

Mathware & Soft Computing

*The magazine of the European Society
for Fuzzy Logic and Technology*

**Dialogue with Bernard De Baets
by Raúl Pérez-Fernández**

***EUSFLAT congratulates
by Martin Stepnicka***

Conference reports

News and calls



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February 2020**

EUSFLAT

**EUROPEAN SOCIETY
FOR FUZZY LOGIC
AND TECHNOLOGY**



Mathware & Soft Computing

*The magazine of the European Society
for Fuzzy Logic and Technology*

Editor-in-Chief

Humberto Bustince
Public University of Navarra
Dep. of Automatic and Computation
Campus de Arrosadía
Pamplona, SPAIN
(Phone) +34-948169254
(Fax) +34-948168924
(E-mail) bustince@unavarra.es

Assistant Chief Editors

Javier Fernández
Public University of Navarra
SPAIN
Aránzazu Jurío
Public University of Navarra
SPAIN
Daniel Paternain
Public University of Navarra
SPAIN

Associate Editors

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University of Marburg
GERMANY
Radko Mesiar
Slovak University of Technology
SLOVAKIA
Rudolf Seising
Deutsches Museum
GERMANY

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Message from the Editor-in-Chief (February 2020)

HUMBERTO BUSTINCE



Welcome to a new issue of the Mathware&Soft Computing online magazine!

As you can see, we are appearing in a new date. Rather than just before Christmas, we have preferred this time to wait until a bit later, and we hope that in this way the magazine will get more repercussion. And maybe also, in this way, we will get more collaboration for all of you, members of the EUSFLAT society and beyond, who are the ones who make this magazine possible.

And this is clear in this new issue. First, let me thank Bernard De Baets for finding the time to make a very interesting interview, as well as the people from Oviedo who have

been there to get the answers. I am sure you will not be disappointed by it.

And of course, since ours is a living society, we bring here the proofs of that life: conference reports, calls, news— many different facets of an extremely rich life that we must bring even further.

But let me also use this letter, this magazine, to remember some of our colleagues who are not with us any more. Just a few days ago, Robert John, from Nottingham passed away. He was a great fuzzy researcher, and a good friend of many of us. We was the protagonist of one of the interviews published in the past in Mathware&Soft Computing. I know we are going to miss him as we also miss other good friends who are not here any more. But I think that the best homage we can do for him, and for all the others that have left us, is to develop further the fuzzy theory and the fuzzy community they loved so much and for which they worked so hard. And that's a task in which all of us can take part.

This is going to be a short letter. I think that after waiting for two months, it's time to start reading the magazine. But, once and again, recall that this is your magazine, and it is waiting any work, paper, comment, news— whatever that you consider that may be of interest for our community. In this way, the community will become greater and stronger.

And now... enjoy the new issue of the Mathware&Soft Computing online magazine. Good read!

Humberto Bustince
Editor-in-chief

Message from the President (February 2020)

MARTIN ŠTĚPNIČKA



Dear EUSFLAT members,

let me once more welcome you in 2020 and wish you successes, enthusiasm, friendship and mainly health in this new year. beautiful summer is here and we are entering an amazing period of the year.

Before devoting my words to optimistic look backs or outlooks, let me firstly recall a sad news. On October 15, 2019, we have lost a great, inspiring fuzzy pioneer, scientist and volunteer - Enrique Ruspini. Enrique Ruspini contributed to the society in distinct manners, by pushing the science, publishing inspiring papers, promoting our field, organization work, and educational activities. For his contribution, Enrique Ruspini received numerous awards, including the most prestigious ones, such as IEEE Frank Rosenblatt Award, IEEE CIS Fuzzy Systems Pioneer Award, or the very first IFSA Fellowship. We will miss you Dr. Ruspini but you will stay in our memories forever.

The second part of the 2019 year and the beginning of 2020 were successful months. We managed to organize EUSFLAT 2019 in Prague as a joint event with the IQSA Workshop on Quantum Structures with ca 220 attendants. It brought several new features such as, the possibility to attend only with an abstract. This decision showed that it is the way for the future as the number of abstract submission was definitely not negligible. It is confirmed also by the organizers of the EUSFLAT 2021 in Ghent, who decided to fol-

low this strategy as well. Making the decision on our major event in 2021 is also a big success. Our friends approached it very actively and the idea of organizing a huge fuzzy multi-conferences is getting its shape, by joining with IFSA 2021, AGOP 2021, IJCRS 2021 and FQAS2021. I am very grateful to the local organizers and I declare my maximal support to their difficult yet attractive goal. Thank you Bernard De Baets, Chris Cornelis, and Guy De Tré.

Apart from the major EUSFLAT 2019 event, there were of course, many others, let us name for instance an event organized in a closed neighborhood in the calendar - MDAI 2019 in Sant Cugat, or the just-finished FSTA 2020 that again showed the real spirit of a conference with five days of accommodation, full board, rich social programme, all contained in the registration fee. This scheme brings all people together for the full length of the event into a single hotel - allowing the participants to concentrate on the cooperation and the academic programme.

We also managed to run a new membership system, which was a necessity because of technical as well as legal reasons. The system is still under construction but new functionalities as well as online membership payments by cards should appear soon. We also prolonged our agreement with Atlantis Press and so that, 20 members each year are not obliged to pay the article processing costs for IJCIS articles. We are very thankful to Atlantis Press, namely to Zeger Karssen. Additional benefits are at disposal to many of our members. For instance, EUSFLAT members will get 80EUR discount in the IPMU registration fee. And IPMU conference is the “must to come” event for many of our members. We thank IPMU and let me ask you to support this event, the organizers deserve our biggest attention.

Looking forward to meeting you in Lisbon.

Martin Štěpnička
President of EUSFLAT

INTERVIEW

Dialogue with Bernard De Baets



I am pleased to present an interview with Prof. Bernard De Baets, an inspiring personality in the field of fuzzy set theory and of whom I had the luck to be PhD student.

Raúl Pérez-Fernández: Let us start from the beginning. You are really interested in languages and, in particular, in the etymology of words, so did you – as a little boy from the outskirts of Ghent (Belgium) – always know you wanted to pursue a career in science, or was it a choice that was shaping itself as university was nearing?

Bernard De Baets: Career planning is a term that probably did not exist when I was young, or, at least, I never heard of it. That was in the pre-internet era with a small community library as only window to the world. You are right that I have a keen interest in languages, and, in particular, in etymology, but I never considered this as a possible study direction, let alone a potential job. As a boy from the countryside, I was more interested in the bioscience engineering program at our university (back then less attractively called agricultural engineering), but when weighing my limited knowledge of chemistry at the time against my mathematical skills and my

interest in the emerging personal computers, the choice for mathematics, option computer science (it was not yet possible to study computer science) was quickly made. Although I was not always impressed by our physics-dominated bachelor program (to my opinion, the why was too often neglected by our mathematics professors), it shaped me into a broadly trained mathematician with sufficient programming skills.

R.PF: If my calculations are correct, you entered university around 1985 and decided to study mathematics. Do you think you could have been more interested in other career options (I am thinking of informatics) if you would have been born 30 years later?

B.D.B.: I entered Ghent University in the fall of 1984 and decided to study mathematics for the reasons explained above. However, if I were to start again in 2020, I would definitely go for computer science, although I see that field becoming too much of an experimental science nowadays.

R.PF: In the early 1990s you started reading about fuzzy logic, how did that happen? What was the role played by your PhD supervisor (Etienne Kerre)?



B.D.B.: Actually, I first heard of fuzzy set theory (I prefer this term over the term fuzzy logic) in 1987, when having to decide the elective courses for our final year of master studies. Although the course title sounded mysterious, the choice was quickly made as the professor teaching the course was by far my most favorite one since my first year at university. Indeed, this was Prof. Etienne Kerre. For the same reason, I decided to do my master thesis under his supervision, getting introduced to the Dempster-Shafer theory of evidence, and studying the many papers on possibility theory sent to us by Didier Dubois and Henri Prade. Looking at it now, my thesis was not about fuzzy set theory itself, but about topics closely related to it. This seems to apply to many of my later activities, such as my involvement in the study of aggregation functions. The Artificial Intelligence buzzword at the time was expert systems and the language of the future was LISP. So I wrote the software accompanying my master thesis in



Golden Common LISP, a forgotten functional programming language that was very natural to mathematicians.



R.PF: All in confidence, was your relation with fuzzy set theory love at first sight?

B.D.B.: Yes, I was charmed right away by the appealing idea that everything is a matter of degree, and that mathematical notions could come in shades. Fuzzy set theory provided the language to formalize such degrees, reason about them and actually compute with them.

R.PF: So, some years passed and you obtained a professor position at the Faculty of Bioscience Engineering at Ghent University. I am sure you do not regret it at all nowadays, but was leaving the Faculty of Sciences a hard decision back then?

B.D.B.: Obviously, joining the Faculty of Bioscience Engineering was not my ambition at the time. From 1990 to 1999, I was a doctoral, and subsequently postdoctoral research fellow of the FWO (Research Foundation Flanders), the most prestigious grant system in Flanders, and my dream was to obtain a permanent FWO position. Little did I know that politicians would decide in the spring of 1999 that we no longer needed permanent researchers (all scientific problems were solved?). Since my postdoctoral scholarship was finishing end of September 1999 and although I acquired another yet final 3 year grant, having two daughters and one son on the way (although we did not know it yet), my wife and me figured that it was time to end living on scholarships. Right at that time, there was a vacant professor position in applied mathematics at our Faculty of Bioscience Engineering. Although the position had been created with another specific person in mind, and the procedure was long, tiring and hostile, I came out as victor. At first, I did not really feel at ease in my new faculty, but this soon changed after starting collaborations with several interesting colleagues. So after all, the circle was round. The faculty that I hesitated to join as a student in 1984 turned out the one I joined as a professor in 1999, something that could have never happened if I had started at that faculty in 1984. I never regretted this career move, it shaped me into the applied mathematician I am now. It often still comes as a surprise to EUSFLAT friends that fuzzy set theory should rather be seen as my hobby for the past 20 years, while my main activities are situated in hydrology, microbiology, biotechnology, environmental science, food science, and many more, as can be seen from my

list of publications.

R.PF: Quick fast-forward now to September 2019, you received the EUSFLAT Scientific Excellence Award and the citation read as follows: “For his excellent contributions to the theory of fuzzy sets and preference modelling with applications in distinct fields including bioscience engineering.” I feel that like you more and more people are moving towards multidisciplinary science nowadays. How do you feel about this natural evolution of research?

B.D.B.: I think this is indeed a natural evolution and would encourage all EUSFLAT members to get involved, even if it is only for a minor part of their activities, in intra- or interdisciplinary research. It usually is very challenging, but serves as a source of inspiration for new directions in basic research as well. Being able to explain to people (friends and family) how one’s research contributes to solving real-world problems (I prefer societal over industrial problems) is very rewarding. At the same time, it gives the opportunity to learn a lot about other fields of science, their state of knowledge, their habits, even their ethics.

R.PF: Just a small aside topic, the Climate Change Conference has just taken place in Madrid and has made more noise than ever, constantly appearing in the news. I know most of the people at the Faculty of Bioscience Engineering have been very active in the topic and ratified a list of good practices for researchers. What is your opinion on the topic?



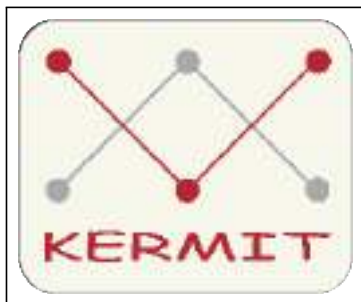
B.D.B.: Obviously, we should not waste time discussing whether or not climate change is happening or is going to happen. What more evidence does one want? What is more important is how to take countermeasures without becoming dogmatic. I strongly believe that one can redirect industry or even develop new profitable industry focusing on these problems, similarly as Flanders is exporting its knowledge on the design and operation of wastewater treatment plants.



Climate change, environmental pollution, loss of biodiversity, should be grasped as opportunities for change, rather than protesting in the streets demanding politicians to take action. The solutions have to come from scientists and industry. In the meantime, in order to increase awareness and guarantee public involvement, one has to communicate feasible steps that every citizen can take. Education is the key to all. Flanders has become the top region in sorting waste at home, after elementary school students being taught at school stimulated and educated their parents how to do it.

R.PF: Back to the life and travels of Bernard De Baets, around the same time that you entered the Faculty of Bioscience Engineering at Ghent University, you started your own research unit (KERMIT) in 2000. Where does the name come from? I assume KERMIT the frog came to mind at some point, was it an attempt to make the name sound bio-inspired or simply a funny coincidence?

B.D.B.: In 2000, shortly after I became a professor, Ghent University decided to stop the proliferation of terms such as laboratory, seminar, center, institute, often without a clear difference in meaning, and restricted the free use to the term research unit. I grasped the opportunity to create my own research unit. It took a while to come up with a proper name, after listing the key terms I wanted to appear in it. Playing a bit around with initials, I came up with Research Unit KERMIT, the latter standing for Knowledge Extraction, Representation and Management using Intelligent Techniques. Of course, the coincidence with the name of the popular Muppet Show host (the frog KERMIT) was welcome. It surely helped to spread the brand recognition. At the same time, I created the well-known logo



including multi-layered hints to logic, fuzzy set theory, graph theory, neural networks, and so on. This year, we are celebrating the Porcelain Jubilee of KERMIT. The research unit has been highly successful, with three young professors joining in recent years, numerous publications, close to 80 grad-

uated PhD students, and visitors from several dozens of countries.

R.PF: Congratulations on the porcelain jubilee milestone! After having had been part of this fabulous team for about five years, I can only hope for many more to come. Interestingly, according to its website, KERMIT started “with two men and a dog”. Assuming the dog to be a poetic license, who were the men forming the team back then?

B.D.B.: Two men and a dog is a figure of speech for barely nobody. At the same time as I took up my professor position, there was also a brilliant mathematics student, Kim Cao-Van, who had just obtained a grant for pursuing doctoral studies under my supervision. Together with my friend Hans De Meyer, I also continued co-supervising Helga Naessens, a teaching and research assistant at my former department. There was nobody to support me in my teaching tasks in the very beginning.

R.PF: KERMIT currently employs around 25 members; does it not feel frightening how big you have become? How does it feel leading such a big team?



B.D.B.: KERMIT has indeed grown a lot, in particular over the past five years, and is now home to four professors, a few postdocs, about 20 PhD students in-house and a similar number of PhD students being co-supervised at other research units, departments and faculties at Ghent University, or at foreign universities. I enjoy being busy, it keeps me young and agile. Together with the PhD students I get to study new topics, explore new directions and contribute to new fields of research (such as the study of Cellular Automata over the past years).

R.PF: And this number does not include all your international collaborators! You maintain active discussions with people from Algeria, China, Cuba, Japan, Poland and Spain, just to name a few. What are the main reasons for you to search for and sustain all these collaborations?

B.D.B.: Indeed, I have always tried to sustain my own activities next to those with my PhD students. The variation between supervising PhD students and working with experienced people is welcome. The main reasons for doing this are my broad research interests, the opportunity to get to learn other cultures from the inside and, above all, make friends for life all over the world. I can safely say that most of my collaborators have become very good friends, such as Humberto Bustince. At moments like this, I am thinking of the

closest friend-scientist to my family, the well-known Janos Fodor, whose passing away has been very tough for me.

R.PF: It was indeed a big loss. You once told me you used to spend some good time in Hungary with your friend Janos. You even learned how to count up to ten in Hungarian, right? Actually, in how many different languages do you know how to count?

B.D.B.: That is a difficult question. Probably there are only a few languages in which I can count up to the number of languages in which I can count up to ten, to answer in a cryptic way. Flemish people, due to belonging to a small population and being surrounded by bigger countries, have always been keen on studying languages, in order to play a key role in international trade and business. Although at times this was a bare necessity for survival, this behavior has become an essential part of our culture. We listen to music in numerous languages and watch movies from all over the world (obviously, without dubbing). And we can hardly imagine going on holidays visiting a country without being able to say a few sentences in the local language. In my case, not surprisingly for a mathematician, this includes being able to count. You would be surprised how far you can get with basic numbers in a foreign language!



R.PF: Interesting! This breaks the ice for asking an off-work question. As a true Belgian, you love cycling (both practicing and following the classic races). You try to find some time for watching good sci-fi movies and are some kind of a music connoisseur (I think some of your friends even called you 'De Beats' back in the time). Aside of the obvious answer 'spending time with your lovely wife and children', can you tell us some other things you love doing in your free time?

B.D.B.: Indeed, we are a cycling nation. When the weather and my duties permit, I go to university by bike, and I love watching the classic races such as Strade Bianche, Paris-Roubaix and, above all, the Tour of Flanders. I still remember the whole nation going crazy in the late sixties and early seventies when Eddy Merckx (the Cannibal) was winning race after race (I was still in kindergarten then). I am also a movie and music lover with an eclectic taste (not really including sci-fi, your source was misinformed). My wife sings and our three kids all master an instrument (piano and saxophone), which brings joy to life. I hardly have free time, but I often try to combine late-night work with my passion for wine.

R.PF: Let us talk now a little bit about the EUSFLAT society,

in particular, and the fuzzy sets community, in general. Do you feel there has been a change in this community since its very beginnings?



B.D.B.: Sure, generations come and go, but luckily the overall friendly spirit has remained. I am familiar with many other scientific communities, and I can safely say that EUSFLAT is the most pleasant of all. It is also important that the European fuzzy community tries to uphold the main ideas of Lotfi Zadeh. On the other hand, I am sometimes surprised that some teams continue along the same lines for decades. That would be too boring for me. On the positive side, I see quite a few young researchers with high potential lurking around the corner, such as you, so the future for the community is bright.

R.PF: Are we moving in the right direction? How do you envision the future of the society?

B.D.B.: I will refer to the entire fuzzy society now, not EUSFLAT in particular. To my regret, my answer to your question is "Definitely not". We are witnessing a tsunami of pointless generalizations of fuzzy sets that have lost all connection with Zadeh's original ideas and of which the sole aim seems to be to generate superfluous publications. Over a couple of good Belgian beers, the two of us would surely be able to come up with the next five levels of ridiculousity. What about "double soft complex hesitant Fermatian fuzzy sets" for a start? Seriously, we have to return to the original ideas, focusing on semantics and elicibility. The current revival of the interest in explainability offers opportunities.





To me, fuzzy set theory rather provides a way of thinking (accepting that notions come in many shades and rather are a matter of degree) than practical tools as the field of machine learning does. After all, the alleged applications the community likes to brag about date back to the last century. Ninety-five percent of applications rely on five percent of the theory, and even that is quite shaky when I think of our current understanding of Mamdani-Assilian models. New waves of applications seem to reside in the field of decision making, often being blind for the body of knowledge that has been accumulated by that field over the past years, and paying little attention to semantics. Also here, the motto seems to be “the more complex, the better”. This evolution often makes me sad, seeing time and talent of the scarce mathematicians we still have being wasted.

R.PF: Do you think time will lead to some basic notions of fuzzy set theory being taught at high school level? If you were in charge of preparing a subject on the topic, could you briefly anticipate how would it look like?

B.D.B.: I think the mathematics education in elementary and high school worldwide faces far bigger challenges than the possible introduction of fuzzy sets. Reform after reform, mathematics has been reduced to a bunch of tricks students need to master to be able to temporarily solve a preset list of problems. Mathematics is no longer taught as a language. Students are no longer attracted by the subject, leading to fewer university enrollments, fewer real math teachers, again less interest, a vicious cycle that seems hard to brake. But if I were to prepare such material, I would definitely start from real-world examples focusing on the three semantics of fuzzy sets (degree of similarity, uncertainty or preference).



R.PF: You are co-editor-in-chief of Fuzzy Sets and Systems, one of the main journals of the fuzzy sets society. Do you have any special recommendation for a student that is aiming at submitting his/her first paper? And, an additional question for the same price, do you have some recommendations for more experienced researchers?

B.D.B.: One recommendation, which even applies to some experienced researchers: whatever you write, have the potential reader in mind and reflect whether you would read it all to the end if you would see it for the first time yourself. Introductions that do not frame a problem with respect to literature, or flood the reader by bulk citations, are not helpful. Pages of definitions without discussion, interpretation or examples are not exciting! And above all, read, read, and read, before you write.

R.PF: You were one of the driving forces promoting the EUSFLAT student grant program, from which myself among many other students have benefited through the years. How do you feel about the state of the program? Do you think a similar program for researchers from developing countries and/or early career researchers should be funded?



B.D.B.: I am still proud having launched the student grant program years ago, and to see it still functioning while respecting the same rules. Many other societies envy us. The younger generation is the future, so we should invest in it. At present, I am exploring how we could set up a similar program for African researchers, as they still have very few chances.

R.PF: This student grant program is only one of many contributions to the EUSFLAT society in which you have been involved through many years. What do you see as your main / favorite contribution to the EUSFLAT society? And to the fuzzy sets community?

B.D.B.: That is a question that is hard to answer with modesty and should probably be posed to others. After all, I am just passing by in this world and time will tell whether it was relevant or not. I am happy my wife and I have contributed three wonderful specimens to this planet and to have been able to have guided numerous young people in their search, that should suffice.

R.PF: Perhaps I can speak up in the name of the (not anymore so) young people you have guided and thank you greatly for your many contributions to the EUSFLAT society and, more personally, for being a key contributor to the beautiful time I spent in Ghent. As a concluding comment, we all

know you have been involved in the organization of many conferences, but in 2021 you are going to face your biggest challenge with EUSFLAT 2021. I would like to end this interview by wishing you a lot of success and by asking you to do some shameless publicity of the event. Thank you very much for sharing your experience with us!

B.D.B.: Actually, we are not just organizing EUSFLAT 2021. In the week July 5-9, 2021, Guy De Tré, Chris Cornelis and myself are organizing the 2021 Multi-Conference on Fuzzy and Rough Sets, collocating the Nineteenth International Fuzzy Systems Association World Congress (IFSAC), the Fourteenth International Conference on Flexible Query Answering Systems (FQAS), the Twelfth Conference of the European Society for Fuzzy Logic and Technology (EUSFLAT), the Eleventh International Summer School on Aggregation Operators (AGOP) and the 2021 International Joint Conference on Rough Sets (IJCRS). The running theme of the multi-conference is the age of sustainability, referring to the way the conference will be organized, the themes in society that should have our priority and the sometimes poor state the field is in (see my earlier comments on some meaningless directions in fuzzy set theory). The year 2021 will also be the Centennial Commemoration of Lotfi Zadeh's birth. Moreover, the conference will be dedicated to Etienne Kerre, the local fuzzy pioneer at Ghent University.

Thank you for this interview!



RECOGNITION

EUSFLAT Congratulates

Martin Štěpnička

In this February 2019 issue of the Mathware and Softcomputing, we would like to congratulate to the awards received in the first half of this year:

- Distinguished EUSFLAT 2019 Student Paper Award: *Fuzzy Multiset Clustering for Metagame Analysis*, by A. Dockhorn, T. Schwensfeier, R. Kruse
- Distinguished EUSFLAT 2019 Student Paper Award: *Extension of the Fuzzy Dominance-Based Rough Set Approach Using Ordered Weighted Average Operators*, by M. Palangetić, C. Cornelis, S. Greco, R. Slowiński
- Best EUSFLAT 2019 Student Paper Award (sponsored by Atlantis Press): *Some Remarks on the Generalized Scheme of Reduction to Absurdity and Generalized Hypothetical Syllogism in Fuzzy Logic*, by K. Miś, M. Baczyński, P. Helbin
- EUSFLAT 2017 Best Ph.D. Thesis Award (sponsored by MDPI): *MCDM Methods Based on Pairwise Comparison Matrices and Their Fuzzy Extension*, by J. Siebert (Università degli Studi di Trento, Italy)
- EUSFLAT 2018 Best Ph.D. Thesis Award (sponsored by MDPI): *Automated Generation of Roadmaps for Automated Guided Vehicle Systems*, by S. Uttendorf (Gottfried Wilhelm Leibniz Universität Hannover, Germany)
- EUSFLAT 2019 Scientific Excellence Award: Humberto Bustince
- EUSFLAT 2019 Scientific Excellence Award: Bernard De Baets
- EUSFLAT Honorary Membership: Luis Magdalena
- Janusz Kacprzyk elected a member of the Flemish Royal Academy of Belgium for Science and the Arts
- Doctor honoris causa of the University of Latvia awarded to Irina Perfilieva
- Fuzzy Systems Pioneer Award awarded to László T. Kóczy
- Polish Academy of Sciences Medal awarded to Krasimir Atanassov, Oscar Castillo, Guy de Tré
- Polish Academy of Sciences Medal awarded to Oscar Castillo
- Polish Academy of Sciences Medal awarded Guy de Tré
- Polish Academy of Sciences Medal awarded to Patricia Melin

Let me congratulate to all the awardees and let me apologize to all of you whose awards were not mentioned above. We will be gladly receiving information from you about your awards to publicly announce them in this new Section of the Magazine.

CONFERENCE REPORT

EUSFLAT 2019

Prague, September 9-13

Sometimes pictures say more than words...





CONFERENCE REPORT

12th +FuzzyMAD meeting

Faculty of Mathematics, Complutense University, Madrid, Spain



The 12th edition of the FuzzyMAD meeting¹, +FuzzyMAD since last year, has achieved once again its objective of allowing researchers in Madrid to share activities and plans within fuzzy logic and soft computing.

This edition of +FuzzyMAD meeting has been possible thanks to the support of the Faculty of Mathematics at Complutense University of Madrid, the *Instituto de Matemáticas Interdisciplinar*, the Ph.D. Program on Mathematical Engineering, Statistics and Operational Research (a joint program between Complutense University and the Technical University of Madrid), plus a couple of Complutense research groups, led by Daniel Gómez and Begoña Vitoriano, both forming the FORaid team.

Following the traditional structure, +FuzzyMAD2019

started with a course mainly oriented for Ph.D. students. Three suggesting talks were given by prof. Bojan Mihaljevic (“Bayesian networks: theory and applications”, prof. Jorge González (“Introduction to adversary risks: contributions to Cybersecurity”), and prof. Emilio Carrizosa (“Why do we need sparsity in machine learning, and why do we need mathematical optimization?”).

Afterwards, some Ph.D students presented the current stage of their research: Felipe Barreno, Fabián Castiblanco, Elisa María, Adán Rodríguez, Inmaculada Flores and Marta M. Sánchez.

Finally, we had the +FuzzyMAD traditional poster session while having a friendly buffet meeting, where attendants from most universities of Madrid could explore future joint collaborations discussing the posters each group has prepared with this aim.

This +FuzzyMAD2019 had more than 75 participants, and it was possible thanks also to the dedication of prof. Tinguaro Rodríguez together with Inmaculada Flores, Pablo Flores, Javier León, Javier Martín, Adán Rodríguez, Gregorio Tirado, Adolfo Urrutia, Guillermo Villarino and Javier Yáñez.

We are looking the next edition of +FuzzyMAD!

Javier Montero
Complutense University
Madrid, Spain

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Instituto de Matemática Interdisciplinar, Complutense University of Madrid (IMI)
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CONFERENCE REPORT

FSTA 2020

Liptovský Ján, Slovakia, January 26-31

In January 26-31, already the 15th International Conference on Fuzzy Set Theory and Applications FSTA was held in Liptovský Ján, small village in Low Tatra Mountains in Slovakia.

The conference traditionally combined two parallel sessions scheduled in the morning and before dinner in order to give free time to participants to enjoy hotel wellness, or trips to nature, with recognized plenary talks and rich social programme.

The plenary talks were given by the following invited speakers: Bernard De Baets, Uzay Kaymak, Javier Fernandez, Svetlana Asmuss, and Przemek Grzegorzewski.

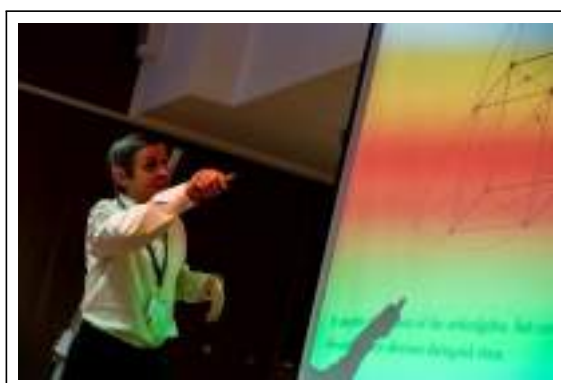
The social programme included the traditional concert of participants. This year, the concert was enriched by fabulous magical performance made by Manuel Ojeda-Aiego.

Excursions already belong to the traditional offer to the conference attendants. The organizers offered two of them, one to the Demänovská Cave of Liberty, the other one to Slovak Museum of Nature Protection and Speleology. This year, the participants had also the chance to stretch bodies in a modern sport hall during the FSTA Sport Challenge Cup – a football match between the organizers and the rest of the world.

The social programme was closed by the banquet with distinct award ceremonies accompanied by live dulcimer music.

FSTA 2020 was again a great event with the real conference spirit, one conference hotel, participants spending five days together, lots of space for cooperation, plenty of memories. We already started the preparations for FSTA 2022 and we are looking forward to meeting you there.

Radko Mesiar
Vilém Novák
Martin Štěpnička
Ladislav Šipeky







Third Call For Papers (detailed)

INTERNATIONAL JOINT CONFERENCE ON ROUGH SETS

Meliá Habana hotel, Havana, Cuba, June 29 - July 3, 2020



ORGANIZED BY

[UNIVERSIDAD CENTRAL “Marta Abreu” DE LAS VILLAS \(UCLV\)](#),
[UNIVERSIDAD TECNOLÓGICA DE LA HABANA “José Antonio Echeverría” \(Cujae\)](#), and
the [INTERNATIONAL ROUGH SET SOCIETY](#)

Aim and Scope

Rough set theory (RST) is a prominent methodology within the umbrella of *Computational Intelligence* and *Granular Computing* (GrC) to handle uncertainty in inconsistent environments. RST has enjoyed widespread success in a plethora of real-world application domains and remains at the forefront of numerous theoretical studies to consolidate and augment its well-established properties.

Authors are encouraged to submit research papers describing original, previously unpublished, complete researches, which are currently not under review by another conference or journal, addressing state-of-the-art research and developments, devoted to one or more of the conference topics. Moreover, we also invite researchers who search for new tools suitable for solving their problems, and also those who would like to discuss their problems with some members of the rough set community. They are warmly welcomed to submit the results of their research or simply participate in the conference.

The International Joint Conference on Rough Sets (IJCRS2020) will take place in the [Meliá Habana](#) hotel in Havana, Cuba, from June 29 to July 3, 2020. *IJCRS2020* aims at providing a forum for exchange on RST and their applications. The symposium includes tutorials, invited key lectures and paper presentations. The goals of *IJCRS2020* are to strengthen the relationships among researchers and institutions working on RST and GrC in general, to increase awareness of these topics and to facilitate the contact between new researchers and consolidated groups. Special interest will be paid to promoting RST among the Latin American research community. IJCRS is the prime international conference sponsored by the [International Rough Set Society](#) (IRSS). IJCRS2020 encapsulates four main tracks, which refer to major threads of rough set conferences held so far:

- Rough Sets and Data Science (in relation to RSCTC series organized since 1998)
- Rough Sets and Granular Computing (in relation to RSFDGrC series organized since 1999)
- Rough Sets and Knowledge Technology (in relation to RSKT series organized since 2006)
- Rough Sets and Intelligent Systems (in relation to RSEISP series organized since 2007)

Submission Topics

Core Rough Set Models and Methods: Covering/Neighborhood-Based Rough Set Models, Decision-Theoretic Rough Set Methods, Dominance-Based Rough Set Methods, Rough-Bayesian Models, Rough Clustering, Rough Computing, Rough Mereology, Rough-Set-Based Feature Selection, Rule-Based Systems, Partial Rough Set Models, Game-Theoretic Rough Set Methods, Variable Consistency / Precision Rough Sets, Logic in Different Rough Set Models,

Related Methods and Hybridization: Artificial Intelligence, Machine Learning, Pattern Recognition, Decision Support Systems, Fuzzy Sets and Near Sets, Uncertain and Approximate Reasoning, Information Granulation, Computing With Words, Formal Concept Analysis, Petri Nets, Intelligent Agent Models, Interactive Computing, Nature-Inspired Computation Models, Natural Language Processing, Big Data Processing.

Areas of Applications: Medicine and Health, Bioinformatics, Business Intelligence, Telecommunications, Smart Cities, Transportation, Astronomy and Atmospheric Sciences, Semantic Web, Web Mining and Text Mining, Financial Markets, Retail and E-Commerce, Computer Vision and Image Processing, Cybernetics and Robotics, Knowledge Discovery, Knowledge Engineering and Representation, Risk Monitoring.

Paper submissions / Submission Guidelines

Submissions of original and previously unpublished work on RST/GrC and applications are encouraged. All papers must be original and not simultaneously submitted to another journal or conference. Submissions must be prepared in the [LCNS/LNAI Springer format](#) and have a **maximum of 15 pages**. Accepted papers will be published in the conference proceedings by Springer-Verlag in the LNCS/LNAI series, both in printed and digital forms.

Moreover, **short submissions** can be submitted (3-6 pages), if accepted, these can be presented at the conference but will not be published in the proceedings.

Each submitted paper will be reviewed by three independent reviewers and the decision on its acceptance will be based on the results of these revisions.

All papers should be submitted through [EasyChair](#).

Preliminary Program New!

<u>Special Session:</u> Fuzzy Logic, Formal Concept Analysis and Rough Sets	María Eugenia Cornejo Dominik Ślęzak Eloisa Ramírez-Poussa
<u>Special Session:</u> Fuzzy and Rough Cognitive Networks	Gonzalo Nápoles László Kóczy
<u>Special Session:</u> Rough sets and Matroids	Mauricio Restrepo
<u>Tutorial:</u> Comparative approaches to granularity in general rough sets	A. Mani
<u>Tutorial:</u> Fuzzy rough set classification techniques	Oliver Lenz

Important dates

Deadline for submitting proposals for special sessions, workshops and tutorials	November 10, 2019
Notification of acceptance for special session/workshop/tutorial proposals	November 24, 2019
Deadline for submitting regular conference papers	January 26, 2020
Notification of acceptance for submitted papers	March 1, 2020
Deadline for submitting camera-ready of accepted conference papers	29 March, 2020
Deadline for early registration and conference payments (including publications of accepted papers)	19 April, 2020
IJCRS2020, Conference, Meliá Habana hotel, Havana, Cuba	June 29- July 3, 2020

Registration fee

Early registration (Before April 19)	normal 400 euros , students 300 euros
Regular registration (After April 19)	normal 450 euros , students 350 euros

Remark: registration fee covers up to two papers. Authors with more than 2 papers must pay an additional fee of 100 euros for each extra paper.

Accommodations in Meliá Habana hotel (not mandatory)

These are special prices (**one night**, in CUC: Cuban convertible pesos) in Meliá Habana for delegates.

Please consult: e-mail: promotor.eventos4.mha@meliacuba.com, www.meliacuba.com

Phone: (+53) 7204 8500, (+53) 7206 9400 (ext.5435, 5465, 5463)

Single room / Twin/Double room / Triple room **99.20 / 124.00 / 176.70**

Committees

<u>Steering Committee</u>	Davide Ciucci (davide.ciucci@unimib.it) Tamás Mihálydeák (mihalydeak.tamas@inf.unideb.hu) Victor Marek (marek@cs.uky.edu) Sushmita Mitra (somosmita.sushmita@gmail.com)
<u>Organizing Committee</u>	Rafael Bello (rbellop@uclv.edu.cu)
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<u>Local committee chair</u>	Alejandro Rosete (rosete@ceis.cujae.edu.cu)
<u>Technical Program Committee</u>	Rafael Falcon (rfalcon@ieee.org)
<u>Co-Chairs</u>	Michinori Nakata (nakatam@ieee.org)
<u>Special Session/Tutorials Co-Chairs</u>	Chris Cornelis (Chris.Cornelis@UGent.be) Hong Yu (yuhong@cqupt.edu.cn)
<u>Publicity chair</u>	Mauricio Restrepo (mauricio.restrepo@unimilitar.edu.co)
<u>Honorary chair</u>	Andrzej Skowron (skowron@mimuw.edu.pl) Yiyu Yao (yyao@cs.uregina.ca)

Technical Program Committee (in alphabetical order):

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Please consult the [IJCRS2020 web page](#) for information about the venue, hotels, transportation, conference fees, payment modes and social events.

ISAS 2020

INTERNATIONAL SYMPOSIUM ON
AGGREGATION AND STRUCTURES



PAMPLONA

SEPTEMBER 9-11

The goal of **ISAS** is to give the opportunity to researchers to present and discuss their latest (theoretical grounded) results about aggregation and structures, and to identify new trends in the field. The topic has to be understood in a wide sense:

aggregation on structures and **aggregation of structures**.

Scientific committee:

- Humberto Bustince, Spain
- Bernard De Baets, Belgium
- Radko Mesiar, Slovak Republic

Organizing committee:

- Fco. Javier Fernandez, Spain
- Daniel Paternain, Spain
- Mikel Sesma-Sara, Spain

Abstract submission deadline: **April 15th, 2020**

Regular fee:

500 € including **3 nights in 4-star hotel + lunches + gala dinner**

More information at **www.unavarra.es/isas2020**



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Universidad Pública de Navarra
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LUNETAS DE
SANTA JAKA

SMPS 2020

September 16-18, 2020
Valladolid – Spain

SMPS 2020 invites submissions of papers dealing with a variety of topics in soft methods in probability and statistics, which include, but are not limited to the methodology and applications related to

- Analysis of Censored Data
- Analysis of Interval-Valued Data
- Analysis of Symbolic Data
- Clustering and Classification
- Copulas
- Deep Learning
- Dempster-Shafer Theory
- Functional Data Analysis
- Fuzzy Data Analysis
- Fuzzy Regression Methods
- Graphical Models
- Heuristic Optimization
- Imprecise Probabilities
- Machine Learning
- Neural Networks in Data Analysis
- Random Sets
- Random Fuzzy Sets
- Robust Methods

Proceedings: As for the preceding SMPS conferences, the accepted peer reviewed papers of the SMPS 2020 conferences will appear as a volume published by Springer.

IJAR Special issue: Authors of selected papers from the SMPS 2020 conference will be invited to submit extended versions of their papers for possible inclusion in a special issue of the *International Journal of Approximate Reasoning*.

IJAR best paper award: Elsevier will sponsor an IJAR best paper award at SMPS 2020, with a prize of 1000€.

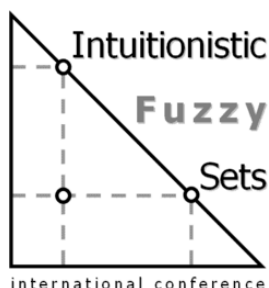
Important dates

- April 8: Paper submission deadline
- April 30: Author notification
- May 15: Camera-ready copy due
- May 25: Early registration deadline

Contact

smps2020@uva.es

<http://smps2020.uva.es/>



24th International Conference on Intuitionistic Fuzzy Sets

8–9 October 2020, Burgas, Bulgaria
Congress Center “Marine Station”

<http://ifigenia.org/wiki/ICIFS-2020>

First Call for Papers

△ Aim and Scope

The aim of the annual International Conference on Intuitionistic Fuzzy Sets (ICIFS) is to gather specialists interested in intuitionistic fuzziness, decision making under uncertainty, and other related topics, and to give them floor for discussions on both the theoretical and practical aspects of this relatively new area of fuzzy set theory. Since 2013, ICIFS has been an EUSFLAT endorsed event.

△ Conference Chairs and Committee

Conference Chairs

Janusz Kacprzyk (PL)
Krassimir Atanassov (BG)
Sotir Sotirov (BG)

Program Committee

Adrian Ban (RO)
Ranjit Biswas (IN)
Humberto Bustince (ES)
Oscar Castillo (MX)
Panagiotis Chountas (UK)
Gökhan Çuvalcıoğlu (TR)
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Olympia Roeva (BG)
Anthony Shannon (AU)
Evdokia Sotirova (BG)
Eulalia Szmidt (PL)
Sławomir Zadrozny (PL)

Organizing Committee

Vassia Atanassova (BG)
Veselina Bureva (BG)
Peter Vassilev (BG)
Simeon Ribagin (BG)

△ Important dates

15 May 2020

Submission of manuscripts

31 May 2020

Peer review process complete,
notification of acceptance

15 June 2020

Final papers submission, deadline
for conference fee payments

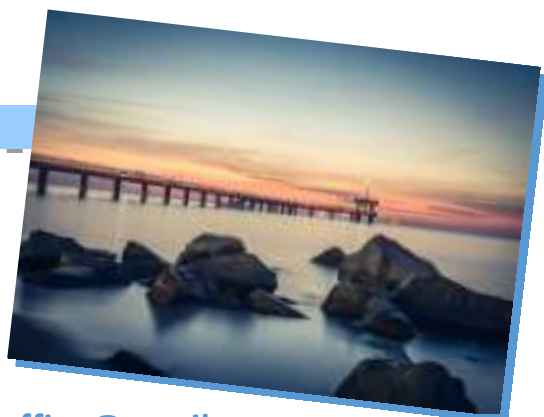
8–9 October 2020

Conference in the Congress Center
“Marine Station”, Burgas, Bulgaria

△ Instructions to Authors

All papers accepted for presentation at ICIFS'2020 will be published in the **Journal "Notes on Intuitionistic Fuzzy Sets"** (Print ISSN: 1310-4926 Online ISSN: 2367-8283) and available online with DOI numbers. Papers should not exceed 12 A4 pages and should comply with the paper template of the Journal "Notes on Intuitionistic Fuzzy Sets". Papers are peer reviewed by two independent reviewers.

E-mail for paper submissions and conference correspondence: icifs.office@gmail.com



△ Registration

Registration fee is EUR 200, for students and EUSFLAT members – EUR 150. The registration fee includes a copy of the Proceedings, snacks and beverages during the coffee breaks, a conference dinner and a trip. Registration fees will be collected by bank transfer prior to the conference. Assistance for the accommodation and for the commute between Sofia and Burgas can be provided on demand, subject to availability.