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Munich, Germany, Oct. 19-22, 1982

DAGM: Deutsche Arbeitsgemeinschaft Mustererkennung

IAPR: International Association for Pattern Recognition

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6th International Conference on PATTERN RECOGNITION

Munich, Germany, Oct. 19-22, 1982

Conference Chairman's Message

The sixth ICPR in Munich shows the recent development of this exciting new field with respect to methods as well as to applications. It is a pleasure to offer this work to the scientific community. I would like to thank all those who contributed to the organization and to the publication of the two volumes, especially the authors, our publications chairman, and the IEEE Computer Society Press. I hope this work will give information and stimulating support to all those engaged in the field of Pattern Recognition.

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Editor's Note

Contributions of more than 500 outstanding experts from 23 countries have made these proceedings an excellent documentation of the current state-of-the-art in Pattern Recognition. It is greatly acknowledged that the authors followed the rules we necessarily had to make in order to complete the proceedings with appropriate size, cost, and timely publication. Unfortunately, some of the accepted papers did not arrive on time and therefore could not be placed in the proceedings in the proper place. However, if they arrived before the printing, they can be found at the end of the second volume.

Special thanks are given to my co-workers, especially to Maria Blakley and to Dr. Hans Unterberger, who actively and untiringly helped me in the extensive preparation of the two volumes.

Finally, I am indebted to Mr. C.G. Stockton of the IEEE Computer Society Press, who not only handled the distribution of the author's kits, but also practised effective and friendly cooperation across the Atlantic.

Manfred Lang
Publications Chairman

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Foreword

The International Conferences on Pattern Recognition have become the outstanding international meeting of researchers in the broad field of Pattern Recognition. For the first time the ICPR is located in Germany, and we hope you will agree that Munich is a city which is as pleasant and remarkable as the other excellent conference places all over the world which so far have housed the ICPRs.

Nevertheless, the heart of a conference is the scientific program, and we are sure that a rich and diverse set of high quality papers was selected and will be presented at the conference. We received 337 complete papers from 25 countries and selected 251 papers from 23 countries for presentation and publication. However, the majority of submitted (237) and accepted (186) papers is from only four countries. These numbers do not include posters and invited papers. In addition to the submitted papers, sixteen leading experts were asked to present invited survey papers at the conference. The topics were selected to cover diverse aspects of Pattern Recognition and, if possible, to be somewhat different from surveys presented at preceding ICPRs. A set of 50 posters will be shown, and it is expected that this offers an opportunity to make last minute results known. The four panels organized for the conference focus on topics of immediate interest and should initiate additional scientific discussion. In summary, the papers indicate the importance of all aspects of image processing and the trend to make the available techniques work in practice. Finally, the scientific program is augmented by technical excursions and an industrial exhibition organized by the Industrial Program Chairman. These activities provide excellent opportunities for further information.

Every short paper was sent to two independent reviewers, every long paper to three. In most cases the votes of the reviewers concerning acceptance or rejection were the same, and in these cases such a unanimous vote was considered to be the correct classification. But it also happened that the votes were not unanimous--this was the case for 81 papers, to be precise. The following five criteria were then used to come to a decision: the grading of the papers by the reviewers and their comments, if any; the need for a balanced technical program; the size of the Proceedings; additional or related papers by the same author(s); a (quick) look at the paper by the Program Chairman. The first and the third criterion turned out to be the most important ones. Since the Organizing Committee had decided to limit the size of the Proceedings to 1200 pages, a high threshold for accepting a paper had to be established. This necessarily resulted in the rejection of quite a few papers.

The cooperation of the members of the Program Committee, who also suggested the reviewers, is gratefully acknowledged. Without the competent and fast help of these experts it would have been impossible to evaluate the submitted papers properly. The task of the Program Chairman was, in fact, made manageable to a good extent by their effort. All the members of the Organizing Committee gave every support necessary to prepare the Program, and my coworkers H. Bunke, D. Jäpel, and P. Regel as well as my secretaries Mrs. T. Wille and Mrs. S. Zett spent hours to assist me in all phases until the Program was finished. Thanks to all of you!

May the 6th ICPR continue in the line of successful conferences, which document the international progress and exhibit future trends, and may this be a good basis for the 7th ICPR to be organized by M.D. Levine in Montreal, Canada, in 1984.

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Message from the President of IAPR

It gives me great pleasure to extend greetings to the membership of IAPR on the occasion of this Sixth International Conference on Pattern Recognition. It is now over ten years since the original committee was formed that organized the First International Joint Conference on Pattern Recognition, held in Washington, DC in October 1973. The Association officially came into existence in 1978, and now has nearly 20 national member societies. We look forward to its continued growth.

The range of interests of IAPR can best be defined by the technical program of this Conference. The range of membership is indicated by the list of member societies given below; this does not include several new member societies which are expected to be formally elected to IAPR membership at the meeting of the Governing Board to be held at this Conference.

Azriel Rosenfeld
College Park, MD, USA

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Canada: Canadian Image Processing and Pattern Recognition Society.
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Federal Republic of Germany: Deutsche Arbeitsgemeinschaft für Mustererkennung.
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Italy: Gruppo di Lavoro per il Pattern Recognition of A.I.C.A. (Italian Association for Automatic Computation).
Japan: Audio-Visual Research Group (AVIRC).
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The Netherlands: Nederlandse Vereniging voor Patroonherkenning en Beeldverwerking.
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Deutsche Arbeitsgemeinschaft für Mustererkennung—DAGM

The DAGM (German Pattern Recognition Society) is an organisation that promotes the exchange of know-how in the field of pattern recognition. It is supported by the societies DGaO, DGK, DGN, DGON, GI, GMDS, NTG, and the German Section of the IEEE. The DAGM represents these organisations internationally in the field of pattern recognition and is a member of the IAPR. Its president, member organisations, and their representatives are:

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Grusswort

Sehr geehrte Damen und Herren,

Es freut mich, dass es der Deutschen Arbeitsgemeinschaft für Mustererkennung gelungen ist, die 6. International Conference on Pattern Recognition nach Deutschland zu holen.

Mustererkennungsanwendungen waren in der Vergangenheit wegen ihres enormen Bedarfs an Rechnerleistung und Speicherkapazität weitgehend an aufwendig ausgestattete Rechenzentren oder Forschungslabors gebunden. Die drastischen Verbesserungen des Preis-Leistungsverhältnisses von Prozessoren und Speicherchips heben diese Barrieren teurer Erstausstattung auf und lassen eine breite Anwendung von Mustererkennungssystemen absehen. Automatische Sprach- und Bildverarbeitung wird Bestandteil fortgeschrittener Produktionssysteme sein, vor allem im Bereich der Prozesssteuerung, der Handhabung und Qualitätskontrolle, später auch im Büro.

Hier gilt es natürlich, noch einige Hemnisse auszuräumen. Die Bild- und Sprachverarbeitung, heute noch oftmals als magische Kunst betrachtet, wird von vielen Anwendern noch mit Skepsis betrachtet und muss vor allem um Investitionsgelder mit anderen Automatisierungstechniken konkurrieren, die derzeit eine schnellere Amortisation versprechen.

Trotz dieser Hemnisse wird für die Mustererkennung die heute noch zwischen Forschung und Anwendung bestehende Lücke geschlossen. Dazu beitragen wird neben dem technischen Fortschritt, der durch die Bauelemententwicklung und durch die Fortschritte im Bereich der Künstlichen Intelligenz stark bestimmt ist,

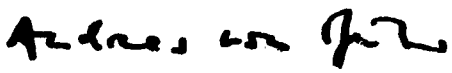
- der immer schärfer werdende internationale Wettbewerb, der die Industrie zwingt, alle sich bietenden Möglichkeiten auf Produktivitätssteigerung auszunutzen
- das Interesse der Mikroelektronikindustrie und der DV-Industrie, die neue Märkte durch neue Anwendungen für ihr auf Wachstum angelegtes Geschäft dringend benötigen und nicht zuletzt
- die staatliche Förderung, wie z.B. das amerikanische Programm "Speech Understanding" und "Image Understanding" oder das japanische PIPS-Programm.

Auch das BMFT fördert seit etwa 3 Jahren die Mustererkennung, wenn auch in sehr bescheidenem Umfang.

Ihr Arbeitsgebiet hat eine grosse Zukunft, insofern können Sie ganz optimistisch sein. Nutzen Sie diese Chance dazu aus, die Mustererkennung für gesellschaftlich nutzbringende und sinnvolle Anwendungen zu erschliessen.

In diesem Sinne wünsche ich Ihrer Tagung viel Erfolg.

Andreas von Bülow



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