◆ Hybrid Systems

### **Important dates:**

<b>Deadline for Submission:</b>	<b>October 31, 2004</b>
Notification of Acceptance:	January 20, 2005
Final Version due:	February 28, 2005
Conference:	July 28-31, 2005

Detailed information about the conference committees, paper submission, proceedings, registration, accommodation, journal special issues, student paper award, conference program, social activities, etc., will be available at the conference web site (<http://ifsa2005.em.tsinghua.edu.cn>) and in forthcoming CFPs. You may also contact us at:

### **Professor Guoqing Chen, Organizing Chair**

IFSA2005 Organizing Committee and Secretariat  
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Tsinghua University, Beijing 100084, China  
Tel./Fax: 86-10-62789925, Email: [ifsa2005@em.tsinghua.edu.cn](mailto:ifsa2005@em.tsinghua.edu.cn)

## Institutional members: SOFT

SOFT, Japan Society for Fuzzy Theory and Intelligent Informatics was established in 1989 to promote fuzzy systems theory and its applications, to promote cooperation and mutual exchange of information between researchers in fuzzy systems, to sponsor conferences, seminars and workshops, and to sponsor publications devoted to fuzzy sets and soft computing.

SOFT has approximately 1,400 members. SOFT publishes an official journal six times a year, organizes an annual domestic symposium, **Fuzzy Systems Symposium (FSS)**, and a biannual international conference, **Int'l Conf. on Soft Computing and Intelligent Systems (SCIS)**. FSS has been successful every year. FSS'03 collected 300 papers with more than 400 participants. SCIS'02 had 230 participants and 200 papers. FSS'04 will be held in Kitakyushu, Japan, on June 2-5, 2004 and SCIS'04 will be held in Yokohama, Japan, on Sept. 21-24, 2004. For more information about participation in these events, please visit our website at <http://wwwsoc.nii.ac.jp/soft/index.html>. A special workshop, **International Workshop on Fuzzy Systems & Innovational Computing 2004 (FIC2004)**, is organized jointly with FSS'04 to be held in Kitakyushu, Japan, on June 2-3, 2004.



**Prof. Toshio Fukuda**  
 President of SOFT

Eight regional branches and nine research groups (Intelligent control, Fuzzy computing, Fuzzy OR, Architecture/civil engineering applications of soft computing, Soft-science, Evaluation problem, Evolutionary computation, Human interface, Rough sets) are also working actively.

### **Incumbent directors** (as of April 2004) are:

#### **President**

Toshio Fukuda (Nagoya University)

#### **Vice President**

Takeshi Furuhashi (Nagoya University)      Toshikazu Tobi (Dai-dan Co., Ltd.)

#### **Directors**

Masafumi Hagiwara (Keio University)      Yasuhisa Hasegawa (University of Tsukuba)

Hisao Ishibuchi (Osaka Prefecture Univ.)      Toshihiro Kaino (Aoyama Gakuin Univ.)

Tetsuo Sawaragi (Kyoto University)      Takashi Washio (Osaka University)

#### **Auditors**

Kohichi Yamada (Nagaoka Univ. of Tech.)      Takanori Shibata (AIST)

### **Brief History of SOFT:**

1972	Establish Fuzzy Systems Engineering Research Association (President: Yoshiro Terano, Prof. of Tokyo Institute of Technology)
1980	Establish Fuzzy Science Research Association (President: Koukichi Tanaka, Prof. of University of Osaka)
1985	First Fuzzy Systems Symposium (University of Kyoto, Japan)
1988	International Workshop on application of Fuzzy Systems (IIZUKA'88) (Kyushu Institute of Tech., Japan)
1989	Establish SOFT Publish first edition of Journal of Japan Society for Fuzzy Theory and Systems Establish International Fuzzy Engineering Research Institute (Chief: Yoshiro Terano, Prof. of Hosei Univ.)
1991	International Fuzzy Engineering Symposium (IFES'91) (Yokohama, Japan)
2000	Fourth Asian Fuzzy Systems Symposium (Tsukuba, Japan)
2002	First Int'l Conf. on Soft Computing and Intelligent Systems (SCIS'02) (Tsukuba, Japan)

## Member's Lab: I.B.Türkşen

### Knowledge Intelligence Systems, KIS, Laboratory

Department of Mechanical and Industrial Engineering  
IIC – Information Intelligence Co. – Innovation Foundation  
University of Toronto, Toronto, Ont., M5S 3G8, Canada  
<http://www.mie.utoronto.ca/labs/fuzzy/>



Prof. I.B.Türkşen

KIS-Laboratory was established in 1987 to conduct basic and applied research on Fuzzy Sets and Logic. In 2001, IIC - a University of Toronto Innovation Foundation start up company, was registered as a legal entity. In the last four years, we have conducted both basic and applied research in the KIS laboratory and have been involved in technology transfer to IIC.

In the KIS Laboratory, a basic research area is the **currency crises and risk management**. This is currently in its preliminary development stage. Other KIS Laboratory research is actively directed towards two main areas: (1) **Nuclear Medicine** in cooperation with Sunny Brook Hospital and (2) **Internet Service Provision** in cooperation with Nortel Network. In nuclear medicine, fuzzy clustering, fuzzy rule based systems, and fuzzy regression research methodologies are applied in the determination of cancer cell size and volume. These techniques use information obtained from fuzzy data mining of image data obtained from PET, Position Emission Tomography, and CT, Computerized Tomography, together with assessments of Belief measures obtained from oncologists. In internet service provisioning, fuzzy reinforcement learning methodologies are applied to the areas of bandwidth allocation and traffic routing.

IIC applied research is directed towards two main areas: (1) CRM – **Customer Relationship Management** in Cooperation with Toronto Dominion Bank, and (2) **De-Sulfurization of steel** in cooperation with Dofasco. In CRM, we have implemented an “income prediction” model and a “size of wallet” (size of wealth) model. These are two real life models that process thousands of records with about 200 variables. Currently, the bank is effectively implementing our model in their day to day operations. In De-Sulfurization, we have determined the optimal use of reagents that produce steel for given “aim” levels. In both of these real-life models, we have shown that fuzzy system methodology produces much better results in predicting the outcome of a performance measure. Generally, improvements obtained by fuzzy methodology are 10% or better in comparison to other methodologies such as classical regressions; neural networks, decision trees, etc., when the measures of comparison are RMSE or  $R^2$  as well as accuracy and power of prediction.

The personnel who are working on these basic and applied research topics are:

Ibrahim Ozkan, Ph.D.: Senior Researcher, System Analyst

Emel Hacimenni, Ph.D.: Research Fellow

M.Cagdas Arslan: Ph.D. Candidate

John Viola: Ph.D. Candidate

Asli Celikyilmaz: MASc Student

Adwait Kulkarni: MASc Student

Edwin Chung: MASc Student

who are under the supervision of

**I.B.Türkşen**, Ph.D., Prof. Emeritus,

IFSA-Fellow'2003, IEEE-Fellow'2004,

Director, KIS Laboratory

President, IIC.

## On Professor Jerzy Albrycht and his contribution to the development of researches in fuzzy set theory – A note on the occasion of his 80<sup>th</sup> birthday

February 12, 2004 was the day of the 80<sup>th</sup> anniversary of the birth of Professor Jerzy Albrycht, a mathematician, academic, scholar, and initiator, organizer and promoter of mathematical research in the field of fuzzy sets in Poland. His friendliness and the strong support he gave to both Polish and foreign researchers in the 1980's were extremely valuable and needed at that early stage of the development of the field.

Jerzy Albrycht was born in 1924 in Lvov and lived there until 1944. In the 1930's, Lvov was one of the leading mathematical centers in the world. During the German occupation, he worked in the *Institut für Fleckfieber und Virus-Forschung* managed by Prof. R. Weigl, the inventor of a typhus vaccine. He also attended lectures in mathematics at the underground Polish University in Lvov.

Jerzy Albrycht's life and work after the Second World War are connected with Poznań and its academic centers. He studied mathematics and physics at Adam Mickiewicz University, called University of Poznań at that time, receiving MSc degrees in Mathematics (1949) and Physics (1952). In 1946, as a young student, he began his scientific and teaching activities at Adam Mickiewicz University. For twelve years, until habilitation and receiving the Docent degree in Mathematics in 1964, he was also in the Mathematical Institute, Polish Academy of Sciences. He received the PhD degree in Mathematics in 1959 at the Mathematical Institute as a student of Professor W. Orlicz. In 1981, Professor Albrycht left the Institute of Mathematics at Adam Mickiewicz University, where he was the initiator, organizer, and the head of its Department of Numerical Methods. Until retirement in 1990, Prof. Albrycht was a member of the faculty at the Institute of Mathematics, Technical University of Poznań and he chaired the Department of Mathematics, Academy of Economics in Poznań.

Professor Albrycht's research results, published in over 40 papers, focused on functional analysis, discrete mechanics, numerical analysis, and fuzzy set theory. Within the research in fuzzy sets, done in collaboration with M. Małłoka, he constructed and developed a theory of fuzzy multi-functions. Making use of that theory, he dealt with pioneering applications of fuzzy sets to economic models. Under his supervision, 21 PhD dissertations in Mathematics were prepared, including four devoted to fuzzy set theory. In addition, he reviewed a number of PhD theses and habilitation theses on fuzzy sets.

At the beginning of the 1980's, Professor Albrycht brought together and organized a group of about 15 young mathematicians from different academic centers of Poznań. Under his guidance, that group began a scientific adventure with fuzzy sets. Its regular working meetings, with all presentations and discussions in English, were called *Seminars on Fuzzy and Interval Mathematics* as a few participants dealt with interval analysis. At that time, so large a research group focusing on fuzzy sets was unique. The group stopped its activity at the beginning of the 1990's. Some members of the group still carry on research in fuzzy set theory, including Professor T. Kubiak and the present author, both of whom are Professor Albrycht's former PhD students.

In the 1980's, Professor Albrycht was also a very active organizer of conferences on fuzzy sets. Besides a number of local scientific meetings, he organized three international conferences, *The Polish Symposia on Interval and Fuzzy Mathematics*, held in Poznań in 1983, 1986, and 1989. The Symposium in 1983 was the first international conference on fuzzy sets held in the then Eastern Europe.

Professor Albrycht's interests and passions have never been restricted to mathematics. Those who know him a bit closer find him to be an erudite and a true man of Renaissance: a connoisseur of classical music, fascinated by the Jewish culture, a student of contemporary physics, interested in Aramaic, etc. That *vir bonus et sapiens* is a master and mentor for many people, including the present author.

The Polish community of fuzzy set researchers owes a debt of gratitude to Professor Jerzy Albrycht. Writing this, I have every reason to believe I express a common feeling of its members, especially of those whose scientific maturation was in the 1980's and 1990's. That community sends its very best wishes and words of the greatest respect to its very special and senior member, and counts on his further friendship and support for many, many years.

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