

Proceedings
16th International
Conference on
Pattern Recognition

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Hosted by
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Canadian Image Processing and Pattern Recognition Society



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Proceedings

**16th International
Conference on
Pattern Recognition**

ICPR 2002

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Message from the General Chairs

Welcome to the International Conference on Pattern Recognition ICPR-2002. This is the 16th biannual conference of the International Association for Pattern Recognition (IAPR). The theme of ICPR-2002 is "Pattern Recognition for Humankind and the Environment", focussing on Computer Vision and Robotics, Pattern Recognition, Neural Networks, Document Analysis, Image and Signal Processing, and Biomedical and Multimedia Applications. Several satellite workshops on specialized subjects have also been organized right before or after ICPR-2002 in cities nearby.

In co-operation with the Institute of Electrical and Electronics Engineers (IEEE), this conference is hosted by the Canadian Image Processing and Pattern Recognition Society and co-sponsored by several organizations. Pattern Recognition techniques and systems have been applied successfully to solve many practical problems, covering many subject areas. This conference brings together a large number of scientists from all over the world to express their innovative ideas and report on their latest findings. In addition to the rich technical program, the conference also features numerous tutorials, exhibitions, and social events.

Of the 1240 papers received from authors around the globe, 250 were selected for Oral Presentations and 555 were selected as Posters. Each paper was typically assigned to three program committee members for review. In a two-day meeting in Quebec City, the Track Co-Chairs made the final selections based on 3,450 reviews received and their own evaluation of the papers. In addition, we have 7 invited papers and a panel session to cover frontier areas for in-depth and in-breadth analyses and insights, and special interests. In addition, we have organized 8 tutorials. For all these activities, we would like to thank the Track Co-Chairs Nicholas Ayache, Kim Boyer, Horst Bunke, Henrik Christensen, Murat Kunt, Gabriella Sanniti di Baja, Linda Shapiro, Yoshiaki Shirai, Robert Woodham, and their committee members for a superb program and conference proceedings; and the Tutorial Chair Denis Poussart for organizing a wide range of tutorials.

We would like to express our gratitude to the local organizing committees for taking care of financial matters (Jean-Guy Deschênes, Xavier Maldague, Marc Parizeau), and other arrangements (Robert Bergevin, Tien Bui, Mohamed Chériet, Tony Kasvand, Robert Sabourin). Special thanks go to Local Arrangements Chair, Denis Laurendeau, who has dedicated himself to a great variety of duties, ranging from conference venue and hotels, to publications (together with Thomas Baldwin, Bob Werner, and Stephanie Kawada of the IEEE Computer Society), software for handling paper submissions, reviews and selections (together with Howard Johnson of the National Research Council of Canada), plus numerous other chores. They, together with secretaries Beverley Abramovitz and Hélène Dallaire, and conference managers Monick Debroux, Josée Fleurent, and Dominique Houde, have created a very warm and comfortable environment to work in.

Thanks are also due to the organizations listed in the proceedings and those of the organizers of ICPR-2002, which have given us strong support in finance and in various forms and means.

Finally, I hope you will find this conference a rewarding and memorable experience. We wish you a very enjoyable stay in beautiful Québec City and other parts of Canada.

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Message from the President of IAPR

It is a real pleasure for me to give the greetings of IAPR to the scientific community attending the 16th ICPR. This biennial conference is the main event of IAPR and it offers a great opportunity for presenting the results achieved in a variety of fields to a large, qualified international audience.

Twenty years exactly have passed since I first attended an ICPR: it was the 6th ICPR in Munich (to be precise, I had already been co-author of a paper accepted at the 5th ICPR in Miami, but it was my colleague who gave the talk!). Since that time I have attended all the ICPRs and kept pleasant memories of each (if I were to forget, a quick look at the bookshelves would soon refresh my memory: 27 volumes of proceedings are in a row, waiting for the 4 more volumes of the 16th ICPR). I have memories of moments of great scientific relevance and also memories of enjoyable travelling experiences: above all I remember the many friendly relations that started at some of the ICPRs and the scientific relations that helped me to grow as a researcher.

The community interested in IAPR activities has significantly increased during the past 20 years and so has the number of ICPR participants. It's a pleasure to see so many new participants together with a number of habitués, several of whom are outstanding researchers and pioneers in the field. The ICPR is the right place for young researchers to meet experienced and well-known scientists, and it is also the place for these scientists to remain young by exchanging views with researchers of the rising generation.

The technological progress of the past 20 years has had a great impact on the running of the ICPR: without the help of an adequate software, able to handle electronically the reviewing process, it would have been impossible to deal with the huge number of papers that have been submitted to this ICPR in a relatively short time. To help future ICPR organisers, an "Ad Hoc Committee for Conference Software" has been recently set up to write down the kind of information needed for an ICPR conference and to examine what is available on the market to find the software which best fits ICPR requirements.

Together with an intense scientific program, one important feature of the ICPR is the presentation of the K.S. Fu Prize, biennially given to a living person in acknowledgement of his/her outstanding technical contribution to the field of pattern recognition. The recipient for 2002 is Prof. Thomas S. Huang, for his fundamental work on 3D-motion estimation that established the field of structure from motion. The winners of the "Best Industry Related Paper Award" and of the "Piero Zamperoni, Best Student's Paper Award" will be announced at the conference.

On this occasion, I would like to thank the General Chair, Ching Suen, the two General Co-Chairs, Rangachar Kasturi — for the Technical Program — and Réjean Plamondon — for Sponsorship and Publicity, the Tutorial and Demos Chair, Denis Poussart, and especially the Chair for Local Arrangements, Denis Laurendeau. A silent, but warm, applause is also due to all Co-Chairs of the four ICPR tracks that have been working hard to put together the interesting program that we are going to enjoy. Organising an ICPR is a much heavier task than one can imagine and all the persons I have just referred to as well as their staffs deserve our sincere appreciation.

Last but not least I'd like to take this opportunity to express my deep gratitude to the Executive Committee and to all the Officers and Committee Members of IAPR. Their constant support and willingness to work hard for the Association has been very much helpful and cheering up. Without it, my six years as Secretary and my last two years as President of IAPR could not have been such a rewarding, agreeable experience.

Gabriella Sanniti di Baja
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