IAPR

International Association for Pattern Recognition, Inc.
An affiliate member of the International Federation for Information Processing

NEWSLETTER

Editor

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EDITORIAL COMMENTS

BLOCKS AND BOARDS

There was a time several years ago when it was thought that the study of the "Blocks World" would provide us with many of the answers to difficult picture processing problems. Although this eventually turned out not to be the case, some very interesting work was done related to the analysis of pictures of scenes containing opaque polyhedra. This was considered to be a "toy" environment. Now this is no longer the case.

Biomedical image processing and the analysis of remote sensing data have been the two major applications areas in the field. Industrial interest in the use of digital computers for computer vision has been very limited even though there exist obvious problems related to automation, such as inspection, control, and assembly. It appears however, that now there is a growing interest in the design of robotic systems which possess visual feedback. At present most of these systems are concerned with the very same polyhedra that people have generally ignored for the last few years. Such prototypical applications as the inspection and soldering of the very computer boards to be used to construct these robots are clearly possible and of great interest to many at this time.

Martin D. Levine
Editor

NITPIC

.....The previous NITPIC stated that the 6th IJCPR would be held in a city that looked very much like Zurich. Let it here be noted that this conference will be held in October 1982 in Munich!!!.....In the past having been incorporated in the State of New York, the IAPR has recently received tax exempt status under the United States tax laws. The surpluses incurred by such an organization are exempt of any tax. In addition donations and gifts made to IAPR are tax deductible to the donor under U.S. law.....Dr. Herb Freeman, President of the IAPR recently attended the IFIP General Assembly at the IFIP Conference as the IAPR delegate......Mr. S. Chandrasekhar of Andhra Pradesh, India and Dr. D. Yaffe of Haifa, Israel have been accepted by the Membership Committee of IAPR as new individual members of IAPR.....An edited book on machine architecture and high level languages for image processing is in the works.....At the AFCET Computer Science Conference to be held in Nancy, France in November there will be a concert entitled "Music and Digital Images." Apparently both the music and the accompanying images are synthesized in real time.....Dr. Ching Suen has recently been appointed as Chairman of the Computer Science Department at Concordia University in Montreal, Canada.....Professor Kendall Preston, Jr. of the Department of Electrical Engineering at Carnegie-Mellon University in Pittsburgh, Pennsylvania has recently been awarded a grant from the Division of Mathematics and Computer Science, United States National Foundation for the purpose of investigating multi-dimensional logical transforms. Applications that are being studied are computed tomography and data point clustering.....

CONFERENCE REPORTS

REPORT ON EUSIPCO-80

THE FIRST EUROPEAN SIGNAL PROCESSING CONFERENCE

This conference was held at the Swiss Federal Institute of Technology, Lausanne, September 16-19, 1980. Planned as a triennal international conference, it was promoted and organized by EURASIP, the European Association for Signal Processing, in co-operation with other scientific and technical organizations. All major disciplines of signal processing have been covered, e.g., signal, noise and communication theory, detection and estimation, digital filtering and spectral analysis, image and 2-D signal processing, signals, systems and modelling, biomedical signal processing, radar, sonar and antenna signals, pattern recognition and speech processing.

This conference drew an audience of slightly over 600 people with different backgrounds, about 50 came from other countries. Most of the 32 sessions were very well attended. One aspect about this conference which is of particular interest is that many applications, both scientific and industrial, have been presented, giving the audience a taste of the practical aspects of signal processing.

Through visual and verbal signals, this conference succeeded in bringing together, for the first time, individuals working in the dynamic field of signal processing. It has fulfilled the aims of exchange of ideas and cross-fertilization in an amicable atmosphere. The conference was very well planned and organized by the Conference Co-Chairmen, Dr. M. Kunt and Prof. F. de Coulon, the EURASIP members and their associates.

Copies of the Proceedings of this conference are available from North-Holland Publishing Company, Amsterdam, New York, Oxford.

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Department of Computer Science
Concordia University
Montreal, Canada

FIRST SCANDINAVIAN CONFERENCE ON IMAGE ANALYSIS

The First Scandinavian Conference on Image Analysis was held in Linkoping, Sweden 14-16 January, 1980. The conference was arranged by The Swedish Society for Automated Image Processing and supported by IAPR as a regional conference. It was also supported by the national societies in Denmark and Finland and the chairmen of these organizations participated in the conference committee.

The conference was attended by 175 participants from 10 countries and 67 contributions were delivered during sessions in hardware, software, theoretical problems, industrial applications, biomedical applications, remote sensing and biotechnology.

A 390-page proceeding is available from:

*Studentlitteratur, Lund Sweden
(ISBN 91-44-17191)
Bratt Inst fur Neues Lernen, West Germany
(ISBN 3-88598-006-1)
Chartwell-Bratt Ltd, Great Britain
(ISBN 0-86238-001-4)*

Torleiv Orhaug
Conference Chairman

WORKSHOP ON PICTURE DATA DESCRIPTION AND MANAGEMENT

Asilomar, California, August 27-29, 1980

This workshop was sponsored by the Technical Committee on Machine Intelligence and Pattern Analysis of the IEEE Computer Society and co-chaired by Prof. K.S. Fu and Dr. B.M. McCormick. The Program Chairman was Dr. S.K. Chang and the Local Arrangements Chairman was Prof. V.R. Algazi.

Approximately 100 attendees presented about 60 papers in sessions devoted to Image Data and Geographic Information Systems, Picture Data Structures, Picture Query Languages, Relational Picture Database Systems, Representations for Three-Dimensional Objects, Pictorial Databases,

WORKSHOP ON PICTURE DATA DESCRIPTION AND MANAGEMENT (CONT'D)

Machine Processing and Human Interaction, Computer Vision Systems, Picture Processing Algorithms, Experiments in Interpretation of Natural Scenes, Parallel Processing, and Computer Architecture for Parallel Processing.

Because of the very crowded timetable, verbal presentations were confined within 15 minute slots, but the fuller texts had been collected together in the Proceedings, copies of which can be ordered from the IEEE Computer Society.

In view of the wide ranging nature of the program subject matter, it would be pointless to attempt to review this meeting's technical content: the Proceedings are available for those who are interested. Perhaps it would be more useful to comment on some of the other aspects of the meeting, especially as this report is to appear in a Newsletter. First and foremost, it must be said that Asilomar provides an ideal setting for a meeting. The scenery is exceptionally beautiful, providing splendid views of the Pacific Ocean and the coastal sand dunes 'carpeted in the random pattern of ice plant, and sheltered by ancient Monterey pines', to quote an Asilomar pamphlet. The accommodation is excellent and reasonably priced, the food is somewhat plain but very acceptable, whilst the meeting room facilities are both comfortable and workable.

This workshop was efficiently managed in every respect; despite the tight schedule, speakers kept to the timetable and all the sessions were well attended. But it must be commented that an opinion was often heard expressed that a 15 minute presentation is probably not the best way to impart information and that it might have been better to adhere to the panel discussion format originally announced. As it was, there was almost zero time available for discussion between papers and one remains to be convinced that much technical discussion took place during the very enjoyable car trips around the Monterey Peninsula during the free afternoons! With the benefit of hind-sight, it can be seen that this Workshop probably covered too much ground for the time allotted. Perhaps future meetings in the series will be more restricted and therefore allow some time for chewing over and digesting the material presented?

Nevertheless, it is always easy to criticize and these comments should certainly not be seen as indicating dissatisfaction with a meeting which was well worthwhile and obviously enjoyed by all who were lucky enough to be there.

M.J.B. Duff

INTERNATIONAL CONFERENCE ON IMAGE ANALYSIS AND PROCESSING

A conference on image analysis and processing, organized by the Italian National Research Council,

was held in Pavia, Italy, during 22-24 October 1980. Topics of concern were digital methods and processing, pattern recognition, principles of image interpretation, parallel processors, geographical data bases and systems, map data analysis and satellite image processing. A proceedings of the conference was published. The conference chairman was Prof. I. De Lotto, and the Scientific Committee Chairman, Prof. S. Levialdi. For further information, contact the Conference Secretariat, Professor V. Cantoni, c/o Istituto di Informatica e Sistemistica, Universita' di Pavia, V. Strada Nuova 106/c, 27100 Pavia, Italy.

RECENT MEETINGS IN FRANCE

*The third NATO Advanced Study Institute on Digital Image Processing and Analysis took place at Bonas from the 23rd of June to 4th of July. The directors were Prof. J.-C. Simon and Prof. R.M. Haralick. The attendance was approximately one hundred.

*A Franco-American workshop under the sponsorship of the NSF for the United States and CNRS and DGRST for France, on Biomedical Image Processing took place at Saint Pierre de Chartreuse, near Grenoble, from the 26th to the 31st of May 1980. The co-chairmen were Prof. Bisconte and Prof. J. Sklansky. The organizing committee included Messieurs Feldman, Brugal, Chibon, Delourme, Garderet, Gariod, Boesso, Von Hagen, and Ms. Veillon, The number of participants was forty-five.

*GALF and AFCET organized at Strasborg "les Onzièmes Journées d'Etudes sur la Parole" from the 28th to the 30th of May 1980.

*A workshop on speech was held at Paimpont on the 23rd and 24th of September 1980. The topics included syntax, semantics, and automatic analysis of speech.

CONFERENCES

5TH INTERNATIONAL CONFERENCE ON PATTEN RECOGNITION

Miami Beach, Florida, December 1-4, 1980

"Sponsored by IAPR and IEEE Computer Society"

Two hundred and ninety eight papers from nineteen different countries have been accepted for presentation at the Miami Conference. The national distribution of papers is as follows:

Belgium: 3, Canada: 7, China: 11, Denmark: 1, Federal Republic of Germany: 28, Finland: 3, France: 29, Hungary: 1, India: 4, Israel: 2, Italy: 3, Japan: 46, The Netherlands: 8, Norway: 1, Spain: 1, United Kingdom: 10, U.S.A.: 144, U.S.S.R.: 5, Yugoslavia: 1.

CONFERENCES (CONT'D)

There will be 43 sessions spread out over the four days of the conference. In addition a reception will be held on Sunday, November 30th, a banquet on Wednesday, December 3rd, and a luncheon on Thursday, December 4th.

WORKSHOP ON DIGITAL SIGNAL AND WAVEFORM ANALYSIS

Co-Sponsored by

ADAPTIVE AND LEARNING SYSTEMS TECHNICAL COMMITTEE OF IEEE SYSTEMS, MAN AND CYBERNETICS SOCIETY

and

MACHINE INTELLIGENCE AND PATTERN ANALYSIS TECHNICAL COMMITTEE OF IEEE COMPUTER SOCIETY

Konover Hotel, Miami Beach, Florida, December 5, 1980.

Workshop Chairman: Professor C.H. Chen

Recently there has been much interest in the interaction between digital signal analysis and pattern recognition, which are both rapidly growing areas. This one-day workshop is being organized with the emphasis on such interactions and a number of related applications. Research topics of interest to the Workshop include:

*Adaptive and learning algorithms for digital waveform study.

*New fast computational algorithms for signal analysis and classification.

*Signal modeling for waveform analysis.

*Digital detection of weak signals and non-gaussian signals.

*Applications to geophysics, biomedicine, radar, sonar, pollution monitoring, engine malfunction detection, etc.

NATO ADVANCED STUDY INSTITUTE

PATTERN RECOGNITION THEORY AND APPLICATIONS

St. Anne's College, Oxford University, OXFORD, U.K.

29 March 1981–11 April

NATO ASI Directors: Dr. J. Kittler, Prof. K.S. Fu, Prof. L.F. Pau

A two-week Advanced Study Institute will take place in Oxford 29 March - 11 April 1981. The theme of this ASI is:

THEORETICAL AND PRACTICAL ASPECTS IN STATISTICAL AND STRUCTURAL PATTERN RECOGNITION, WITH SPECIAL EMPHASIS ON HYBRID METHODS

The program will include tutorial lectures, contributed papers, panels and discussions, covering theory as well as applications.

Interested researchers are invited to submit abstracts (500 words) of contributed papers to either of the following:

Europe: Dr. J. Kittler, Rutherford Laboratory, Science Research Council, Chilton, Didcot, Oxfordshire OX11 0QX, U.K. Telephone: 0235-21900

US, Canada: Prof. L.F. Pau, 2129 Wyoming Ave NW, Washington DC 20008 Telephone: 202-234-7960

Participation is limited and restricted to citizens of NATO member countries. Accepted contributed papers will be notified, and their authors invited to participate; in this case they may apply for some financial support, but funds are limited. Participation by non-contributing researchers, and by postdoctoral/doctoral candidates is also welcomed. They should apply by describing their experience in the pattern recognition and image processing areas. No funding can be provided in this case.

6TH INTERNATIONAL JOINT CONFERENCE ON

PATTERN RECOGNITION

The 6th IJCPR will be held in Munich, Germany, 19-22 October 1982 at the Technical University.

Chairman:	Professor H. Marko Lehrstuhl für Nachrichtentechnik Technische Universität München Arcistrasse 21 8 München 2
Vice-Chairman:	Professor H.H. Nagel, Hamburg
Finance Chairman:	Dr. S.J. Pöppel, München
Program Chairman:	Professor H. Niemann, Erlangen
Publications Chairman:	Dr. M. Lang, München
Local Arrangements:	H. Platzer, München
Industrial Co-operation	H. Kazmierczak, Karlsruhe

CALL FOR PAPERS

THIRD CONFERENCE ON

PATTERN RECOGNITION AND ARTIFICIAL INTELLIGENCE

Nancy, France
16, 17, 18 September 1981

Sponsored by

Association Française Pour
La Cybernetique Economique et Technique (AFCET)

Pattern recognition and artificial intelligence are very active disciplines in France. The previous conferences at Chatenay Malabry in 1978 and Toulouse in 1979 provide evidence of this vitality. Industry, supported by dynamic research being carried out at universities and in private institutions is concerned with important applications in such areas as optics, image processing, and speech recognition.

Subjects of Interest:

- Pattern Recognition Methods
- Description and Representation
- Artificial Intelligence
- Applications

Deadline for the submission of completed papers is January 15, 1981. The language of the conference will be French.

Conference Chairman: C. Pair, INPL-CRIN
J.P. Haton, Université de Nancy, I-CRIN

Scientific Committee Chairman : G. Perennou, Université Paul Sabatier de Toulouse-CERFIA-CICT

Anyone desiring further information about any aspect of this conference should contact:

Elisabeth Fayola
156, Blvd. Péreire-F.75017 Paris
France
Telephone: 766.24.19/766.24.23

2ND SCANDINAVIAN CONFERENCE ON IMAGE ANALYSIS

Helsinki, Finland
June 15-17, 1981

The Conference:

The Pattern Recognition Society of Finland hosts the Second Scandinavian Conference on Image Analysis. This is an international conference open to contributors and participants from all countries. The official language of the Conference will be English.

Topics of Interest:

The Conference is open to all aspects of Image Analysis, including

- theoretical problems in IA
- remote sensing
- software
- hardware
- industrial applications
- biotechnical and biomedical applications

Sessions on other topics of Pattern Recognition may also be organized, depending on the received abstracts. The duration of the presentations will be 20 minutes. During the Conference, several invited speakers will give talks on selected topics of Image Analysis.

Paper Submission:

For reviewing, 3 copies of a 300-word abstract of the paper in English should be submitted by December 1, 1980, to

Dr. Olli Simula
Department of Technical Physics
Helsinki University of Technology
SF-02150 Espoo 15, Finland
Phone: (358-0) 451 2468

The deadlines will be:

December 1, 1980	Reception of abstracts	
February 1, 1981	Notification concerning acceptance	
March 15, 1981	Reception of camera-ready copies of accepted papers.	

All accepted papers will appear in the Conference Proceedings, which will be available at the time of the Conference.

SPECIAL ISSUE ON

DIGITAL SIGNAL AND WAVEFORM ANALYSIS

IN THE

IEE TRANSACTIONS ON

PATTERN ANALYSIS AND MACHINE INTELLIGENCE

This special issue is an outgrowth of the Workshop on Digital Signal and Waveform Analysis, Miami Beach, FL, December 5, 1980 which is jointly sponsored by the Machine Intelligence and Pattern Analysis Technical Committee of the IEEE Computer Society and the Adaptive and Learning Systems Technical Committee of IEEE Systems, Man and Cybernetics Society.

The scope of the subject matter for this special issue includes:

* Syntactic and structural methods in waveform study.

* Spectral estimation and applications.
* Statistical pattern recognition in signal and waveform analysis.
* Applications to geophysics, biomedicine, radar, sonar, speech, pollution monitoring, industrial automation, etc.

The issue will be pattern recognition and machine intelligence oriented. The conventional communication theory and signal analysis approaches would not be suitable for the issue. All submitted papers whether presented at the Workshop or not will go through the regular review procedures of PAMI Transactions.

The schedule of milestones for this issue is:

September 29, 1980 - Call for Papers
March 1, 1981 - Deadline for submission of papers
August 1, 1981 - All papers reviewed, revised as necessary, and ready for printer.
March of 1982 - Publication of special issue.

All papers should be submitted to the Guest Editor:

Professor C.H. Chen
Department of Electrical Engineering
Southeastern Massachusetts University
N. Dartmouth, Massachusetts 02747 USA
Telephone:(617) 999-8475

IEEE COMPUTER SOCIETY CONFERENCE ON

PATTERN RECOGNITION AND IMAGE PROCESSING

August 3-5, 1981
Hyatt Regency Hotel, Dallas, TX

<u>Conference Committee:</u>

Chairman: J.K. Aggarwal, University of Texas (Austin)

Vice Chairman and Treasurer: Larry S. Davis, University of Texas (Austin)

Technical Program Chairman: Azriel Rosenfeld, University of Maryland (College Park)

Local Arrangements and Registration Chairman: Stephen A. Underwood, University of Texas (Arlington)

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Robert M. Haralick, Virginia Polytechnic Institute and State University

Martin D. Levine, McGill University

H.H. Nagel, University of Hamburg

David Nitzan, SRI International

William B. Thompson, University of Minnesota

Papers are sought on all aspects of pattern recognition and image processing, including image encoding and approximation; enhancement and restoration; reconstruction from projections; segmentation, edge and feature detection; texture analysis; region representation and shape description; scene analysis; image database management; clustering, statistical and structural pattern recognition; special-purpose hardware; applications in industrial automation, biology, medicine and bio-engineering, remote sensing. Special sessions are planned on time-varying imagery, 3-D object representation, automatic generation of recognition strategies, and map data processing.

The conference is being held in conjunction with ACM SIGGRAPH 81, and a joint session on topics of common interest to image processing and computer graphics will be held. There will also be a day of preconference tutorials covering basic aspects of pattern recognition and image processing, conducted by leading experts in the field.

There will be two categories of presentations at the conference based on long papers (not more than 6000 words) and short papers (not more than 3000 words).

Four copies of complete drafts of papers should be submitted by <u>January 15, 1981</u> to Azriel Rosenfeld, Computer Science Center, University of Maryland, College Park, MD 20742.

RESEARCH CENTERS

EXPANDED IMAGE PROCESSING LABORATORY AT RPI

During the past few months, the Image Processing Laboratory at the Rensselaer Polytechnic Institute upgraded its main computer from a PRIME 500 to a PRIME 750. Also installed were a DeAnza Image Array processor with 512 x 512 x 24 resolution, a Dunn Instrument Corp. model 631 color camera for hard-copy image output, and a model 435 Adage high-performance graphics system. The staff of the laboratory now consists of eight faculty. Some 40 graduate students participate in its research activities.

PICTURE PROCESSING AT NRC, CANADA

T. Kasvand
Division of Electrical Engineering
National Research Council
Ottawa, Ont., Canada, K1A OR8

Picture processing research at the Computer Graphics Laboratory of the National Research Council has usually involved four professionals, a few assistants and some summer students. Despite our very limited numbers, some progress has been made in quantification of geological maps and microscopic images of rocks (1), some new aspects of restoration (2), interactive karyo-typing of plant chromosomes (3) and some studies of objects composed of thin lines, as exemplified by Chinese characters (4).

Our equipment is fairly adequate, consisting of a flying spont scanner and display, TV camera interfaced to an image buffer (640 x 512 x 24) and colour monitor, a Zeiss scanning microscope photometer interfaced via an LSI/11, a graphic tablet digitizer, a Tektronix 611 storage display unit, a special push-button command module and the usual computer peripherals. The present computers are a Modcomp II, to which the image processing hardware is connected and on which most of the image processing has been performed and a PDP11/55 for graphics. A VAX 780 is expected in a few months which is to be our main tool for machine vision.

Our laboratory is presently encouraged to move towards more application orientated research. Consequently, we are considering "intelligent" robotics as a potential new activity. Partially due to this reorientation we are currently expecting a visitor from Japan and we have one or two vacant positions for visiting scientists.

1. Fabbri, A.G., GIAPP: Geological image analysis program package for estimating geometrical probabilities, Computers and Geosciences, v.6, p. 153 - 161, 1980.

2. Abdelmalek, N.N., Kasvand, T., and Croteau, J.P., Image restoration for space invariant pointspread functions, Applied Optics, v. 19, no. 7, April 1980, p. 1184-1189.

3. Merritt, C.M., and Kasvand, T., A computer-aided system for studying plant chromosomes, 6-th Man-Computer Communication Conference, Ottawa, Canada, May 29-30, 1979, p. 11-19.

4. Kasvand, T., Ideogram segmentation and recognition, International Conference on Cybernetics and Society, Denver, Colo., Oct. 1979, p. 674-678.

RESEARCH PROJECT

PIPS PRESENTATION

AT IFIP CONGRESS 80, TOKYO

The research and development achievements of the PIPS project were presented and demonstrated as a special event of the IFIP Congress 80, on October 6-9, 1980, in Tokyo, Japan.

PIPS (Pattern Information Processing System) is one of the National Research and Development Programs promoted by the Agency of Industrial Science Technology (MIT) during the last decade and it is to end this fiscal year. Its background and outline were shown by Dr. H. Nishino as the invited lecture at the Fourth International Joint Conference on Pattern Recognition, on November 7-10, 1978, in Kyoto.

The presentation featured the Integrated System Prototype including thirteen special-purpose subsystems connected through 100 Mbps optical ring bus system. This system had been integrated to exhibit examples of the total system. The subsystems are the following:

A. Recognition Oriented Systems

　　1. Printed Kanji Character Recognition System
　　2. Handwritten Kana Character Recognition System
　　3. Colored Picture Recognition System
　　4. Monochromic Picture Recognition System
　　5. 3-Dimensional Object Recognition System
　　6. Speech Recognition System

B. Information Processing Systems

　　1. Polyprocessor System
　　2. Parallel Computing Machine
　　3. High Level Language Machine
　　4. Japanese Sentence Processing Machine
　　5. Database Machine
　　6. Magnetic Bubble Database Machine
　　7. Terminal Processor

The demonstrators using display stations of the PIPS Integrated System Prototype included the following:

　　1. Patent Information Retrieval System: analyzes and retrieves information of pattern gazettes through Kanji recognition and Japanese sentence analysis.

　　2. Conversational Product Inspection System: recognizes and inspects industrial products such as LSI systems, operated under the human voice instruction/answer facility.

　　3. National Land Survey System: Processes remotely sensed images and aerial photographs and shows changes in the **land**

by color display.

Congress participants visited the PIPS Laboratory located on the 25th floor of the Sunshine 60 building, the main tower of the City, for the technical presentation and demonstrations of this system. There was a total of nine tours and 50 persons per each tour. The presentation was enthusiastically received.

EMPLOYMENT POSSIBILITIES

A.I. RESEARCHERS AND PROGRAMMERS NEEDED

A few good people are needed to expand A.I. research in the Computer Science Laboratory at the Naval Research Laboratory. Projects include knowledge representation, rule-based automatic decision-making, semantic networks, and other areas. Work is unclassified and publication is encouraged. Equipment includes DEC PDP-10, PDP-11, TI Advanced Scientific Computer, and a VICARM robot arm. Programs are written in FORTRAN, LISP, SAIL, or assembly language. Salaries commensurate with experience and training. Salaries of other job offers can usually be equalled. Programmers do not need lots of experience and graduate study is encouraged. U.S. Citizenship required. Full or part time. Flexible working hours. Allow 4 month lead time to process application and obtain security clearance. Call or mail resume or 171 form to:

Dr. James R. Slagle
Code 7507
Naval Research Laboratory
Washington, D.C., 20375
202-767-3850

NRL is an equal opportunity employer. Minority group members and females are encouraged to apply.

ADDRESSES OF THE EXECUTIVE COMMITTEE OF IAPR

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