

## EUSFLAT: European Society for Fuzzy Logic and Technology

EUSFLAT, the European Society for Fuzzy Logic and Technology, had its origin as the Spanish Society for Fuzzy Logic and Technology (ESTYLF). ESTYLF was created in 1991 and, after eight years as a national society with an important presence in IFSA, its Assembly decided to become international. As a result, the name of the association was changed and EUSFLAT was

created in 1998. The first EUSFLAT conference was held in 1999 in Mallorca, the island that 14 years earlier hosted the first IFSA conference.

EUSFLAT is a non-profit organization registered in Spain that unites European researchers whose main interests focus on Fuzzy Logic and associated technologies. Due to its origin, the geographical distribution of EUSFLAT members is still centered in Spain; slightly more than a fifty percent of the members are Spanish. However, the number of members from other countries, particularly from countries in the European Union, is increasing.

During the ESTYLF period, starting in 1991 with the first conference in Granada and ending in 1999 with the joint EUSFLAT-ESTYLF conference in Mallorca, the society organized an annual national conference in Spain. Beginning in 1999, the EUSFLAT conference has been organized every two years. The second conference was held in Leicester, England, and the third in Zittau, Germany. The Fourth EUSFLAT conference, which will be held in Barcelona in next September, is currently being organized.

The conference is one of the ways that EUSFLAT serves of our community. Two additional significant contributions of the society are our journal and our website.

Our journal "Mathware & Soft computing" was created ten years ago with Joan Jacas as the founding editor; recently, Juan Luis Castro joined him as co-editor. The journal publishes three issues per year. The publication process, including submission and reviewing, became electronic last year. At the same time, all past issues were made available in electronic format in an open way through <http://docto-si.ugr.es/Mathware/>

The website (<http://www.eusflat.org>) was conceived and is maintained by Ulrich Bodenhofer and is hosted by Software Competence Center Hagenberg. It represents an important tool for the promotion and dissemination of information ranging from administrative information on the society (bylaws, board, guidelines,...) to other useful information such as forthcoming events, recently published books, software tools, and a catalog of courses on fuzzy set theory and related topics offered in Europe. The website is continuing to evolve to serve our members. Currently it is being prepared to include a repository containing papers from past EUSFLAT conferences.

One of the keys for the promotion of research in a field is the assistance given to young researchers. With that in mind, EUSFLAT created a Student Grants Program in 2003. This program provides financial support to encourage young scientists to attend the EUSFLAT conferences. In addition, travel support may also be available for other related conferences and workshops.

The board of EUSFLAT is elected every two years at the EUSFLAT Conference. At present, the board is composed of the President (*Luis Magdalena*, Universidad Politécnic de Madrid, Spain), the Vice-President (*Rudolf Kruse*, Otto-von-Guericke-University, Magdeburg, Germany), the Secretary (*Christophe Marsala*, Université Pierre et Marie Curie, Paris, France), the Treasurer (*Vicenç Torra*, Institut d'Investigació en Intel·ligència Artificial, Bellaterra, Spain), and five other members (Ulrich Bodenhofer, Juan Luis Castro, Francisco Herrera, Bernard De Baets and Radko Mesiar).

This description of EUSFLAT provides only a brief introduction to our Society. If you would like to learn more about us just click on our website, join us at our Conference, or read our Journal. You will be surely welcome.

Luis Magdalena  
Universidad Politécnic de Madrid  
EUSFLAT President

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## Who's Who under Forty

### Social Communication for Robot Partners based on Fuzzy Computing (<http://www.eng.metro-u.ac.jp/prec/SEKKEI/index.html>)



Dr. Naoyuki Kubota

Dr. Naoyuki Kubota's main research interests are in computational intelligence, perception-based robotics, social communication, and robot partners. His research has focused on virus-evolutionary genetic algorithms, sensory networks for fuzzy controllers, multi-objective behavior coordination and modular neural networks based on perceiving-acting cycle for mobile robots, interactive evolutionary learning for a human-like partner robot, structured learning of interdependent modules for partner robots, and others. His research is based on the concepts of the computing with words, the perceiving-acting cycle, the theory of relevance, and embodiment.

Dr. Kubota proposed lifetime structured learning based on imitation to realize the interactive learning by natural communication between a human and partner robots (see Figure below). The Merleau-Ponty's embodiment includes not only the physical embodiment, but also experience. Experience suggests the importance of lifetime learning. Furthermore, imitation is a powerful tool for gestural interaction between children and for teaching behaviors to children by parents. In this research, the structured learning was applied for the imitation of human hand motion, and is composed of human hand detection by an evolutionary algorithm, spatio-temporal motion extraction by a fuzzy spiking neural network, motion clustering by a self-organizing map, and motion generation by an evolutionary algorithm with the imitation operator and softmax behavior selection. In the structured learning, the learning rate and learning direction of each module are dependent on the learning state of other modules. For example, the predictive information of fuzzy spiking neural network is used as the searching direction in the evolutionary algorithm and the moving direction of the pan-tilt CCD camera. The learning error of fuzzy spiking neural network is used for scaling the learning rate of the self-organizing map. Therefore, this method realizes the interdependent learning. The behaviors acquired by imitation are incorporated into behavior coordination. Furthermore, the partner robot communicates with a human by speech recognition and utterance. In the theory of relevance by Sperber and Wilson, a cognitive environment of an individual is a set of facts that are manifest to him, and we see communication as a matter of enlarging mutual cognitive environments, not of duplicating thoughts. Consequently, a robot also should share the cognitive environment with a human. The updating method of membership functions was proposed to share the mutual cognitive environment by human utterance and gestures. This method is applied for the communication of the partner robots with a human. The research of partner

robots is useful for understanding human intelligence and mind. Intelligence and mind can be discussed from the macroscopic and microscopic viewpoints as well as constructivism viewpoint. His research objective is to understand intelligence based on constructivism inspired by the human mind. The ultimate goal is to develop robot partners based on lifetime learning through social communication with people.



Imitation and communication with humans

Naoyuki Kubota graduated from Osaka Kyoiku University in 1992, received the M.E. degree from Hokkaido University in 1994, and received D.E. from Nagoya University in 1997. He was a research associate, and then, a lecturer of Department of Mechanical Engineering, Osaka Institute of Technology from 1997 to 2000, and associate professor of the Fukui University from 2000 to 2004. Since 2004, he has been an associate professor of Department of Mechanical Engineering, Graduate School of Engineering, Tokyo Metropolitan University, Japan. He is an associate editor of the IEEE Transactions on Fuzzy Systems, a Committee/Board Member of Advanced Robotics, a member of Editorial Board of Journal of Advanced Computational Intelligence and Intelligent Informatics, and a member of Editorial Advisory Board of The International Journal of Knowledge-Based Intelligent Engineering Systems. He received the Best Paper Award of IECON'96, the Best Paper Award of CIRA'97, the Recognition Award of ISCIII 2003, and so on. He has been the author or co-author of more than 120 papers in refereed journals and conference proceedings, and 10 book chapters. He is a member of IEEE, SOFT, SICE, ISCIE, RSJ, JSME, and others.

## Excerpts of Minutes of the IFSA Council Meeting in Gyor, 2004

Date: July 30, 2004

Place: Gyor University Guest House, Gyor

Attendees: Bariviera (SIGEF), Bien (President), Castillo (HAFSA), Furuhashi (Vice-President), Gomide (Vice-President), Hirota (Secretary), Kakprzyk (Treasurer), Kaynak (SCI), Koczy (Past President), Magdalena (EUSFLAT), Mattila (NSAIS), Niskanen (Finland), Pedrycz (President-Elect), Rhee (KFIS)

### 1. (President Report: Bien)

1. *Three documents* prepared by the President:  
"IFSA operating guidelines", "IFSA information", and "IFSA constitution and by-laws"
2. *Relationship between IFSA and Elsevier*
3. *Incorporation of IFSA vs Registered IFSA in Finland*
4. *Next Council meeting at IFSA 2005 WC at Beijing:* An IFSA Council meeting is scheduled on July 27<sup>th</sup> 2005, from 14 to 18. **Elections for new members of the Council will take place during this first meeting.**

### 2. (President-elect Report: Pedrycz)

1. *Promotion of IFSA and communication with community*
2. *Constitution and bylaws - current status*
3. *Status of IFSA conference proceedings and their SCI indexing*
4. *Reporting on the best paper award (FSS):*
  - a. Outstanding paper award
  - b. IFSA-Elsevier award

### 3. (Treasurer Report: Kacprzyk)

1. *Financial matters (payments of dues, realization of the budget, etc.)*
2. *Budget of IFSA:* Estimated balance of 2004 USD 350 (=USD5000-USD4650)

### 4. (Secretary Report: Hirota)

1. The *Hispanic-American Fuzzy System Association* is approved to be an institutional member of IFSA.
2. The following *IFSA sponsored/endorsed/supported conferences* in 2004, have been approved in the budget.

IPMU'2004 - 400 USD	ICAISC'2004 - 350 USD
8th Fuzzy Days - 300 USD	AFSS'2004- 350 USD
SCIS&ISIS'2004- 400 USD	Fuzziness in Finland'04 - 200 USD
3. The council decided to *technically cosponsor* ISCIIA 2004 to be held at Hainan, PRC on Dec. 20-22,2004.

### 5. (VP Report: Sudkamp(absent) Hirota(represented))

*IFSA awards*

### 6. (VP Report: Furuhashi)

*Report on Newsletter and call for articles:* The newsletter is planned to appear four times a year.

### 7.(VP Report: Gomide)

1. *Policy to decide IFSA support to international events*
2. *Creation of IFSA SIGs in Optimization, Medicine and History of fuzzy sets*

### 8. (IFSA2005/2007 Report: Chen (absent) Bien (represented), Castillo)

1. *Briefings of IFSA2005/Beijing.* **Five free student registrations will be provided** as a part of the program for student awards. **Some events for IFSA 20<sup>th</sup> anniversary** are planed, suggestions will be welcome.
2. *Briefings of IFSA2007/Cancun*

### 9. (Finance Report: Carlsson (absent) Bien (represented))

*IFSA long term finance project.*

### 10 (VP Report Min (absent) Bien (represented))

*Membership status*  
*20<sup>th</sup> anniversary*

### 11 (Information Committee Report: Niskanen)

*Electronic questionnaire*