

## In this Issue:

- Editorial
- Society briefs
  - New Working Group on Learning and Data Mining
- PhD Dissertations
- Labs and Research
- Obituary Prof. Philippe Smets
- Book announcements and reviews
- Conferences and CFP
  - Conference reports
  - Upcoming events

## Editorial

Dear members of the EUSFLAT Society,



Three months have passed since you have elected a new board of EUSFLAT. On behalf of the board members, let me once again thank you for your great support! The unanimous vote is not only an honor and a pleasure for us, but in particular an obligation to serve for the best of our society.

Only two days after the election, the new EUSFLAT Board met to discuss ideas for the further development of our society. We have set goals and responsibilities and compiled a task list. The next two years will surely be characterized by intensive work for the society. The most important goal of the new board is to find out how the benefits for members can be increased. Of course, every society aims at acquiring a large number of members, but this is only a basic figure. The essential point — and also the reason why members are members — is what they get back for their membership fee. *To orient towards the benefit of our members will be our major principle.*

You are reading the first issue of the new EUSFLAT Newsletter. The conception of a newsletter has been planned for some time already, now it becomes reality. To provide potentially useful information to its members is one of the benefits a scientific society can give to its members. From that point of view, the new newsletter can be understood as one of the measures according to the policy I highlighted above. Hereby, I would like to thank Vicenç Torra, the board member who is responsible for the newsletter, for his great effort. At the same time, I would like to invite all members to contribute information that may be suitable for future issues of the EUSFLAT Newsletter. Please be so kind and send possible contributions to [newsletter@eusflat.org](mailto:newsletter@eusflat.org).

The 11<sup>th</sup> *International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems (IPMU 2006)* will be the European event of the next year. IPMU 2006 will take place July 2–7, 2006, in Paris. EUSFLAT is proud to announce that IPMU 2006 is a EUSFLAT-endorsed conference. On the one hand, EUSFLAT members are eligible for a discount on registration fees. On the other hand, EUSFLAT is sponsoring five student grants for promising young researchers who want to present their latest achievements at IPMU 2006. To support the exchange of ideas, especially those of young people, is one of the most important duties of scientific societies. Our student grant program serves for this purpose. Let me also mention that a EUSFLAT General Assembly will be held on the occasion. Therefore, I would like to invite all members to visit IPMU 2006 and to attend the general assembly.

A further issue that deserves our attention is the future of our official journal *Mathware & Soft Computing*. We are aware of the fact that it is important that the journal enters citation indices to increase visibility and audience. The journal has already started this process, but this process will only be successful if a critical mass of submissions is achieved. Therefore, I would like to invite you on behalf of the editors of *Mathware & Soft Computing* to submit papers to this journal and/or to think about editing a special issue of this journal. This is a great chance for the journal and our whole society!

I hope you are convinced like me that EUSFLAT has great future potential. The new board will work hard to utilize these potentials, but there is also much that regular members can do. If you have any ideas for possible improvements, please be so kind and contact me or any of the board members. Please contribute information to our Web page <http://www.eusflat.org/> and to future issues of the EUSFLAT Newsletter and please submit papers to our journal. Your active participation in the development of the society is welcome and highly appreciated! I sincerely hope that EUSFLAT provides a valuable and pleasurable community to you. If so, please be so kind and *renew your membership for 2006*. Information can be found under <http://www.eusflat.org/members/renew2006.htm>.

I wish you and your families a Merry Christmas and a lucky and successful new year!

Cordially yours,  
Ulrich Bodenhofer  
[president@eusflat.org](mailto:president@eusflat.org)

## Society briefs:

### New Working Group on Learning and Data Mining

EUSFLAT provides an organizational framework for research on specific subfields of fuzzy set theory in the form of Working Groups, covering topics such as Aggregation Operators, Decision Analysis, Fuzzy Control, Generalized Measures, Neuro-Fuzzy Systems, and Operations Research.

Motivated by the increased interest that topics in the field of learning from data and data mining have attracted within the fuzzy set community in recent years, a new working group on "Learning and Data Mining" (DAMI) has been established in 2005. The goal of this working group is to promote research in the field of fuzzy machine learning and data mining. Moreover, DAMI shall provide a forum for discussions on this topic and a repository for resources on fuzzy data mining, including software and benchmark data sets, amongst other things. As its first activity, DAMI has organized a special session at the Eusflat-LFA 2005 conference in Barcelona.

DAMI is coordinated by Professor Eyke Hüllermeier (University of Magdeburg, Germany, [huellerm@iti.cs.uni-magdeburg.de](mailto:huellerm@iti.cs.uni-magdeburg.de)) and Professor Frank Klawonn (University of Applied Sciences BS/WF Wolfenbuettel, Germany, [f.klawonn@fh-wolfenbuettel.de](mailto:f.klawonn@fh-wolfenbuettel.de)). A link to the website of the working group can be found at [www.eusflat.org/research/](http://www.eusflat.org/research/). Please feel free to contact one of the coordinators for any further information.

## PhD Dissertations:

### Mario Drobits

#### Data Analysis using Fuzzy Expressions — Creating Comprehensible Computational Models from Data

**Abstract:** Technical and economic processes are getting constantly more complex. Analytical models are often insufficient to describe and handle this complexity. Data accumulations, on the other hand, are growing at ever increasing speeds, providing a potential source of knowledge and experience to understand and manage these processes.

This work is therefore concerned with the general problem of creating comprehensible computational models from data. To derive such models from data, various different methods like statistical regression, artificial neural nets, and other data-mining based approaches exist. Typically, however, the resulting models are either comprehensible (e.g. rule based approaches) or accurate (e.g. neural nets), referring a tough decision to the user. As in real world applications often both aspects are of high importance, the need for methods providing comprehensible *and* accurate models arises.

In this work a novel approach which uses fuzzy predicates to create close-to natural language expressions describing the relations in the data under investigation is presented. These expressions are not only easily comprehensible, but can be used for classification and numerical prediction tasks as well. A further application of the proposed methods is the characterization of general patterns in the data (e.g. clusters) using linguistic expressions.

First, the theoretical foundations of fuzzy set theory which are necessary to create comprehensible computational models are presented. By defining a general language based on fuzzy predicates, a flexible framework for defining fuzzy logic based models is provided.

Then, different aspects related to data preprocessing and data cleaning which are of special importance when dealing with real world data sets are discussed. Special emphasis is placed on the automatic definition of meaningful fuzzy predicates.

In the main section of the work three different kinds of inductive learning, namely classification, regression learning, and creating linguistic descriptions, are investigated. Four novel methods for deriving computational models from a given set of samples are presented and it is shown how these methods can be applied to the different types of learning problems.

Finally, the generality of the proposed approach is illustrated by different examples. The work is closed with a comparison study, including other well known algorithms.

The concepts and methods described in this work have been successfully applied in a number of real world projects and are available within the *machine learning framework for Mathematica* which has been mainly developed by the author.

**About the Author:** Dr. Mario Drobits, born in 1973, studied applied mathematics at the Vienna University of Technology and Johannes Kepler University Linz, where he received his PhD degree in 2005. The author is currently area manager for knowledge-based technologies at the Software Competence Center Hagenberg.

#### Bibliographic Information:

M. Drobits. *Data Analysis using Fuzzy Expressions — Creating Comprehensible Computational Models from Data*. Vol. C 48 of *Schriftenreihe der Johannes Kepler Universität Linz*. Universitätsverlag Rudolf Trauner, Linz, 2006. ISBN 3-85487-932-6.

## Labs and Research:

### Rules, inferences and robust approximation in the Institute for Research and Applications of Fuzzy Modeling

Antonín Dvořák, Vilém Novák and Irina Perfilieva  
University of Ostrava, IRAFM, 30. dubna 22, 701 03 Ostrava, Czech Republic

The *Institute for Research and Applications of Fuzzy Modeling* (IRAFM) is a scientific place of work belonging to the University of Ostrava in Ostrava, Czech Republic, whose aim is both theoretical research as well as applications of fuzzy logic, fuzzy approximation and other disciplines belonging to the area of soft computing. The latter can be characterized as the scientific theory whose aim is to develop theories and methods which might effectively work in the presence of indeterminacy (i.e. imprecision and uncertainty) and provide practically optimal and

inexpensive solutions in situations where only rough, imprecise information (very often expressed in natural language) is at disposal. Applications in cooperation with industry have also been realized.

In this article, we present two of few main lines of research in our institute, namely a study of the, so-called, linguistic descriptions and properties of inferences over them (this research is conducted by V. Novák, A. Dvořák, V. Pavliska, M. Holčapek and P. Murinová), and a study of various methods and aspects of approximation of functions using fuzzy sets and fuzzy algebras (this research conducted by I. Perfilieva, M. Daňková, M. Štěpnička, R. Valášek, L. Nosková, O. Polakovič and D. Plísková). Both lines are founded by the theory of fuzzy logic which is another main line of our research.

Linguistic description is in our conception a set of fuzzy IF-THEN rules taken as genuine linguistic expressions. We model these rules by means of formal fuzzy logic with strong emphasis on proper linguistic treatment of expressions contained in them (V. Novák, A. Dvořák.). This is accomplished by means of :

- careful study of expressions like *small, more or less high, approximately 26, etc.*, which we call *evaluating linguistic expressions*. These expressions play a central role in important part of natural language and human inference based on it.
- interpreting of IF...THEN structure of rules as linguistically expressed *logical implications*. We provide mathematical description of them in the frame of higher-order fuzzy logic.

This methodology allows us to hide the inner machinery from the user. He/she can communicate with computer on the level of (restricted) natural language without necessity to access and modify meanings of the used expressions. Computer then acts (performs inferences) in a way close to human so that the computer can be taken as a specific "human partner". Our software system **LFLC** (Linguistic Fuzzy Logic Controller, developed by V. Novák, A. Dvořák, V. Pavliska) is primarily dedicated to design and testing of linguistic descriptions, and realizes logical deduction on the basis of them. We have implemented a large-scale application of our method in Kovohutě Břidličná, where LFLC controls five massive aluminium furnaces. It uses linguistic descriptions obtained from persons with experience with control of these furnaces. At present, modeling and simulation is performed via interface to MATLAB/Simulink.

We have also developed special methods of learning linguistic information from large data sets. Possible applications of our methods are very wide and cover pure fuzzy control, classification, human-like decision making, expert forecasting, complex human language based reasoning, and others.

A specific and promising field of application is search for the, so-called, *linguistic associations* in numerical data. Our approach (V. Novák, A. Dvořák), however, provides consistent treatment of vague notions naturally included in them. Moreover, we are using methods and concepts originally developed in the GUHA method. Important and successful objective of our research can be called *fuzzy approximation*. This is a class of methods for approximation of classical functions using techniques of soft computing. The methods inherited all the advantages of robust models based on fuzzy IF-THEN rules.

Fuzzy approximating models, in general, can be divided into two classes: methods based on *normal forms* of logical functions (I. Perfilieva, M. Daňková), and methods produced by the inverse *fuzzy transform* (I. Perfilieva, M. Štěpnička). Normal forms are special logical formulas stemming from formal representations of fuzzy IF-THEN rules that can be used for representation of a large class of approximating functions. Together with optimization criteria, they provide with a good representation of any extensional function.

The technique of fuzzy transforms (*F-transforms*) can be considered as a generalization of the well known Fourier and wavelet transforms and can be used in a solution of a number of application oriented problems. Among them, we may announce new numerical methods for solution of ordinary and partial differential equations, computation of definite integrals, methods for data compression and reconstruction, filtering of signals and last, but not least, fusion of images. All these methods are very robust that is, they are little sensitive to changes of input data.

Our research institute is a carrier of the Research Plan „Logical and algebraic methods for elaboration of information subjected to indeterminacy and their use in fuzzy modeling” of the Ministry of Education of the Czech Republic and a partner of the Research Centre DAR (Data/Algorithms/Decision Making).

Links: IRAFM institute: <http://irafm.osu.cz/irafm>

LFLC software (demo available): <http://irafm.osu.cz/irafm/lflc/>

## Prof. Philippe Smets Deceased

Professor Philippe Smets passed away on Monday night November the 14th, at home with his family around. He had been suffering from a brain tumor for several months. For those interested in uncertainty modeling and handling, he was an outstanding researcher in this area, in some sense a guiding light.

Philippe Smets was born in Brussels (Belgium) on November 27, 1938. He first received a medical doctor degree in 1963 from the Université Libre de Bruxelles (ULB), then a Master degree in experimental statistics from North Carolina State University, and his PhD degree in medical statistics from ULB in 1978. This PhD dissertation, the starting point of his research work, already contained in germ many of the ideas on belief functions that Philippe Smets was going to develop in the next two decades. Philippe Smets was the founder in 1985 of the IRIDIA laboratory (Institut de Recherches Interdisciplinaires et de Développements en Intelligence Artificielle) at ULB, and its director until he retired in 1999. He then had more time to develop his own research works, visiting different academic institutions, and cooperating with many colleagues in the world.

His name is primarily associated with the «Transferable Belief Model» (TBM), an original view of Shafer's theory of evidence. He had met Shafer in the seventies during his stay in the US. In the TBM, the credal level, where beliefs are entertained, is carefully distinguished from the decision level where standard utility theory applies. He contributed more than 100 papers on this approach. Among his key technical contributions, let us particularly mention the axiomatic justifications for the Dempster rule of combination, or for the pignistic transform that relates the credal and the decision levels, as well as algorithmic tools for the easy computational handling of belief functions. See the reference list below. But his scientific contribution is much broader.

Indeed Philippe Smets was instrumental in the development of the research community dealing with uncertainty in artificial intelligence. He was indeed the main coordinator and the prime contractor of a series of European workshops or projects (DRUMS – I & II), that gathered many researchers working on different uncertainty approaches. These projects resulted in a series of edited volumes on Non-Standard Logics for Automated Reasoning (with A. Mamdani, D. Dubois and H. Prade), on Uncertainty Management in Information Systems (with A. Motro), on Defeasible Reasoning and Uncertainty Management Systems (a Handbook series in 7 volumes, with D. Gabbay), or on special issues of Journals on Uncertainty, Conditionals and Non-Monotonicity, or on Data and Knowledge Fusion. Philippe Smets is also the father of the European Conference on Symbolic and Quantitative Approaches to Reasoning with Uncertainty (ECSQARU), which has taken place every two

years since 1991. He was also an active participant of the annual Uncertainty in Artificial Intelligence (UAI) Conference in the nineties and was the first European UAI co-program chair in 1991. He served on the editorial boards of many journals including the International Journal of Approximate Reasoning, the Journal of Logic and Computation, Information Sciences, Fuzzy Sets and Systems, the IEEE Transactions on Fuzzy Systems, the International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems, the Journal of Applied Non Classical Logics, and Mathware and Soft Computing.

Although his main research focus was on belief functions, he also wrote noticeable papers in fuzzy logic and possibility theory. His first conference paper in 1978 relates belief functions and fuzzy sets, and was the basis for his definition of the degree of belief in a fuzzy event based on a Choquet integral. Later with Paul Magrez, he provided an original axiomatic justification of Lukasiewicz implication in the setting of fuzzy if-then rule-based reasoning. He also very early (in 1982!) pointed out connections between likelihood functions and possibility measures, and recently (in 2002) provided the basis for an operational semantics of quantitative possibility theory.

Philippe Smets was a highly recognized and respected researcher in the Artificial Intelligence community. His innovative work on the treatment of belief functions is well known and appreciated by everyone in the field. He was primarily a researcher combining a vast culture and interest on classical and non-classical approaches to uncertainty, with a will to develop original lines of research that significantly depart from traditional views. For any of his colleagues, and us in particular (we met him for the first time in Lyon, at the CNRS Round Table on Fuzzy Sets, on June 23-25, 1980), he was much more than that, he was the friend, the careful adviser, the companion of so many beautiful research projects. Thanks to his keen work, his open-mindedness and his great human qualities, he had succeeded in creating and federating a whole community of researchers in Europe, through a series of projects and conferences of which he had been the principal carrier. His illness and his death whereas he was still in full creative activity were for us, for all his friends and colleagues, a terrible shock that leaves us all like orphans. He will be deeply missed for a long time.

Didier Dubois and Henri Prade  
IRIT, Toulouse, Dec. 2005

## Main References

### Edited Volumes

- Philippe Smets, Abe Mamdani, Didier Dubois, Henri Prade, (eds.) Non-Standard Logics for Automated Reasoning, Academic Press, New York, 1988.
- Michael R. B. Clarke, Christine Froidevaux, Eric Grégoire, Philippe Smets (eds.) Uncertainty, Conditionals and Non-Monotonicity. Positions and Debates in Non-Standard Logics. Special issue of the J. of Applied Non-Classical Logics, 1 (2): 103-310 (1991).
- Bruce D'Ambrosio, Philippe Smets, Piero P. Bonissone (eds.) Proceedings of the Seventh Annual Conference on Uncertainty in Artificial Intelligence (UAI '91), July 13-15, 1991, University of California at Los Angeles, Los Angeles, CA, USA Morgan Kaufmann 1991
- Philippe Smets, Ami Motro, (eds.) Uncertainty Management in Information Systems: From Needs to Solutions, Kluwer Academic Publ., 1998.
- Philippe Smets (ed.) Quantified Representation of Uncertainty and Imprecision. Vol. 1 of the Handbook of Defeasible Reasoning and Uncertainty Management Systems (D. M. Gabbay, P. Smets, eds.), Kluwer Acad. Publ., 1998.
- Dov M. Gabbay, Philippe Smets (series eds.) Handbook of Defeasible Reasoning and Uncertainty Management Systems, Kluwer Acad. Publ., 7 vol. (1998-2002).

### Transferable Belief Model

- Philippe Smets: Un modèle mathématico-statistique simulant le processus du diagnostic médical, PhD Thesis, 1978. Available by Univ. Microfilm, Ann Harbor, Michigan.
- Philippe Smets: Belief functions. In Non-Standard Logics for Automated Reasoning, (P. Smets, A. Mamdani, D. Dubois, H. Prade, eds.), Academic Press, New York, 1988, 253-286.
- Philippe Smets: Constructing the pignistic probability function in a context of uncertainty. Uncertainty in Artificial Intelligence 5, (M. Henrion, R. D. Shachter, L. N. Kanal, and J. F. Lemmer, eds.) (UAI 1989), North Holland, Amsterdam, 1990, 29-40.
- Philippe Smets: The transferable belief model and other interpretations of Dempster-Shafer's model. Proc. of the Sixth Annual Conf. on Uncertainty in Artificial Intelligence (UAI 1990), 375-384.
- Philippe Smets: The combination of evidence in the Transferable Belief Model. IEEE Trans. Pattern Analysis and Machine Intelligence 12(5): 447-458 (1990)
- Philippe Smets: Varieties of ignorance and the need for well-founded theories. Information Sciences, 57-58: 135-144 (1991)
- Philippe Smets: Probability of provability and belief functions. Logique et Analyse, 133-134: 177-195 (1991)
- Frank Klawonn, Philippe Smets: The dynamic of belief in the Transferable Belief Model and specialization-generalization matrices. Proc. of the Eighth Annual Conference on Uncertainty in Artificial Intelligence (UAI '92): 130-137
- Philippe Smets: Resolving misunderstandings about belief functions. Int. J. Approx. Reasoning, 6 (3): 321-344 (1992)
- Hung T. Nguyen, Philippe Smets: On dynamics of cautious belief and conditional objects. Int. J. Approx. Reasoning, 8(2): 89-104 (1993)
- Philippe Smets: Belief functions: The disjunctive rule of combination and the generalized Bayesian theorem. Int. J. Approx. Reasoning, 9 (1): 1-35 (1993)
- Philippe Smets, Robert Kennes: The Transferable Belief Model. Artificial Intelligence, 66 (2): 191-234 (1994)
- Philippe Smets: The canonical decomposition of a weighted belief. Proc. of the 14th Inter. Joint Conf. on Artificial Intelligence (IJCAI-95). Montréal, August 20-25, 1995, 1896-1901
- Didier Dubois, Henri Prade, Philippe Smets: Representing partial ignorance. IEEE Trans. on Systems, Man and Cybernetics, 26(3): 361-377 (1996)
- Philippe Smets: The normative representation of quantified beliefs by belief functions. Artificial Intelligence, 92 (1-2): 229-242 (1997)
- Philippe Smets: The transferable belief model for quantified belief representation. In Quantified Representation of Uncertainty and Imprecision. Vol. 1 of the Handbook of Defeasible Reasoning and Uncertainty Management Systems (D. M. Gabbay, P. Smets, eds.), Kluwer Acad. Publ., 267-301 (1998)
- Salem Benferhat, Alessandro Saffiotti, Philippe Smets: Belief functions and default reasoning. Artificial Intelligence, 122 (1-2): 1-69 (2000)
- Roger M. Cooke, Philippe Smets: Self-conditional probabilities and probabilistic interpretations of belief functions. Ann. Math. Artificial Intelligence, 32 (1-4): 269-285 (2001)
- Zied Elouedi, Khaled Mellouli, Philippe Smets: Belief decision trees: theoretical foundations. Int. J. Approx. Reasoning, 28 (2-3): 91-124 (2001)
- André Ayoun, Philippe Smets: Data association in multi-target detection using the transferable belief model. Int. J. Intelligent Systems, 16 (10): 1167-1182 (2001)
- Bouthaina Ben Yaghlane, Philippe Smets, Khaled Mellouli: Belief function independence: I. The marginal case. Int. J. Approx. Reasoning, 29 (1): 47-70 (2002)
- Philippe Smets: The application of the matrix calculus to belief functions. Int. J. Approx. Reasoning, 31 (1-2): 1-30 (2002)
- Bouthaina Ben Yaghlane, Philippe Smets, Khaled Mellouli: Belief function independence: II. The conditional case. Int. J. Approx. Reasoning, 31 (1-2): 31-75 (2002)
- Philippe Smets: Decision making in the TBM: the necessity of the pignistic transformation. Int. J. Approx. Reasoning, 38 (2): 133-147 (2005).
- Philippe Smets: Belief functions on real numbers. Int. J. Approx. Reasoning, 40 (3): 181-223 (2005).

### Fuzzy logic contributions

- Philippe Smets: Medical diagnosis: Fuzzy sets and degree of belief (9p.) Actes Colloque International sur la Théorie et les Applications des Sous-Ensembles Flous, Vol. II, Marseille, 20-24 Sept. 1978. Final version in Fuzzy Sets and Systems, 5, 259-266, 1981.
- Philippe Smets: Philippe Smets: Possibilistic inference from statistical data. Proc. 2nd World Conf. on Mathematics at the Service of Man, Las Palmas (Canary Islands), Spain, (A. Ballester, D. Cardus, E. Trillas, eds.), June 28-July 3, 1982, 611-613
- Philippe Smets: The degree of belief in a fuzzy event. Information Sciences, 25(1): 1-19 (1981)
- Philippe Smets, Paul Magrez: Implication in fuzzy logic. Int. J. Approx. Reasoning, 1(4): 327-347 (1987)
- Philippe Smets, Paul Magrez: The measure of the degree of truth and of the grade of membership. Fuzzy Sets and Systems, 25 (1988) 67-72.
- Paul Magrez, Philippe Smets: Epistemic necessity, possibility, and truth. Tools for dealing with imprecision and uncertainty in fuzzy knowledge-based systems. Int. J. Approx. Reasoning, 3(1): 35-57 (1989)
- Paul Magrez, Philippe Smets: Fuzzy modus ponens: a new model suitable for applications in knowledge-based systems. Int. J. Intelligent Systems, 4 (1989) 181-200.
- Philippe Smets: Quantified epistemic possibility theory seen as a hyper cautious transferable belief model. Actes Rencontres Francophones sur la Logique Floue et ses Applications, La Rochelle, 18-20 Octobre 2000, Cépaduès, Toulouse, 343-353.
- Didier Dubois, Henri Prade, Philippe Smets: New semantics for quantitative possibility theory. Proc. 6th.Europ. Conf. on Symb. and Quantitat. Appr. to Reasoning under Uncertainty (ECSQARU 2001), Toulouse, 19-21 sept., Springer-Verlag, LNAI n°2143, 410-421, 2001.
- Didier Dubois, Henri Prade, Philippe Smets: "Not Impossible" vs. "Guaranteed Possible" in Fusion and Revision. Proc. 6th.Europ. Conf. on Symb. and Quantitat. Appr. to Reasoning under Uncertainty (ECSQARU 2001), Toulouse, 19-21 sept., Springer-Verlag, LNAI n°2143, 522-531, 2001.
- Didier Dubois, Henri Prade, Philippe Smets. A definition of subjective possibility. Operations Research and Decisions (Wroclaw) n°4, 2003, 7-22.

## Book announcements and reviews:

- E.P. Klement, R. Mesiar (Eds.) *Logical, Algebraic, Analytic and Probabilistic Aspects of Triangular Norms*, Elsevier, 2005. 492 pages. ISBN 0-444-51814-2.

## Conferences and Call for Papers

### Conference reports:

### Upcoming EUSFLAT-Endorsed Events:

- **8th International Conference on Fuzzy Set Theory and Applications (FSTA 2006)**, Liptovský Mikuláš, Slovak Republic, January 30 - February 3, 2006.  
<http://www.valm.sk/fsta/>
- **27th Linz Seminar on Fuzzy Set Theory (LINZ2006)**, Linz, Austria, February 7-11, 2006.  
<http://www.fill.jku.at/research/linz2006/index.html>
- **3rd International Conference on Modeling Decisions for Artificial Intelligence (MDAI 2006)**, Tarragona, Catalonia, Spain, April 3-5, 2006.  
<http://www.mdai.info/mdai2006/>
- **8th International Conference on Artificial Intelligence and Soft Computing (ICAISC 2006)**, Zakopane, Poland, June 25-29, 2006.  
<http://icaisc.pcz.pl/>
- **11th International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems (IPMU 2006)**, Paris, France, July 2-7, 2006. **Submission deadline: December 20, 2005.**  
<http://ipmu2006.lip6.fr/>
- **2nd International Symposium on Evolving Fuzzy Systems (EFS '06)**, Lake District, UK, September 7-9, 2006. **Submission deadline: February 1, 2006.**  
<http://www.efs06.org/>
- **9th Fuzzy Days**, Dortmund, Germany, September 18-20, 2006. **Submission deadline: January 31, 2006.**  
<http://www.efs06.org/>

### Other Events:

- **SAC 2006 - Special Track on Information Access and Retrieval (SAC-IAR 2006)**, Dijon, France, April 23-27, 2006.  
<http://www.cis.strath.ac.uk/external/SAC2006/>
- **7th International Conference on Flexible Query Answering Systems (FQAS 2006)**, Milano, Italy, June 7-10, 2006. **Submission deadline: February 15, 2006.**  
<http://fqas2006.disco.unimib.it/>
- **2006 IEEE World Congress on Computational Intelligence**, Vancouver, BC, Canada, July 16-21, 2006. **Submission deadline: January 31, 2006.**  
<http://www.wcci2006.org/>
- **3rd IEEE Conference On Intelligent Systems**, London, U.K., September 4-6, 2006. **Submission deadline: December 12, 2005.**  
<http://ieeais06.wmin.ac.uk>

## EUSFLAT Board

*President:* Ulrich Bodenhofer  
*Vice-President:* Lluís Godo  
*Secretary:* Irina Perfilieva  
*Treasurer:* Oscar Cordon

*Web:* Ulrich Bodenhofer  
*Mathware and Soft Computing:* Juan Luís Castro  
*Grants and prizes:* Bernard de Baets  
*Working groups:* Eyke Hüllermeier

*Newsletter editor:* Vicenç Torra  
<http://www.eusflat.org/>  
<http://www.eusflat.org/publications/newsletter.htm>  
e-mail: [newsletter@eusflat.org](mailto:newsletter@eusflat.org)