

New Awards for Research in Multiple-Valued Logic and Soft-Computing and a student competition

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As decided by MVL Technical Committee in 2005, there will be two technical awards and a student competition. Our goal is to motivate students and young researchers to enter the field of multiple-valued logic, soft-computing and their applications in robotics.

After careful consideration of papers submitted and presented at ISMVL 2005, the Committee decided that the first two awards, for year 2005, were given to Phil Serchuk from University of Alberta, Calgary. Phil will present his new work related to the "Award for work on using MVL in Soft Computing and widely understood Robotics" at the ISMVL 2006 conference. He will present also a natural-language conversation program implemented on a talking robot head Jan Emil Muval.

Student Robot Competition

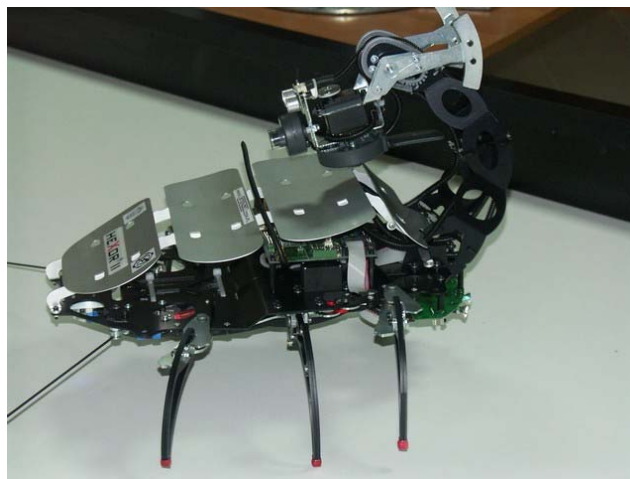
Starting 2006, there will be a student robot competition organized together with ISMVL symposium. All interested parties in year 2006 can receive a robot kit or a ready robot from the chair of technical committee, Dr. Marek Perkowski (all interested parties please contact him). The robots will compete at ISMVL 2006 and they will be evaluated on their performance and use of techniques of soft-computing. There is no any restriction on the mechanical design of these robots. They may be humanoid robots, robot heads, mobile and walking robots. Finally, pure software projects that simulate robot behavior will be also acceptable. Students should bring the robots with them to ISMVL 2006 and demonstrate their behavior to the audience. Photographs show examples of robots built by students, some of them will participate in the competition.

Award for a Young Researcher in the field of Multiple-Valued Logic

Starting 2005, there will be a yearly award from the MVL Technical Committee for the outstanding contribution by a young researcher in the area of Multiple-Valued Logic. The

award will be USD 200 and a commemorative plaque. The award will be open to graduate and undergraduate students and researchers who are within five years of receiving their terminal degrees. To be considered, the individual must be the first author of the paper and must present the paper at the symposium.

The awarding procedure will be as follows: (1) The ISMVL Referees will be asked to identify ISMVL papers they consider worthy of consideration for the award; (2) Once the program committee knows who will present the paper, the symposium committee will check that person's eligibility to be considered for the award; (3) At least two members of the program committee will attend the presentation of a paper being considered; (4) After all papers being considered have been presented the symposium committee will convene to determine which, if any, presenter should receive the award; (5) The award will be presented at the symposium the following year.



Award for work on using MVL in Soft Computing and widely understood Robotics

Starting in 2005, there will be a Challenge-Cup Award from the Technical Committee on Multiple-Valued Logic of

IEEE for the best paper on applying multiple-valued logic in widely understood Soft Computing: Computational Intelligence, Robot Vision and Pattern Recognition, Natural Language, Emotional Computing, Fuzzy Control systems, Robotics, and related areas.

The award will be in the form of a talking robot head named Jan Emil Muval that is currently being developed in the latex face technology at Portland State University. The award will include also a commemorative plaque. The first-generation robot will have some knowledge of multiple-valued logic and history of MVL starting from Jan Lukasiewicz and Emil Post. He will communicate verbally and by facial expressions with the audience.

The robot head with software will be given for one year to authors of a paper published in the ISMVL, ULSI or IWBP conferences during the given year and one of the authors should be present at the symposium to demonstrate the talking head. There is the condition that the paper is related to some software or hardware practically used by the authors to enhance the intelligence of the MUVAL robot. This way, the robot's hardware/ software/ knowledgeware system will grow with each year award, and every year the updated system will be demonstrated at the ISMVL conference by one of the awarded researchers. It will be his/her responsibility to extend the MUVAL system and bring the head to the symposium for demonstration.

The awarding procedure will be as follows: (1) The ISMVL Referees and two members of the Executive Committee will be asked to identify a single paper from ISMVL, ULSI or previous year IWBP (International Workshop on Boolean Problems) that they consider worthy of the award; (2) One of the authors agrees to attend the ISMVL Symposium, (3) The award will be presented at the symposium the given year.



Talking robot heads have long history. Citing from [19] *“During the Middle Age, myths about automata and artificial beings took on new life and spread throughout Europe with new connotations. At the end of the 13 th Century in England, the weird legend was spread of a brass talking head, built by Roger Bacon (1214-1294), a philosopher who prophesized the coming of an era dominated by machines. Actually, thanks also to the ancient mythical connotations that link knowledge with power (and magic) (4), many famous scholars and savants were credited by legend with the ability to build artificial talking heads. Roberto Grossatesta (1168-1253), a mathematician and philosopher, had one of those heads, as well the “magician” pope, Silvester II (alias mathematician Gerbert of Aurillac). Even St. Albertus Magnus (1206-1280), also known as Albert the Great, was credited with having built a robot. The saint, who was also a Bavarian philosopher, theologian and bishop as well as geographer, astronomer and chemist, was famous among his contemporaries as the “universal doctor”, or “the wonder of knowledge”. A legend tells that he was able to organize a banquet during which the guests were served by metallic waiters.”* Thus, our award is a modern recreation of a long term tradition of European philosophers and scientists.



Observe that there is already a substantial body of literature on applying multiple-valued logic to many research areas listed above, including robot perception, control, planning, or knowledge-based reasoning. Below, we will list only some examples. Multiple-valued and fuzzy logic have been also used in several robot vision projects, like segmentation, by Hata et al. [4,5,6]. They work also on analogy reasoning [3]. Other work on using MVL to image processing is presented by Hanyu, Arakaki and Kameyama [12]. Liu et al use fuzzy logic for speech recognition [18]. Multiple-valued logic was used in framework of learning by Ngom, Simovici and Stojmenovic [7,8], Cheushev, Shmerko, Simovici and Yanushkevich [9], and Tang et al, [10]. Bignall and Spinks present Multiple-Valued logic as a programming language [11]. Removing of vacuous variables is one method used by us in the outlined software, this topic is further discussed by Sasao [13]. Saxton and Tang use XML to present multivalued dependencies in trees [16]. Gurfinkel and Chechik are concerned with Multi-Valued Model Checking [15]. M. Ginsberg created a popular MVL reasoning system [17]. Saffiotti, Konolige, and Ruspini created a well-known system that uses MVL to integrate planning and control of a mobile robot [14]. Mischenko et al [1] and Perkowski and Grygiel used multiple-valued logic to various decompositions applied next to several robotic applications. Falkowski and Olejnicka present various multiple-valued and spectral methods [20] that can be used in face and gesture recognition and other robot vision applications.

It seems therefore that multiple-valued logic can be productively applied in Soft Computing, Computational Intelligence and particularly in humanoid robotics. Definitely, more research in this area is needed. Therefore, it is the MVL TC hope that the award will stimulate the research in these important areas.



Literature

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