2011 FUZZ-IEEE Conference Competition

Organized by

Task Force on Competitions, Fuzzy Systems Technical Committee
IEEE Computational Intelligence Society

1. An Introduction to the 2011 FUZZ-IEEE Conference Competition

There are two separate competition challenges:

1. A fuzzy control problem – to develop an **innovative** fuzzy logic controller to control a substantially simplified magnetic suspension system under different conditions. It is a multi-input, multi-output (MIMO) control problem.
2. A fuzzy dynamic system modeling problem – to develop an **innovative** fuzzy logic-based MIMO dynamic system model for a four-input, four-output system.

Both competition problems are based on computer simulation without involvement of the hardware system.

You may choose to compete for either one of the problems or both (that is, you are *not* required to compete for both problems).

There are two PDF files and an Excel file for you to download:

1. A PDF file that covers the fuzzy control problem description, control performance requirements and reporting requirements;
2. A PDF file that covers the fuzzy dynamic system modeling problem description, modeling performance requirements and reporting requirements plus an Excel data file for modeling;

2. Preparing and Submitting a Competition Paper

You enter the competition by reporting your **novel** solution to one of the problems in a paper submitted through the conference web submission site (all the conference papers, competition or not, will be submitted through the same site). Please accompany your paper with a brief cover letter simply stating that your paper responds to the competition announcement. In that way, your paper will be routed to the Task Force for evaluation. A paper without such a letter will be treated by the conference as a regular paper instead of a competition paper. Your paper should meet all the requirements set by the conference for paper submission (e.g., paper length and font sizes). There is no difference between the competition paper and non-competition papers except the former is specifically written to address the competition problem.

If you compete for both problems, you will need to write and submit **two** papers.

We have developed the competition problems by ourselves and have done our best to avoid errors. We have developed the competition rules below with the intention to make them comprehensive in coverage. Nevertheless, it is a learning process for us and mistakes may be inevitable. If we find an error or have to make an adjustment to the competition material posted on the conference web, we will do so and will inform you of any substantial change that impacts the competition. For this purpose, we ask you to send your name and e-mail address to Professor Hao Ying (hao.ying@wayne.edu) so that we can keep you informed. You are encouraged to do so, but this step is optional.

3. Competition Rules

In preparing your competition work, please keep the following rules in mind:

1. Fuzzy sets and fuzzy logic must be used and they must play a **central role** in the controller. A solution without using them will be disqualified from the competition. Such a paper will be sent to the conference's Program Chair for his disposal.
2. The authors are encouraged to use MATLAB and its toolboxes to conduct the simulation study. This, however, is not required.
3. A number of control system (or system modeling) performance data files and all your computer programs are required to be submitted to the Task Force. They are in addition to the results displayed in the paper. See the Reporting Requirements section of the competition problem description files for details.
4. A small number of papers will be determined as the finalists for either competition problem by the Task Force members collectively. One of the authors of a finalist paper **must** attend in person, a special session during the conference organized by the Task Force or the paper will be automatically disqualified for further competition consideration. Due to the budget constraint, no financial support is available from the conference to the finalists. Award certificates and prizes will be presented to the winners at the conference.
5. The author of a finalist paper will orally present the work and defend it in the session. The author will run the programs to show his/her control result. A number of Task Force members will attend the session to ask questions and examine the work in determining the competition's winners. Official certificates and prizes will be issued to the winners at the conference.
6. **The factors involving the selections of the finalists and the winners include**: (1) technical novelty with respect to the current fuzzy control and modeling literature and soundness of the proposed control/modeling solution, (2) performance of the control system (or system model), (3) paper quality, and (4) oral presentation and defense quality (for the finalists only).
7. Accepting a competition paper as a finalist paper means that the paper has been accepted by the conference. The papers that are not selected as finalists will be handed over to the conference's Program Chair who will put them into the regular peer-review process. Comments made by the Task Force members on these papers will *not* be forwarded.

If you have any questions, please contact the Task Force Chair who can be reached via email or telephone as shown below:

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4. Task Force on Competitions of the IEEE Computational Intelligence Society's Fuzzy Systems Technical Committee

The Task Force currently consists of the following members:

Plamen Angelov, Ph.D., Lancaster University, U.K.
Mohammad Biglarbegian, Ph.D., Ryerson University, Canada
Asli Celikyilmaz, Ph.D., Microsoft Research, USA
Xinyu Du, M.S., Wayne State University, USA
Dimitar Filev, Ph.D. (Vice Chair), Ford Motor Company, USA
Yanqing Ji, Ph.D., Gonzaga University, USA
Zhao Lu, Ph.D., Tuskegee University, USA
Edwin Lughofer, Ph.D., Johannes Kepler University of Line, Austria
Fazal U. Syed, Ph.D., Ford Motor Company, USA
Tadanari Taniguchi, Ph.D., Tokai University, Japan
Hao Ying, Ph.D. (Chair), Wayne State University, USA
Xiao-Jun Zeng, Ph.D., University of Manchester, U.K.
Haibo Zhou, M.S., Central South University, China

The membership may be expanded to more efficiently handle the peer-review and decision-making.