

IAPR

www.iapr.org



Newsletter

Volume 42, Number 1
January 2020



Subscribe

IN THIS

Issue

From the Editor's Desk

[CALLS for PAPERS](#)

[Calls from the IAPR Nominating Committee, Education Committee, Industrial Liaison Committee, and the ExCo](#)

[Call for Bids to Host ICPR 2024](#)

[Calls for Nominations for Awards to be Presented at ICPR 2020](#)

[From the ExCo: News plus Insights into IAPR Summer/Winter Schools and IAPR Prize Committees](#)

[Call for Papers and Proposals for Tutorials and Demos/Exhibits for ICPR2020!](#)

[Technical Committee \(TC\) News: TC5, TC9, TC12, TC16, and TC19](#)

[Meeting Reports: IWBF 2019, SSDA19, ICIG 2019,](#)

[ISAIR 2019, CAIP 2019, ICIAP 2019, CVIP 2019, and DICTA 2019](#)

[BooksBooksBooks](#)

[Bulletin Board](#)

[Meeting and Education Planner](#)



Reflections on Collaborations in Pattern Recognition

by Anil Jain

Michigan State University

<http://biometrics.cse.msu.edu/people.html>

Editor's note:

I met Prof. Anil Jain last December and was pleased and grateful that he accepted my invitation to contribute his experiences to this "From the Editor's Desk" series on "Collaborations in Pattern Recognition".

~ Jing Dong, IAPR Newsletter EiC

I have enjoyed the 50 years of my ongoing journey, both studying and teaching pattern recognition (P.R.).

First, some background. I completed my Bachelor's degree in Electrical Engineering from the Indian Institute of Technology (IIT), Kanpur, in 1969. Subsequently, I joined the Ph.D. program in Electrical Engineering, where I took my first graduate course in P.R. in 1970. The course was taught out of a draft of the classic book by Duda and Hart; it first appeared in print in 1972. I was fascinated by the "curse of dimensionality", and I was able to come up with some results which I presented at the IEEE International Symposium on Information Theory, Pacific Grove, California (January 1972). Subsequently, a journal paper was published in the IEEE Transactions on Computers, 1974. The Information Theory symposium gave me an opportunity to meet some of the most prominent pattern recognition experts of that era (Tom Cover, Peter Hart and Tom Kailath). From Pacific Grove, I made a side trip to SRI, Menlo Park to meet Richard Duda and Peter Hart. These meetings and interactions were the game changer for me and put a bug in me to continue my research in academia. I started my academic career in 1972 and continue to work and publish with my graduate students¹.

Research collaboration, whether with academic groups or industry, has always been dear to me. It provided me an opportunity to travel, learn new cultures, make friends, find new research problems, learn new tools and

¹<https://tinyurl.com/jainscholar>



CALLS for PAPERS

For the most up-to-date information on IAPR-supported conferences, workshops and summer schools, please visit the IAPR web site: www.iapr.org/conferences/

2020

[SSB 2020](#)

17th Intl Summer School for Advanced Studies on Biometrics for Secure Authentication: Forensics & Identity Sci. for Human-Centered Applications
Algero, Italy
Deadline: Feb. 15, 2020; Dates: Jun. 8-12, 2020

[ICFHR 2020](#)

17th International Conference on Frontiers in Handwriting Recognition
Dortmund, Germany
Deadline: March 1, 2020
Dates: Sep. 8-10, 2020

[ICPR 2020](#)

25th International Conference on Pattern Recognition
Milan, Italy
Deadline: March 18, 2020
Dates: Sep. 13-18, 2020

[ANNPR 2020](#)

9th Workshop on Artificial Neural Networks in Pattern Recognition
Winterthur, Switzerland
Deadline: May 1, 2020
Dates: Sep. 2-4, 2020

[ISAIR 2020](#)

5th International Symposium on Artificial Intelligence and Robotics
Kitakyushu, Japan
Deadline: May 1, 2020
Dates: August 8-10, 2020

[S+SSPR 2020](#)

IAPR Joint International Workshops on Statistical Techniques in Pattern Recognition (SPR) and Structural and Syntactic Pattern Recognition (SSPR)
Padua, Italy
Deadline: June 8, 2020; Dates: Sep. 2-4, 2020

Calls for Nominations for Awards to be presented at ICPR 2020

[King-Sun Fu Prize](#)

Deadline: April 5, 2020

[J. K. Aggarwal Prize](#)

Deadline: May 14, 2020

[Maria Petrou Prize](#)

Deadline: Apr. 5, 2020

[Fellow Award](#)

Deadline: Jan. 31, 2020

IAPR Then and Now...King Sun Fu Award 1988 IAPR Newsletter, Volume 11 Number 4, December 1988

Editor's note:

The King-Sun Fu Prize, which honors the memory of Professor Fu, is the highest honor given by the IAPR. This news item announces its first recipient.

Who will be the recipient in 2020? There's a Call for Nominations for the King-Sun Fu Prize [in this issue](#) of the IAPR Newsletter and at the IAPR website https://iapr.org/fellowsandawards/awards_kingsunfu.php.

~ Jing Dong, IAPR Newsletter EiC

Brussels, 25 October 1988

It is my greatest honour and my pleasure to hereby announce that the IAPR Governing Board, upon recommendation from the IAPR Award Committee has decided to award the King Sun Fu Award for 1988 to Professor Azriel Rosenfeld, University of Maryland. The citation for the award is as follows: "for fundamental contributions to image analysis, pattern recognition and computer vision". The award consists of an inscribed certificate and a cash gift from the K S Fu award fund and will be presented to Professor A Rosenfeld on 16th November 1988, at the 9th International Conference on Pattern Recognition, Rome, Italy.

Pierre A Devijver
President IAPR

help find internships and full-time jobs for my students. I can only list some of these international collaborations here.

My first international collaboration started as a result of a chance meeting with professor Eric Backer (Delft Technical University, The Netherlands) at the First International Conference on Pattern Recognition (ICPR) in Washington D.C. Oct 30-Nov 1, 1973. Eric and I hit it off well; he hosted me at Delft (famous for Delft blue pottery) during the summer of 1975. His group even provided me and my wife bicycles to ride along the streets of this bike-friendly country. The collaboration continued for over 15 years; we exchanged several visits and published a couple of papers in the IEEE Transactions on Pattern Analysis and Machine Intelligence on image segmentation and data clustering (1980, 1981).

The ping-pong diplomacy² of the 1970s and a visit by President Richard Nixon to China in 1972 thawed the cold war between the

² https://en.wikipedia.org/wiki/Ping-pong_diplomacy

United States and the People's Republic of China, ultimately leading to resumption of diplomatic relations between the two countries on January 1, 1979. This opened up bi-lateral scientific exchange, giving me an opportunity to host one of the second batches of visiting scholars from China, Professor Zhisheng You from Sichuan University, Chengdu. This was another game changer for me and my students. During his 2-year stay in my lab (1981-83), we learned much from each other, both on academic as well as cultural matters. We conducted research on shape matching and presented our paper "Performance Evaluation of Shape Matching via Chord Length Distribution" at the First International Conference on Computers & Applications, Beijing, June 20-22, 1984. The conference was jointly sponsored by the Chinese Institute of Electronics and the IEEE Computer Society. My wife and I were hosted by Sichuan University who were perfect hosts under the difficult economic circumstances in China at that time. We saw the Tiananmen Square, the famous Sichuan opera and visited the Panda sanctuary. Being a vegetarian in China at

that time was challenging, but we were served hearty meals at the university guesthouse, Professor You's home and at the Buddhist temples. Professor You is now a distinguished professor at Sichuan University and is the CEO of a very successful company, Wisisoft Co. Ltd.³, Chengdu. He always credits his stay in my Pattern Recognition and Image Processing (PRIP) lab at Michigan State University for his success, which is very gratifying.

Over the years, my research collaborations have extended to numerous other academic groups in the Netherlands, China, Turkey, Norway, Indonesia, Portugal and Italy and they have all impacted my own research directions. Industrial collaborations with IBM, Google, Fujitsu, Siemens, Philips, NEC, Morpho (now Idemia), Goodix, ZKTeco and many other companies have opened up new opportunities for me and my students. It is my ongoing goal to continue these working relationships and mentor new pattern recognition researchers to pursue similar collaborations in order to best propel forward this growing and exciting field.

³ <http://www.wisisoft.com.cn/>

Editor's note:

Prof. Jain has contributed to the IAPR in many, many ways. This news item from 2005 shows only one of those and, at the same time, serves as a good reminder that there is a Call for Nominations for the J.K. Aggarwal Prize [in this issue](#) of the IAPR Newsletter and at the IAPR website https://iapr.org/fellowsandawards/awards_aggarwal.php.

~ Jing Dong, IAPR Newsletter EiC

IAPR Then and Now...
From the IAPR Executive Committee (excerpt)
by Denis Laurendeau
IAPR Newsletter Volume 27 Number 4, October 2005

Let me end this column on a very positive note. A few weeks before the Estoril meeting, the President, Walter Kropatsch, was approached by Professor Anil Jain to set up a new prize acknowledging the work of young scientists. The ExCo considered this proposal and agreed to explore this idea further. Professor Jain informed the ExCo that the students, friends and family of Professor J.K. Aggarwal, in recognition of his long-standing contributions to our profession as well as to IAPR, propose to set up this new IAPR prize to recognize outstanding young researchers (under the age of 40) in the IAPR community. It was recommended that the prize be called the "J.K. Aggarwal Prize" and that the first prize be awarded at the next ICPR in Hong Kong in 2006.

Calls from IAPR Committees

From the IAPR

Nominating Committee:

Call for Nominations for the 2020-22 IAPR ExCo

The IAPR Governing Board will elect new IAPR Officers at its meeting at ICPR 2020 in Milan. The IAPR Nominating Committee seeks your help in finding candidates suitable for the jobs of President, First Vice President, Second Vice President, Secretary, and Treasurer.

Contact information:

Simone Marinai
Chair, IAPR Nominating Committee
simone.marinai@unifi.it

From the IAPR Education Committee:

Call for Applications for IAPR Research Scholarships

<https://iapr.org/docs/IAPR-EC-RS-Call-2018.pdf>

Description: IAPR Research Scholarships, awarded by the IAPR through its Education Committee (IAPR-EC), seek to make possible mobility across institutions and international boundaries for Early Career Researchers working in fields within the scope of the IAPR's interests. Through this program, the IAPR sees an opportunity to make a significant contribution to the development of Early Career Researchers as well as the wider Pattern Recognition community.

Covered expenses and duration: The scholarship covers round trip travel & basic living expenses for a visit of less than 12 months.

Requirements: The candidate must be a full-time researcher with between one and eight years experience. The candidate must also be a member of an IAPR member society. See [Call for Applications](#) for a full list of requirements.

Contact information:

IAPR Secretariat, c/o Linda O'Gorman, secretariat@iapr.org

From the IAPR Industrial Liaison Committee:

Call for Internship Listings for the IAPR Internship Brokerage Page for Companies with internships available and for Students seeking internship opportunities

<http://homepages.inf.ed.ac.uk/rbf/IAPR/INDUSTRIAL/>

Description: The IAPR-ILC wishes to promote opportunities for students to undertake internships at companies working in Pattern Recognition, AI, Computer Vision, Data Mining, Machine Learning, etc. We propose to do this by having a web-based internship listing service. Companies can list their internship opportunities; students can browse the listings and contact the company.

For companies with internships to list: For students:

(see examples at the URL above)

Please email your listings as follows:

To: Bob Fisher - rbf@inf.ed.ac.uk

Subject: IAPR internship listing

Details:

- Host:
- Location:
- Post Type:
- Specialty:
- Funded:
- Length:
- Degree & Visa Requirements:
- Internship start date:
- Application closing date:
- Details:
- Contact:

If you are a student, please visit the web site listed above.

NOTE: At the time of publication, there were 35 opportunities listed and over 7700 accesses since November 2017.

Contact Information:

Bob Fisher, rbf@inf.ed.ac.uk
Chair, IAPR-ILC

From the IAPR

Executive Committee (ExCo):

Call for Proposals for Summer/Winter Schools

<https://iapr.org/conferences/summerschools.php>

Deadline schedule:

Deadline:	School dates:
February 1st	April-July
June 1st	August-November
October 1st	December-March

"Summer" schools are training activities that expose participants to the latest trends and techniques in the particular pattern recognition field. ("Summer" is used generically; the school can take place in any season.)

To be eligible for a grant, the organizers must work through at least one of the IAPR's technical committees as they develop and present the proposal.

How to Submit: Proposals for IAPR funded summer schools should be submitted to IAPR Secretariat Linda O'Gorman by email (secretariat@iapr.org). A PDF attachment containing all the required information is appreciated.

For detailed guidelines on the proposal, see the [ExCo Initiative on Summer Schools](#).

Calls from IAPR Committees (continued)

From the IAPR
Conferences & Meetings Committee (C&M)
Call for Bids to Host ICPR 2024
Deadline: May 1, 2020

Click [here](#) to go the ICPR Proposals page at the IAPR website.

The International Conference on Pattern Recognition (ICPR) is the major scientific event organised under the auspices of the International Association for Pattern Recognition (IAPR).

The aim of this conference is to bring together international experts to share their work and experiences and to promote research and development in Pattern Recognition.

The conference is hosted by an institution under the auspices of an endorsing IAPR member organisation (national pattern recognition society).

Any such institutions interested in making a proposal to host an ICPR must proceed according to the rules outlined in the latest version of the guidelines.

NOTE: the Bidding and Hosting Guidelines have recently been revised as two separate documents. The content has also changed from previous versions. It is important for prospective hosts to carefully read both documents.

The submission of a bid implies full agreement with the guidelines and procedures for hosting the conference as well as with the IAPR constitution.

Deadlines and Decisions:

Bids to host ICPR 2024 must be submitted to the Chair of the IAPR Conferences and Meetings Committee (C&M) by **May 1, 2020**.

The selection of the conference venue will be made by the IAPR Governing Board (GB) during its meeting at ICPR 2020 in Milan, Italy.

Institutions interested in organising ICPR 2024 should submit the bid to C&M Chair Laurence Likforman (likforman@telecom-paristech.fr) by **May 1, 2020**.

Laurence Likforman
IAPR C&M Chair

CALLS FOR NOMINATIONS

FOR AWARDS TO BE PRESENTED @ ICPR 2020

King-Sun Fu Prize, the highest honor given by the IAPR

Deadlines for Submission of Nomination and Endorsement Forms:

Nomination Forms: April 5, 2020

Endorsement Forms: April 7, 2020

https://iapr.org/fellowsandawards/awards_kingsunfu.php

The IAPR established this prize in honor of Professor King-Sun Fu, who was instrumental in the founding of the IAPR, served as its first President, and is widely recognized for his extensive contributions to the field of pattern recognition.

This biennial prize is given to a living person in recognition of an outstanding technical contribution to the field of pattern recognition.

The nomination must be made by a member of a national member society of IAPR and by endorsement of at least five members, representing at least two member societies different from that of the nominator.

The prize recipient shall be selected by the Prize Committee, subject to approval by the IAPR Governing Board.

Members of the IAPR Executive Committee, as well as of the Prize Committee, shall be ineligible for the prize and may not serve as nominators or endorsers.

J.K. Aggarwal Prize

**Deadline for Submission of
Nomination & Endorsement Forms:
May 14, 2020**

[https://iapr.org/fellowsandawards/
awards_aggarwal.php](https://iapr.org/fellowsandawards/awards_aggarwal.php)

Professor Aggarwal is widely recognized for his extensive contributions to the field of pattern recognition and for his participation in the IAPR's activities.

The recipient is a young scientist, under the age of 40 at the nominations deadline, who has brought a substantial contribution to a field that is relevant to the IAPR community and whose research work has had a major impact on the field.

The prize recipient shall be selected by the J. K. Aggarwal Prize Committee, subject to approval by the IAPR Governing Board, upon nomination by a member of a national member society of IAPR and by endorsement of four members, representing at least two member societies different from that of the nominators and nominee.

Members of the IAPR Executive Committee, as well as of the J.K. Aggarwal Prize Committee, shall be ineligible for the prize and may not serve as nominators or endorsers.

Maria Petrou Prize

**Deadline for Submission of
Nomination & Endorsement Forms:
April 5, 2020**

[https://iapr.org/fellowsandawards/
awards_petrou.php](https://iapr.org/fellowsandawards/awards_petrou.php)

The Maria Petrou Prize is awarded biennially at ICPRs to a living female scientist/engineer who has made substantial contributions to the field of Pattern Recognition, and whose past contributions, current research activity and future potential may be regarded as a model to both aspiring and established researchers. This Prize honors the memory of Professor Maria Petrou as a scientist and engineer of the first rank, and particularly in her role as a pioneer for women researchers and highly successful role model. She is widely recognized for her extensive contributions to the field of image processing and pattern recognition. She also made significant contributions to the growth of IAPR, covering significant leadership roles.

The Prize consists of a suitably inscribed plaque and a cash amount partially covering a visiting period of the winner at some research institution or university.

IAPR Fellow Award

**Deadline for Submission of
Nomination & Endorsement Forms:
January 31, 2020**

[https://iapr.org/fellowsandawards/
index.php](https://iapr.org/fellowsandawards/index.php)

We welcome nominations for the award of FIAPR. Anyone is eligible to be nominated, except for current members of the IAPR Executive and Fellow Committees.

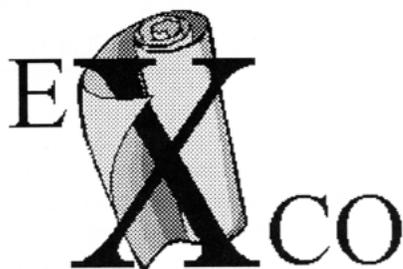
To initiate a nomination, a nominator must write and submit an IAPR Fellow Nomination Form. Current members of the Executive and Fellow Committees may not serve as nominators.

Each nomination must be endorsed by at least one recommendation letter (submitted Endorsement Form), either from a member of an IAPR Member Society (different from the nominator) or from an IAPR Fellow.

Each electronic submission will be acknowledged by an email.

Massimo Tistarelli, Chair,
IAPR Fellow Committee
tista@uniss.it

From the



The IAPR ExCo on...
**Summer/Winter Schools
and Prize Committees**

by [Lale Akarun](#) (Turkey), IAPR 2nd Vice President



President's note:

Since ExCo members are all volunteers, we share the workload among ourselves. For this ExCo term, the two unrelated areas discussed in this column fall under the responsibilities of the 2nd Vice President. Read on to gain some insight into what's going on in these areas, and then please see the [Call for Proposals for Summer/Winter Schools](#) and [Calls for Nominations for Prizes to be Awarded at ICPR 2020](#) in this issue and at the IAPR website.

~ Apostolos Antonacopoulos, IAPR President

News from the IAPR Executive Committee

- Ideas for new [IAPR Fellows](#)? Mail them to the Fellow Committee ASAP! Deadline is January 31st.
- The IAPR Prize Committee members are in office - make your nominations! Read more in the "From the ExCo" column to the right. And the Calls for Nominations are [here](#).
- Summer and Winter schools can apply for funding to support student attendance and activities. Read more in the "From the ExCo" column to the right.
- The [ICPR 2020](#) submission deadline is approaching fast. Be there or be square!
- Many tutorials and workshops - some by IAPR TCs - will be held in conjunction with [ICPR 2020](#). Meet your colleagues there as well!
- Who will organize ICPR 2024? Maybe your society. The C&M has optimized the guidelines for bidding and hosting an ICPR. See the Call for Bids to Host ICPR 2024 [here](#).

IAPR Summer/Winter Schools: IAPR summer/winter schools have long been opportunities for current and emerging trends in a particular discipline to be presented to and explored by students. Over the years, some IAPR Technical Committees have established such schools in their fields of interest.

In 2012, the IAPR Executive Committee (ExCo) drafted procedures by which these schools could be granted financial assistance and announced an Initiative on Technical Committee Activities specifically related to Summer Schools [[IAPR Newsletter 34:2](#)]. Recent changes to the Initiative document have formalized application deadlines and grant amounts.

The most popular topics so far have been document processing and biometrics, with machine learning a recently popular subject either alone or applied to different fields, but proposals on other topics relevant to the IAPR Community are enthusiastically encouraged. A school typically lasts from a few days to one or more weeks. IAPR summer/winter schools have been organized on different continents: on islands in the Mediterranean and in port cities and on high plateaus of Asia.

Wherever they are hosted, IAPR summer/winter schools bring together the best experts in the field, from different countries, with participants as well as speakers, coming from diverse geographies: from Australia to Asia, from Europe to the Americas. Apart from excellent speakers from international backgrounds, the schools provide a platform for interaction between PhD students and the faculty: presentations by doctoral students, hands-on labs, hackathons, and industry visits provide opportunities for discussion and interaction.

IAPR supports summer schools by accrediting them and giving financial support. The grants can be US\$2,500 for established schools and up to US\$5,000 for new schools that need more support. IAPR support typically goes to financing student travel scholarships, although other uses may also be proposed. When an application for a grant is prepared, it is important to submit it at least four months in advance. Please contact us well in advance for how to submit an application.

IAPR Prize Committees: Just as the summer/winter schools offer an opportunity for exchange on the newest trends in a particular field of interest, the biennial International Conference on Pattern Recognition (ICPR) is a forum for discussion of recent advances in the broader field of Pattern Recognition. In addition to tutorials, workshops and contests, the main conference will run in five tracks and will present accepted papers along with keynote talks given by international experts.

Three of the invited talks at ICPR2020 will be delivered by the recipients of the three prestigious prizes given by the IAPR.

- The King Sun Fu prize is awarded to a living person in recognition of an outstanding technical contribution to the field of pattern recognition;
- the J. K. Aggarwal prize is awarded to a young scientist (under the age of 40) who has brought a substantial contribution to a field that is relevant to the IAPR community and whose research work has had a major impact on the field;
- the Maria Petrou Prize is awarded to a living female scientist/engineer who has made substantial contributions to the field of Pattern Recognition (or a closely related field) and whose past contributions, current research activity and future potential may be regarded as a model to both aspiring and established researchers.

The three prizes are administered by prize committees who collect and evaluate nominations. Unlike members of other [IAPR Standing Committees](#) who are directly appointed by the IAPR President, the prize committee members are nominated by the ExCo and must be voted into office by the Governing Board (GB).

The GB has recently voted, and the 2018-2020 prize committees have been formed:

- Gunilla Borgefors has been selected as the chair of the [K.S. Fu Prize Committee](#);
- Walter Kropatsch has been selected as the chair of the [J. K. Aggarwal Prize Committee](#), and
- Michal Irani has been selected as the chair of the [Maria Petrou Prize Committee](#).

Nominations for these prizes can be made to the committee chairs, subject to the rules and dates on the IAPR web site.

- https://iapr.org/fellowsandawards/awards_kingsunfu.php
- https://iapr.org/fellowsandawards/awards_aggarwal.php
- https://iapr.org/fellowsandawards/awards_petrou.php

In addition, nominations are open until January 31st for IAPR Fellows. Massimo Tistarelli chairs the IAPR Fellow Committee, and the Call for Nominations can be found here <https://iapr.org/fellowsandawards/index.php?ar=3>.

IAPR Then and Now...First Recipients of the King Sun Fu, J. K. Aggarwal, and Maria Petrou Prizes		
<p>Azriel Rosenfeld</p> <p>King Sun Fu Award 1988 6th International Conference on Pattern Recognition ICPR 1988, Rome, Italy</p> <p><i>for fundamental contribution to image analysis, pattern recognition and computer vision</i></p>	<p>Bernhard Schölkopf</p> <p>J. K. Aggarwal Prize 2006 18th International Conference on Pattern Recognition ICPR 2006, Hong Kong</p> <p><i>for advancing the field of kernel methods and showing its wide applicability to pattern recognition problems</i></p>	<p>Michal Irani</p> <p>Maria Petrou Prize 2016 18th International Conference on Pattern Recognition ICPR 2016, Cancun, Mexico</p> <p><i>for pioneering contributions to space-time video analysis, motion estimation and image analysis by composition, and as a role model for early career researchers striving for excellence and rigour in the fields of computer vision and pattern recognition.</i></p>



Call for Papers
and
Calls for Proposals for
Workshops, Competitions,
Tutorials, and Demos

25th INTERNATIONAL CONFERENCE
ON PATTERN RECOGNITION
Milan, Italy 13 | 18 September 2020

*"putting Artificial Intelligence
to work on patterns"*

<https://iapr.org/icpr2020>



ICPR 2020, sponsored by the International Association for Pattern Recognition (IAPR), will be an international forum for discussions on recent advances in the fields of Pattern Recognition and related technologies and applications, covering theoretical issues and applications of the discipline.



IMPORTANT DATES:

- Jan. 25, 2020 - Workshop proposal deadline
- Jan. 25, 2020 - Competition proposal deadline
- Mar. 18, 2020 - Paper submission deadline**
- Apr. 1, 2020 - Tutorial proposal deadline
- Jun. 15, 2020 - Demo and Exhibit proposal deadline
- Sep. 13-18, 2020: Conference dates

Organizing Team:

General Chairs:

Rita Cucchiara (UNIMORE, Italy), **Alberto Del Bimbo** (Univ. of Firenze, Italy), and **Stan Sclaroff** (Boston Univ., USA)

Program Chairs:

Kim Boyer (Univ. of Albany, USA), **Brian Lovell** (Univ. of Queensland, Australia),
Marcello Pelillo (Univ. of Ca' Foscari Venezia, Italy), **Nicu Sebe** (Univ. of Trento, Italy),
René Vidal (Johns Hopkins Univ., USA), **Jingyi Yu** (Shanghai Tech. Univ., China)

Track Chairs:

1. Artificial Intelligence, Machine Learning for Pattern Analysis

Ehsan Elhamifar (Northeastern Univ. USA),
Zhouchen Lin (Peking Univ., China),
Fabio Roli (Univ. of Cagliari, Italy),
Marina Meila (Univ. of Washington, USA)

2. Biometrics, Human Analysis and Behavior Understanding

Octavia Camps (Northeastern Univ., USA)
Stan Z. Li, (Chinese Academy of Sciences, China)
Massimo Tistarelli (Univ. of Sassari, Italy)
Yunhong Wang, (Beihang Univ., China)

3. Computer Vision Robotics and Intelligent Systems

Lale Akarun (Bogazici University, Turkey),
Luigi Di Stefano (Univ. of Bolobna, Italy)
Javier Ruiz-del-Solar (Univ. of Chile, Chile)
Yoichi Sato (Japan)

4. Media Analysis and Understanding

Simone Marinai (Univ. of Firenze, Italy)
Kyong Mu Lee (Seoul National Univ., Korea)
Elisa Ricci (Univ. of Trento, Italy)
Cees Snoek, (Univ. of Amsterdam, The Netherlands)
Changsheng Xu (Chinese Academy of Sciences, China)

5. Image and Signal Processing

Sebastiano Battiato (Univ. of Catania Italy)
Andrea Cavallaro (Queen Mary Univ. of London, UK)
Ana Fred (Univ. of Lisbon, Portugal)
Shiguang Shan (Beijing Univ., China)

Tutorial Chairs

Vitorio Murino (Univ. of Verona, Italy)
Sudeep Sarkar (Univ. of South Florida, USA)

Challenge Chairs

Marco Bertini (Univ. of Firenze, Italy)
Hugo Jair Escalante (INAOE and CINVESTAV
National Polytechnic Institute of Mexico)

Women in ICPR Chairs

Alexandra Branzan Albu (Univ. of Victoria, Canada)
Maria De Marisco (Univ. Roma La Sapienza, Italy)

Workshop Chairs

Giovanni Maria Farinella (Italy)
Tao Mei (China)

Demo & Exhibit Chairs

Lorenzo Baraldi (Univ. Modena Reggio Emilia, Italy)
Bruce Maxwell (Colby College, USA)
Lorenzo Seidenari (Univ. of Firenze, Italy)

Local Chairs

Matteo Matteucci (Politecnico di Milano, Italy)
Paolo Napoletano (Univ. of Milano Bicocca, Italy)



IAPR Technical Committee News

This section the IAPR Newsletter publishes short, timely items by and about the IAPR's Technical Committees.

There are three main aims:

1. to give the IAPR's TCs regular access to the broader IAPR community
2. to introduce the various TCs to those who are new to the IAPR and
3. to keep the rest of the IAPR community interested and informed about TC happenings.

~Jing Dong, IAPR Newsletter EiC

IN THIS ISSUE:

[TC5 Computer Vision for Underwater Environmental Monitoring](#)

[TC9 Pattern Recognition in Human Machine Interaction](#)

[TC12 Multimedia and Visual Information Systems](#)

[TC16 Algebraic and Discrete Mathematical Techniques in Pattern Recognition and Image Analysis](#)

[TC19 Computer Vision for Cultural Heritage Applications](#)

IAPR TC5 Computer Vision for Underwater Environmental Monitoring

<https://iapr.org/committees/computer-vision-for-underwater-environmental-monitoring>

Maia Hoeberechts, Chair
Duane Edgington, Vice Chair



This is the first quarterly update of the IAPR Technical Committee 5 "Computer Vision for Underwater Environmental Monitoring".

This new TC was approved at ICPR 2018 and officially launched in the Spring of 2019. Since its launch, we are excited to report that interest in the TC has been widespread, and it has grown to over 30 active members. To join the committee or for more information, visit the website of the TC (see <https://iapr.org/committees/computer-vision-for-underwater-environmental-monitoring>) or send an email to tc_underwater@oceannetworks.ca.

The goals of the TC are to focus on the development of computer vision techniques for applications in environmental underwater monitoring. Environmental monitoring encompasses a wide range of activities, such as habitat mapping, species identification, estimation of species diversity and abundance, as well as analysis of animal behaviour in response to environmental stressors, conditions, and events.

The TC also covers technologies which support underwater monitoring including camera systems, annotation standards, analysis techniques, and innovative fixed and mobile underwater platforms. Its members have interdisciplinary interest in computer science, engineering, biology, ocean science, geology, and other fields related to underwater environmental monitoring.

The TC is in the planning stages for the 4th Computer Vision for Analysis of Underwater Imagery (CVAUI 2020) Workshop which is being submitted to be held at the 25th International Conference on Pattern Recognition (ICPR 2020), Milan, Italy, 13-18 September, 2020. This Workshop series, which will become the flagship event of the TC, builds on three previous CVAUI workshops held as satellite workshops of ICPR in 2014, 2016, 2018. A report on CVAUI 2018 can be found here: <https://iapr.org/docs/newsletter-2018-04.pdf#page=17>.

More IAPR Technical Committee News

IN THIS ISSUE:

[TC5 Computer Vision for Underwater Environmental Monitoring](#)

[TC9 Pattern Recognition in Human Machine Interaction](#)

[TC12 Multimedia and Visual Information Systems](#)

[TC16 Algebraic and Discrete Mathematical Techniques in Pattern Recognition and Image Analysis](#)

[TC19 Computer Vision for Cultural Heritage Applications](#)

IAPR TC9 - Pattern Recognition in Human Machine Interaction

<https://neuro.informatik.uni-ulm.de/TC9/>

[Friedhelm Schwenker](#), Chair

[Mariofanna Milanova](#), Vice Chair

Currently human-machine interaction (HMI) typically takes place on a rather crude explicit question-answer level, whereas human-human interaction is multifaceted, and is consisting of manifold interactive feedback loops between interlocutors, comprising social components (e.g. display rules, social state), moods, feelings, personal goals, nonverbal and paralinguistic conversation channels and even more.

In order to close this gap, it is crucial for a machine to perceive and understand the user's current interaction and affective state, as well as it is necessary to register the user's social signals, which are composed of dynamic multimodal behavioral cues. Building intelligent artificial agents or companions capable to interact with humans in the same way humans interact with each other is a major challenge in HMI.

TC9 mainly focuses on pattern recognition, machine learning and information fusion methods for the perception of the user's affective state, activities and intentions in the context of human-machine interaction. Research activities of the TC include

- Pattern Recognition and Machine Learning Algorithms to recognize emotions, affective states, pain, user activities and intentions
- Algorithms to combine information from multiple modalities such as (Video, Audio, psychophysiological parameters, and neural signals such as EEG or fMRI)
- Applications of HMI
- Datasets and benchmarks relevant to pattern recognition in HMI applications

In July 2018, after 4 years in our TC, Prof. Stefan Scherer left his position as Vice Chair; at the same time Prof. Mariofanna Milanova (University of Little Rock, Computer Science Department, USA) has been appointed as the new Vice-Chair of TC 9.

In 2019, the proceedings of 5th IAPR Workshop on Multimodal Pattern Recognition of Social Signals in HCI (MPRSS 2018 <https://neuro.informatik.uni-ulm.de/MPRSS2018/>), which was organized at ICPR 2018, were published as [Springer LNAI Volume No 11377](#); in September 2020, at the ICPR 2020 (Milano, Italy) the 6th MPRSS Workshop is planned.



Several educational activities were organized by Prof. Milanova in 2018, including NVIDIA Deep Learning Workshops at different places in the USA (<https://www.nvidia.com/en-us/deep-learning-ai/education/>). A free class related to "Getting Started with Deep Learning on Jetson Nano" is available at <https://courses.nvidia.com/courses/course-v1:DLI+C-RX-02+V1/about>.

Please contact the TC Chair ([Friedhelm Schwenker](#)) or Vice-Chair ([Mariofanna Milanova](#)) to become a member of the TC 9 mailing list or to learn more about the TC's activities.

And More IAPR Technical Committee News

IN THIS ISSUE:

[TC5 Computer Vision for Underwater Environmental Monitoring](#)
[TC9 Pattern Recognition in Human Machine Interaction](#)
[TC12 Multimedia and Visual Information Systems](#)
[TC16 Algebraic and Discrete Mathematical Techniques in Pattern Recognition and Image Analysis](#)
[TC19 Computer Vision for Cultural Heritage Applications](#)

IAPR TC12 Multimedia and Visual Information Systems

<http://iapr-tc12.info>

Sergio Escalera, Chair

Henning Müller, Martha Larson, and Hugo Jair Escalante, Vice Chairs

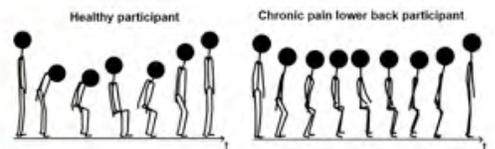
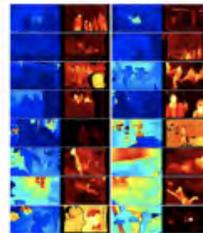


The AutoDL challenge was launched at NeurIPS2019, this challenge, endorsed by IAPR TC12, aims at developing fully automatic classification pipelines starting from raw data coming from multimodal information, including text, speech signals, images, videos, time series, etc. This is a great opportunity to prove your multimodal recognition systems in a purely autonomous setting (solutions are run in the cloud and no user intervention is allowed). Details in this competition can be found here: <https://autodl.chalearn.org/>.

The competition track of the 15th IEEE International Conference on Automatic Face and Gesture Recognition ([FG2020](#)) is featuring five exciting competitions on multimodal information processing. Covering quite relevant topics like identity preserving human detection, pain and emotion recognition, recognizing families in the wild, compound emotion recognition, and affective behavior in the wild. All of these competitions are receiving submissions and they will have sessions collocated with the main conference in May 2020, in Buenos Aires, Argentina. Join these challenges if you dare! All the details available here: <https://fg2020.org/competitions/>. Likewise, FG2020 is featuring six workshops on closely related topics dealing with multimodal information, there is still time to submit your papers, more info here <https://fg2020.org/workshops/>.



15th IEEE International Conference on Automatic Face and Gesture Recognition



Registration is now also open for ImageCLEF 2020 (<http://www.imageclef.org/2020/>). The challenge has for 2020 four challenging competitions, ranging from lifelog retrieval to coral classification and several medical tasks. A new task on hand-draw GUI element identification was added in 2020.

The LifeCLEF challenge (<https://www.imageclef.org/LifeCLEF2020/>) also has a new task on snake identification with mobile phone images in addition to tasks that were run in the past on plant identification and bird identification using multiple media.

And still
More

IAPR Technical Committee News

IN THIS ISSUE:

[TC5 Computer Vision for Underwater Environmental Monitoring](#)

[TC9 Pattern Recognition in Human Machine Interaction](#)

[TC12 Multimedia and Visual Information Systems](#)

[TC16 Algebraic and Discrete Mathematical Techniques in Pattern Recognition and Image Analysis](#)

[TC19 Computer Vision for Cultural Heritage Applications](#)

IAPR TC16 Algebraic and Discrete Mathematical Techniques in Pattern Recognition and Image Analysis

<http://iapr-tc16.isti.cnr.it/>

Davide Moroni, Chair

Vera Yashina and Dietrich Paulus, Vice Chairs

Igor Gurevich, Honorary Chair

The IAPR-TC16 on Algebraic and Discrete Mathematical Techniques in Pattern Recognition and Image Analysis has the aim to identify, discuss and promote emerging research trends in mathematical methods for pattern recognition, including algebraic, geometrical, topological and discrete mathematical methodologies.

A detailed and clear description of TC16 history and mission, including recent updates, is provided at <http://iapr-tc16.isti.cnr.it/index.php/news>.

TC16 main topics are listed in <http://iapr-tc16.isti.cnr.it/> and include

- algebraic models of pattern recognition and image analysis algorithms,
- image models of non-statistical nature;
- image mining, equivalence and metrics;
- pattern recognition algorithms based on algebras and discrete mathematics;
- algebraic approach to knowledge representation and processing;
- algebraic and logical techniques application in image databases and knowledge bases;
- algebraic topology in data analysis and learning.

The IAPR Governing Board approved the new TC16 structure (<http://iapr-tc16.isti.cnr.it/index.php/board>) during the meeting organized at ICPR 2018 held in Beijing (China) from August 20 to August 24, 2018. Davide Moroni has been appointed as Chair and will be assisted by the Vice-Chairs Dietrich Paulus and Vera Yashina. Dr.-Eng. Igor Gurevich has been appointed Honorary Chair. This new structure will be in charge of the term 2018-2020.

TC16 promotes several dissemination, communication and clustering actions, including the organization of workshops and conferences, the preparation of publications (survey articles, tutorials, etc.), the design of bibliographical databases and benchmarking datasets, and the provision of support for results exchange between members.

The board encourages scientists, researchers, engineers, specialists, PhD and graduate students to join the Technical Committee and to take part in its diverse activity.

As a mild introduction in TC16 activities, people are invited to go to <http://iapr-tc16.isti.cnr.it/index.php/survey> and answer the questions of the IAPR TC16 Survey. Your contribution will help us to better characterize TC16's main topics, potentially merging with other emerging research trends, and drive future actions of the organization. A report of the Survey will be published at <http://iapr-tc16.isti.cnr.it/>.

^ More IAPR Technical Committee News

IN THIS ISSUE:

[TC5 Computer Vision for Underwater Environmental Monitoring](#)

[TC9 Pattern Recognition in Human Machine Interaction](#)

[TC12 Multimedia and Visual Information Systems](#)

[TC16 Algebraic and Discrete Mathematical Techniques in Pattern Recognition and Image Analysis](#)

[TC19 Computer Vision for Cultural Heritage Applications](#)

IAPR TC19 Computer Vision for Cultural Heritage Applications

<https://www.cvl.iis.u-tokyo.ac.jp/IAPR-TC19>

Guillaume Caron, Chair

Olga Regina Pereira Bellon, Vice Chair

Advisors: Katsushi Ikeuchi, Roberto Scopigno, El Mustapha Mouaddib, and Takeshi Oishi

ICCV 2019 Workshop on E-Heritage and Dunhuang Challenge:

The 3rd ICCV workshop on e-Heritage and the 1st Dunhuang challenge were held in October, 2019, in Seoul, South Korea. It was organized by Katsushi Ikeuchi (Microsoft Research Asia) and Xudong Wang (Dunhuang Academy) and was supported by the IAPR TC19, the Dunhuang Academy and Microsoft Research Asia.

Attendees could enjoy outstanding invited speakers Tomas Pajdla (Czech Technical University in Prague) and Jian Wu (Dunhuang Academy) as well as contributed paper oral presentations. Published papers are in open access: http://openaccess.thecvf.com/ICCV2019_workshops/ICCV2019_EH.py.

The [Dunhuang Challenge](#), about Chinese Mogao Grottoes wall paintings restoration, awarded three teams among 23 competitors:

- 1st prize (photo): Jialun Peng, Jiacheng Li, Shunxin Xu, Zhiwei Xiong, Dong Liu from the University of Science and Technology of China
- 2nd prize: Tom Bu, from Cognistx USA
- 3rd prize: Yuquian Zu, Lijiang Fu and Thomas Huang, University of Illinois at Urbana Champaign



TC19 life

The TC19 board is working on developing its community, so every colleague interested in cultural heritage applications of computer vision is welcome to contact the TC19 Chairs and join:

<https://www.cvl.iis.u-tokyo.ac.jp/IAPR-TC19>.

Meeting Reports

Conferences, Workshops & Summer/Winter Schools



General Chairs:

[Chang-Tsun Li](#), University of Warwick, UK
Hector Perez-Meana, Instituto Politecnico Nacional, Mexico

Program Chairs:

[Victor Sanchez](#), University of Warwick, UK
Gabriel Sanchez, Instituto Politecnico Nacional, Mexico

by Victor Sanchez

The International Workshop on Biometrics and Forensics (IWBF) is an international forum devoted specifically to facilitate synergies in research and development in the areas of multimedia forensics, forensic biometrics, and forensic science. IWBF has been held annually since 2013. It provides the meeting place for those concerned with the usage of multimedia analysis in forensic applications and biometric recognition systems, attracting participants from industry, research, academia, and end-users.

The seventh edition of IWBF was held at the Centro de Educacion Continua (CEC), Cancun, of the Instituto Politecnico Nacional (IPN) and was organized by the University of Warwick and the IPN. IWBF 2019 was sponsored by the International Association

for Pattern Recognition (IAPR), the Horizon2020 Program of the European Union through the IDENTITY project, and the European Association of Biometrics. This edition also gained the endorsement of the IEEE Signal Processing Society, Region 9.

IWBF 2019 received 45 submissions from 14 different countries, namely Australia, Austria, France, Italy, Mexico, USA, Colombia, Japan, Slovenia, Brazil, Switzerland, Norway, UAE, and the UK. The Technical Program Committee and a team of nearly 50 additional reviewers were involved in a rigorous peer-review selection process, based on at least three distinct reviewers per paper. The technical program comprised 15 oral presentations and a poster session, with an oral acceptance rate of 33%. The proceedings were published by

IEEE and are [available online](#).

The program included three invited talks by experts in digital image forensics:

- On New directions in Machine Representation Learning for Biometrical Analytics by Prof. Hamido Fujita, Professor and Director of Intelligent Software Systems, Iwate Prefectural University, Japan
- Biometric Spoofing and Anti-Spoofing aka Presentation Attack Detection by Dr Sébastien Marcel, IAPR Invited Keynote Speaker, IDIAP Research Institute, Switzerland
- The probabilistic approach in the latent print comparison: a practical approach by Lt. Colonel, deputy director Carabinieri Scientific Investigations Laboratory for South Italy, Head of Latent Print Unit, Messina, Italy

Based on the comments of reviewers, the top three papers were presented in a special session chaired by Prof. Chang-Tsun Li:

1. "Comparative Test of Smartphone Finger Photo vs. Touch-based Cross-sensor Fingerprint Recognition"; Authors: Peter Wild, Franz Daubner, Harald Penz, and Gustavo Fernandez Dominguez Austrian Institute of Technology (AIT), Austria
2. "Euclidean-Distance Based Fuzzy Commitment Scheme for Biometric Template Security"; Authors: Babak Poorebrahim Gilkalay, Ajita Rattani, and Reza Derakhshani University of Missouri Kansas City, USA
3. "Custom Silicon Face Masks: Vulnerability on Commercial Face Recognition Systems &

Presentation Attack Detection"; Authors: Raghavendra Ramachandra¹, Sushma Venkatesh¹, Kiran Raja¹, Sushil Bhattacharjee², Pankaj S Wasnik¹, Sébastien Marcel², and Christoph Busch¹

¹Norwegian University of Science and Technology (NTNU), Norway
²DIAP Research Institute, Switzerland

The audience in this session voted for the best paper of the workshop. The Best Paper Award, which was sponsored by the IAPR, was given to the paper "Custom Silicon Face Masks: Vulnerability on Commercial Face Recognition Systems & Presentation Attack Detection". The Best Paper Award was announced at the end of workshop.

The technical program was complemented by a social program

that consisted of a dinner and show at Destileria Cancun. IWBF 2019 was a great success. This success is to be credited to the contributions of the general chairs, the advisory chairs, the program chairs, the reviewers, the local logistics organizer, the volunteer students, and all the authors and attendees. We look forward to the next edition of IWBF, which we are certain will also be a great workshop, both scientifically and socially.

Proceedings of
IWBF 2019
are available through

IEEE Xplore[®]
Digital Library

<https://ieeexplore.ieee.org/xpl/conhome/8735658/proceeding>



3RD IAPR SUMMER SCHOOL ON DOCUMENT ANALYSIS

Theme: Deep Learning Applications for Document Analysis

Islamabad, Pakistan

Augues 19-23, 2019

Organizers:

Dr. Faisal Shafait (National University of Sciences and Technology, Pakistan)

Dr. Imran Siddiqui (Bahria University, Pakistan)

Dr. Khurram Khurshid (Institute of Space and Technology, Pakistan)

Dr. Adnan UI-Hasan (National Center for Artificial Intelligence, Pakistan)

Dr. Imran Malik (National University of Sciences and Technology, Pakistan)

Dr. Siekh Faisal Rashid (University of Engineering and Technology, Lahore, Pakistan)

Nosheen Abid (National University of Sciences and Technology, Pakistan)

Jaleed Khan (Institute of Space and Technology, Pakistan)

Invited Speakers

- Prof. Dr. Cheng-Lin Liu, Chinese Academy of Sciences Institute of Automation, China
- Prof. Dr. Marcus Liwicki, Luleå University of Technology, Sweden
- Prof. Dr. Seiichi Uchida, Kyushu University, Japan
- Prof. Dr. Adrian Ulges, RheinMain University of Applied Sciences, Germany
- Prof. Dr. Ulrich Schwanecke, RheinMain University of Applied Sciences, Germany
- Dr. Sheraz Ahmed, DFKI, Germany

Local Speakers

- Prof. Dr. Faisal Shafait, NUST, Islamabad
- Prof. Dr. Imran Siddiqui, Bahria University, Islamabad
- Prof. Dr. Khurram Khurshid, Institute of Space Technologies, Islamabad

Sponsors: International Association for Pattern Recognition (IAPR) and National Institute of Science and TEchnology (NUST)

Local Organization: Pakistan Pattern Recognition Society (PPRS)

Collaborating Agency: [IAPR TC-10 Graphics Recognition](#) and [IAPR TC-11 Reading Systems](#)

Participants: 129 in total. 30 Professionals/Industrialists; 6 International Participants (Switzerland, Germany, United States, and Canada); 93 Local Students.

Program:

Monday August 19th; Inaugural Session

- **Prof. Dr. Cheng-Lin Liu** *An introduction to the Field of Document Analysis and Recognition*
- **Prof. Dr. Imran Siddiqui** *Competition and Programming Overviews*

Tuesday, August 20th

- **Dr. Marcus Liwicki** *Introduction to Machine Language and Neural Nets*
- **Prof. Dr. Adrian Ulges** *Introduction to Convolutional Neural Networks (CNNs)*
- **Prof. Dr. Ulrich Schwanecke** *Application of CNNs*
- **Prof. Dr. Adrian Ulges** *AMIGO - Automatic Indexing of Lecture Footage*
- **Prof. Dr. Imran Siddiqui** *Programming Competition*

Wednesday, August 21st

- **Optional visit to the Heritage Museum, Islamabad** *Introduction to the rich history of Pakistan and a special meeting with the Chairman of Prime Minister of Pakistan's Task Force on Technology*
- **Prof. Dr. Adrian Ulges, Prof. Dr. Ulrich Schwanecke, Prof. Dr. Marcus Liwicki, Prof. Dr. Faisal Shafait, Asst. Prof. Dr. Muhammad Shahzad, Asst. Prof. Dr. Muhammad Imran Malik** *Workshop: Water resource estimation by Satellite-Based Image Analysis*
- **Cultural Show in the evening**

Thursday, August 22nd

- **Dr. Marcus Liwicki** *LSTM - The Basics and Current Trends*
- **Dr. Sheraz Ahmed** *Document Classification and Understanding*
- **Poster Session**

Friday, August 23rd

- **Prof. Dr. Seiichi Uchida** *Open research directions of document analysis and recognition*
- **Prof. Dr. Faisal Shafait, Prof. Dr. Imran Siddiqui, Prof. Dr. Khurram Khurshid** *Lectures on "Document Analysis Research in Pakistan"*
- **Panel Discussion**
- **Competition Results**
- **Closing Session**

A Brief Overview of SSSA 2019

The 3rd IAPR Summer School on Document Analysis 2019 was organized to impart knowledge of state-of-the-art techniques in Pattern Recognition, particularly Deep Learning, with their relevance to Document Analysis. Insightful talks and lectures, delivered by experts from all around the world, introduced the field of document analysis to the local participants along with advanced techniques and open challenges.

The main topics covered during the five-day summer school included fundamentals of Document Analysis and Pattern Recognition and the open research directions in this area. The summer school attracted national media attention, and a special report was aired on Pakistan Television (PTV) about the impact of artificial intelligence on the society, covering a number of topics from the event.



The Goals of SSSA 2019

The main goals for students of the SSSA were to:

1. Develop an understanding of the fast-changing landscape of Pattern Recognition due to the advent of Deep Learning.
2. Get an overview of the useful Pattern Recognition tools for business and research-related document analysis applications.
3. Get an overview of cutting edge applications of deep learning for document analysis
4. Get pointers to the best educational resources for learning of document analysis field
5. Get advice on the best data repositories for training ML/DL algorithms for document analysis research
6. Develop a strategy on how to prepare for a career in document analysis

An Overview of the Delivered Content

The main theme of this summer school was the application of deep learning techniques to the participants. Activities were planned around this theme to ensure the maximum exposure of

the document analysis research using deep learning. The learning material was delivered in the form of lectures, hands-on practical sessions (programming and poster competition), providing the students with a chance to present their existing research work and get the expert feedback from international speakers. Details of these lectures are given in the following sections.

Programming Competition

The programming competition involved developing a sketch recognition system using any of the deep learning-based techniques. The key challenge in this computerized-based recognition of sketches was the unique artistic style of an individual leading to high intra-class variations. The training and validation data from TU-Berlin sketch dataset¹ was provided to the participants. The systems were ranked using the classification rate as the evaluation metric. Students and researchers actively participated in this competition from Day-1 to Day-4 at the Computing Labs,

¹ "Data." Google Drive. Google, n.d. Web. 06 Sept. 2019



SEECs, NUST. The results were announced on the last day of summer school. The team from NUST won this competition and was awarded a certificate of appreciation.

Poster Competition

On Day-4, a poster session was organized so that participants

could present their on-going research work in the domain of document analysis. Twelve (12) posters were displayed by individuals/teams from several Pakistani universities including NUST, Bahria University, Govt. College Abbottabad, Multan, and UET Lahore. Experts evaluated these posters as per the pre-

defined criterion. Certificates of appreciation were awarded to the winners from three categories:

1. Best Ph.D. Student Poster
2. Best MS/BS student Poster
3. Best Poster Award for Addressing Local Problems to Pakistan.

Editor's note: As with other IAPR Summer/Winter Schools, in addition to the report from the School Directors, the IAPR's ExCo asked that a student submit a report on the school. The IAPR Newsletter is grateful to Muhammad Talha Paracha for this contribution.

~ Jing Dong, IAPR Newsletter EiC

IAPR Newsletter report on the 2019 Summer School on Document Analysis

Muhammad Talha Paracha, Ph.D. Student, Northeastern University, USA

I am Talha, a second-year Computer Science Ph.D. student at Northeastern University in Boston, USA. I learned about the IAPR Summer School on Document Analysis as it was being held at my undergrad institution, the National University of Sciences & Technology in Islamabad. Although my research interests revolve around internet security and privacy, I was interested in attending the summer school since Deep Learning has found its applications in all areas of Computer Science. Besides, meeting fellow academics is always a nice learning and networking opportunity. Thankfully, I was awarded a student grant of \$300 to attend the summer school. The grant partially covered my travelling costs to attend this school. It was a great experience, some of the highlights of which I would like to share in this report.

To start with, it was the first time I interacted with researchers in the area of Document Analysis from different regions of the world. This gave me a chance to convey information about the projects I work on to a technical audience not from the community I typically interact with and hence hone my communication skills. Interestingly, many people I talked to were curious about machine learning applications in computer security. Similarly, I was glad to see how Prof. Seiichi Uchida was specifically

interested in the recent happenings in that field (and hope I gave him an optimistic outlook).

Second, though my current research project involves some Machine Learning, my team has been relying on simple techniques (such as decision trees etc.), mainly because of the non-exposure to contemporary ones. The talks I attended at SSDA 2019 were focused on document analysis, but because of their application-oriented nature, I was able to learn some of the ways I could use the techniques to solve problems in my research. The speakers also emphasized how deep learning is often more about engineering and experimenting to learn what works and what does not, and shared the insights they had learned over the years. I think tips like those really gave me valuable, cheat-sheet styled guidelines that I will use in future.

Third, I enjoyed the sessions about the history of Document Analysis covering how it has evolved over the years, what problems the community has focused on previously, and what open-problems remain to be tackled. As we are often reminded in our department, a Ph.D. is not just about one's own research but also about gaining a broad understanding of different areas in Computer Science. I think the summer school indeed helped me

quickly bootstrap my understanding about how many modern document processing computer applications work.

Last, during the meet-and-greet opportunities after work hours, I liked talking with professors who had come to Pakistan for the first time about their experiences. Pakistan receives pretty limited foreign visitors, mainly due to its reputation. I was delighted to see that all of them were happy that they made the trip. I also asked professors about how they view the academic culture at the venue where the summer school was held, and what areas they think the institute could improve in. I think interactions like these are really important, and they can also help me understand how, even in a very limited way, I can contribute back to the institute I was once a student at. As an alumni of NUST, it is indeed a matter of pride for me to see it progress.

I would finally like to acknowledge all the organizers for an excellent event, and for awarding me with the student grant. I would also specifically thank Dr. Faisal Shafait for taking the initiative to inform me about the event, as he probably knew I would be interested in attending.

Best,
Muhammad Talha Paracha
paracha.m@husky.neu.edu



<http://icig2019.csig.org.cn/>

ICIG 2019

THE 10TH INTERNATIONAL CONFERENCE ON IMAGE AND GRAPHICS

—— 第10届国际图象图形学学术会议 ——

2019年8月23-25日 中国·北京·友谊宾馆

主办单位:  中国图象图形学学会 承办单位:  清华大学 |  北京大学 |  中国科学院自动化研究所

Beijing, China
August 23-25, 2019

General Chairs:

Tieniu Tan (Institute of Automation, CAS, China)
 Oliver Deussen (University of Konstanz, Germany)
 Rama Chellappa (University of Maryland, USA)

by Yao Zhao, Beijing Jiaotong University, China

The International Conference on Image and Graphics (ICIG) is the biennial conference hosted by China Society of Image and Graphics (CSIG), focusing on innovative technologies of image, video and graphics processing and fostering innovation, entrepreneurship, and networking. With the breakthrough of deep learning, artificial intelligence, and computer vision, our conference witnesses the obvious occurrence.

ICIG 2019 was hosted by CSIG, organized by Tsinghua University, Peking University, and the Institute of Automation, CAS, and sponsored by Nanjing University of Science & Technology.

This year, it received a total of 384 high quality submissions. Among them, 33 were accepted as oral and 150 as poster, for a total of 183 accepted papers.

All of the papers accepted for presentation at the conference will be included in the Proceedings, published in three parts in Springer's LNCS series (Image and Graphics [Part 1](#), [Part 2](#), and [Part 3](#)) and also indexed by EI.

The entire three-day program comprised three plenary talks, two oral sessions, two poster sessions, two tutorials, seven forums, and three workshops. About 400 participants attended the conference.

ICIG 2019 featured a rich and diversified program, keynote speeches from Marc Alexa (Electronics & Information Technical University of Berlin, Germany); Shmuel Peleg, (School of Computer Science and Engineering, The Hebrew University of Jerusalem, Israel); and Jie Zhou (Department of Automation, Tsinghua University, China). Tutorials included Visual SLAM and 3D Reconstruction and Plenoptic Face Analysis. Forums were composed of The Third Forum on Big Visual Data, Outstanding Doctoral Forum and Young Scientists Forum, Brain Inspired Intelligence Forum, Top publication experience sharing session, Forum of the Fast Visual Pathway, Forum of Women in CSIG, Frontiers in Brain Mapping. Workshops included MOre than Common Object Detection (MOCOD) – Occlusion and Small Objects, Video Image Enhancement Processing

for Intelligent Transportation, Automated AI in Vision— Opportunities and Challenges.

At the closing ceremony, four paper awards were announced and presented. The awards were selected based on evaluation of review scores and presentation quality by a committee led by award chair.

Best Paper Award:

- Shanshan Li, Qiang Cai, Zhuangzi Li, Haisheng Li, Naiguang Zhang and Jian Cao, "Attention-aware Invertible Hashing Network"
- Dong Wang, Shengge Shi, Xiao Bai and Xueni Zhang, "Accelerating Deep Convnets via Sparse Subspace Clustering"

Best Student Paper Award:

- Mu Lide and Huafeng Liu, "Noninvasive Epicardial and Endocardial Extracellular Potentials Imaging with Low-rank and Non-local Total Variation Regularization"
- Zhiqi Zhao, Danni Ai, Wenjie Li, Jingfan Fan, Hong Song, Yongtian Wang and Jian Yang, "Spatial Probabilistic Distribution Map based 3D FCN for Visual Pathway Segmentation"

ISAIR2019

Daegu, Korea

20-24 Aug., 2019



The 4th International Symposium on Artificial Intelligence and Robotics 2019

General Chairs:

[Pin-Han Ho](#) (University of Waterloo, Canada)

[Nakhoon Baek](#) (Kyungpook National University, Korea)

[Hyoungseop Kim](#) (Kyushu Institute of Technology, Japan)

by [Huimin Lu](#), Kyushu Institute of Technology, Japan

ISAIR2019 was endorsed by the IAPR, the IEEE Computer Society Big Data STC, the Institute of Electrical Engineers of Japan, and had the financial sponsorship of the Daegu Convention Visitors Bureau and the International Society for Artificial Intelligence and Robotics.

The integration of artificial intelligence and robotic technologies has become a topic of increasing interest for both researchers and developers from academic fields and industries worldwide. It is foreseeable that artificial intelligence will be the main approach of the next generation of robotic research. The aim of this symposium is to provide a platform for young researchers to share up-to-date scientific achievements in this field.

ISAIR2019 received 282 paper submissions from 11 countries (Australia, Austria, China, Hong Kong, Japan, Malaysia, Mexico, Nigeria, Pakistan, South Korea, and USA), a substantial increase over previous years. 29 Area Chairs, together with the Program Committee and a team of nearly 600 additional reviewers were

involved in the peer-review process. As a result, 51 papers (18.1% of the total submissions) were accepted for oral presentation and 29 papers (10.2% of the total submissions) were accepted for spotlight presentation.

The proceedings were electronically published and are now available at Springer in the book series "Artificial Intelligence and Robotics". Moreover, authors of the accepted papers have been invited to submit substantially extended versions of their papers to well-known journals, such as Computers & Electrical Engineering, Mobile Networks & Applications, Concurrency and Computation: Practice and Experience, IEEE Access, IEEE Transactions on Network Science and Engineering, IEEE Transactions on Fuzzy Systems, Applied Soft Computing, Wireless Networks, Journal of Ambient Intelligence and Humanized Computing.

The final program (<https://easychair.org/smart-program/ISAIR2019/>) included keynote talks entitled "Internet of Things: Applications and Security Challenges" by Prof. Manu Malek (IEEE Life Fellow); "A Cyber-Physical Billboard IoT Network

-Architecture, Operation, and Performance" by Prof. Pin-Han Ho (IEEE Fellow); and "Machine Learning and High Performance Computing" by Prof. Geoffrey C. Fox (ACM Fellow).

Three papers were selected by the award committee as the best papers.

Best Paper: Joohyun Kim, Seo-Hee Hong, Jae-Hoon Kim for their paper entitled "Context-Aware Pub/Sub Control Method Using Reinforcement Learning"

Best Presentation Paper: Xuefeng Shi, Xin Kang, Ping Liao, Fuji Ren for their paper entitled "Building Label-Balanced Emotion Corpus Based on Active Learning for Text Emotion Classification"

Best Student Paper: Yan Zhao, Ziqiang Zheng, Zhibin Yu, Zhaorui Gu, Nan Wang, Min Fu, Haiyong Zheng, Bing Zheng for their paper entitled "Fine-grained Facial Image-to-image Translation with an Attention based Pipeline Generative Adversarial Framework".

At the closing ceremony, Kyushu Institute of Technology in Japan was selected as the venue of ISAIR2020. Finally, we think the ISAIR2019 was a great conference both scientifically and socially.



General Chair:

[Mario Vento](#) (University of Salerno, Italy)

[Gennaro Percannella](#) (University of Salerno, Italy)

by the General Chairs

The International Conference on Computer Analysis of Images and Patterns is a series of biennial international conferences devoted to all aspects of computer vision, image analysis and processing, pattern recognition, and related fields.

The 18th edition of the conference, CAIP 2019, was organized by the MIVIA lab of the University of Salerno (<https://mivia.unisa.it>) and was held at the Grand Hotel Salerno.

CAIP 2019 was endorsed by the IAPR and by the Italian Association for Computer Vision, Pattern Recognition and Machine Learning (CVPL). The conference got the financial sponsorship of the University of Salerno, Springer, and several companies as SAST GmbH, A.I. Tech srl, AI4Health srl, Gesan srl, Hanwha Techwin Europe Ltd, Nexsoft srl.

CAIP 2019 received 183 paper submissions, which was a significant increase over the previous editions. The four Program Chairs, namely Pasquale Foggia, Luca Greco, Pierluigi Ritrovato, and Nicola Strisciuglio, coordinated the work of the 109 members of the International

Technical Program Committee supported by 32 additional reviewers, which guaranteed a peer-review selection process based on three distinct reviews per paper. Finally, 106 high-quality manuscripts were selected, with a resulting acceptance rate of 57.9%. The proceedings of the conference are published by Springer, as LNCS volumes [11678](#) and [11679](#).

The scientific program of the conference comprised a single track, with 30 oral papers arranged in 8 sessions. The remaining 76 papers were presented as posters. The conference was opened by the plenary talk of the IAPR Distinguished Speaker Prof. Luc Brun from ENSICAEN (France) on the topic of Graph Classification, followed by three other invited talks:

- Biometrics and Surveillance on the Move: Vision for Border Security, given by James Ferryman, University of Reading, UK
- Fingerprint Presentation Attacks Detection: from the “loss of innocence” to the “International Fingerprint Liveness Detection” competition, given by Gian Luca Marcialis, University of Cagliari, Italy
- Representation learning with

trainable COSFIRE filters, given by Nicolai Petkov, University of Groningen, The Netherlands

CAIP 2019 also included satellite events that were held on the modern campus of the University of Salerno, located in Fisciano, about 10km from Salerno. Two half-day tutorials were organized on September the 2nd, one in the morning and the other in the afternoon:

- Contemporary Deep Learning Models and their Applications, by Aditya Nigam and Arnav Bhavsar (Indian Institute of Technology, Mandi, India)
- Active Object Recognition: a survey of a (re-)emerging domain, by Francesco Setti (Department of Computer Science, University of Verona, Italy)

Both tutorials were characterized by a large participation of PhD students and young researchers.

CAIP 2019 also hosted two workshops:

- Workshop on Deep-learning based computer vision for UAV (DL-UAV 2019), chaired by Hamideh Kerdegari and Manzoor Razaak (The Robot Vision Team (RoViT), Kingston University,



UK), Matthew Broadbent (Department of Computing and Communications, Lancaster University, UK)

- Workshop on Visual Computing and Machine Learning for Biomedical Applications (ViMaBi 2019), chaired by Sara Colantonio (ISTI-CNR, Italy), Daniela Giorgi (ISTI-CNR, Italy) and Bogdan J. Matuszewski (UCLan, UK)

and a contest session:

- Which is Which? Evaluation of local descriptors for image matching in real-world scenarios, organized by Fabio Bellavia and Carlo Colombo (University of Florence, Italy)

The papers accepted to the workshops are published as chapters of Springer Communications in Computer and Information Sciences, [CCIS Volume 1089](#).

The CAIP 2019 Award Committee—Pasquale Foggia, Xiaoyi Jiang, Pedro Real Jurado, Walter Kropatsch, Nicolai Petkov—attributed the:

- Best Paper Award offered by Springer to the paper "How does Connected Components Labeling with Decision Trees perform on GPUs?", by

Stefano Allegretti, Federico Bolelli, Michele Cancilla, Federico Pollastri, Laura Canalini, and Costantino Grana

- Best Young Paper Award offered by CVPL to the paper "Reliability of results and fairness in the comparison of rates among 3D facial expression recognition works", by Gilderlane Ribeiro Alexandre, George André Pereira Thé and José Marques Soares

As General Chairs of CAIP 2019, we decided to assign the Promising Future Researcher Award to Samuel Yu, Heon Lee and John Kim from China, who are high school students and authors of the paper "LYTNet: A Convolutional Neural Network for Real-Time Pedestrian Traffic Lights and Zebra Crossing Recognition for the Visually Impaired". Their joint oral presentation was largely appreciated.

CAIP 2019 was attended by more than 140 participants from 34 countries on all five continents.

The attendees were involved in a rich social program opened by the welcome cocktail on the panoramic roof of the Grand Hotel Salerno Conference center, followed by a

visit plus cocktails at the Castle of Arechis, a medieval castle overlooking the city and the Gulf of Salerno, then the social dinner within the archeological park of Paestum (UNESCO site). The social program of the conference was closed by a walking tour inside the historical city center of Salerno.

In conclusion, we think that CAIP 2019 completely met the expectations of being a great conference from scientifically and socially. Many people have to be acknowledged for this success: first of all, the authors, without whom this conference would not have taken place. Then, the volunteer students, the local organizing committee, the program chairs, the workshops, contest and tutorials organizers must be thanked for the immense amount of hard work and professionalism that went into making CAIP 2019. A special acknowledgement is for the CAIP steering committee that gave us the honor and responsibility of organizing this important conference.

We wish good luck to the organizers of the next edition of CAIP that will be held in Cyprus, in late September 2021. For more information see: <http://caip.eu.org>.



General Chairs:

Oswald Lanz (Fondazione Bruno Kessler, Italy); Stefano Messelodi (Fondazione Bruno Kessler, Italy); Nicu Sebe (University of Trento, Italy)

Program Chairs:

Elisa Ricci (University of Trento, Italy); Samuel Rota Bulò (Mapillary Research, Austria); Cees Snoek (University of Amsterdam, The Netherlands)

by the General and Program Chairs

The 2019 International Conference on Image Analysis and Processing (ICIAP 2019) was the 20th edition of a series of conferences promoted biennially by the Italian Member Society (CVPL) of the International Association for Pattern Recognition (IAPR). The conference traditionally covers both classic and the most recent trends in image processing, computer vision, and pattern recognition, addressing both theoretical and applicative aspects, promoting connections and synergies among senior scholars and students, universities, research institutes, and companies. ICIAP 2019 was held in Trento at the Palazzo di Giurisprudenza, which is the site of the Faculty of Law of the University of Trento.

The conference was organized by The Vision and Learning joint Laboratory (VLL) which is a collaborative effort between Fondazione Bruno Kessler and the Department of Computer Science of University of Trento. ICIAP 2019 was endorsed by the International Association for Pattern Recognition

(IAPR), the Italian Member Society of IAPR (CVPL), and received the institutional support of the University of Trento and the Fondazione Bruno Kessler.

ICIAP 2019 received 207 paper submissions coming from 21 countries. The paper review process was managed by the program chairs with the invaluable support of 21 area chairs, together with the Program Committee and a number of additional reviewers. The peer-review selection process was carried out by three distinct reviewers in most cases. This led to the selection of 117 high-quality manuscripts, 19 oral presentations, 18 spotlights and 98 posters (each spotlight was also presented as a poster), with an overall acceptance rate of 56.5% (8.7% for oral presentations).

The program was subdivided into 10 main topics, covering a broad range of scientific areas, which were managed by two-three area chairs per topic. They were: Video Analysis and Understanding; Pattern Recognition & Machine Learning; Deep Learning; Multiview Geometry and 3D Computer Vision; Multimedia; Image Analysis, Detection and Recognition;

Biomedical and Assistive Technology; Digital Forensics; Image processing for Cultural Heritage; and Brave New Ideas.

The program also included 4 invited talks by distinguished scientists in computer vision, pattern recognition and image analysis. We enjoyed the plenary lectures of Davide Scaramuzza (University of Zurich and ETH, Switzerland), Ayellet Tal (Technion, Israel), Emanuele Rodolà (Sapienza University of Rome), and Alessandra Sciutti (Istituto Italiano di Tecnologia) all of whom addressed very interesting and recent research approaches and paradigms, such as vision-controlled drones, computer vision for archeology, 3D and spectral geometry, and cognitive vision for human robot interaction. The keynote of Davide Scaramuzza and one of the oral sessions were organized in conjunction with the 13th International Conference on Smart Distributed Cameras (ICDSC 2019).

Moreover, we hosted six tutorials and four workshops plus an industrial session in which several prominent companies as well as start-ups presented their activities

with respect to the cutting-edge research in the respective areas.

Tutorials and workshops were held on the two days before the main conference.

The organized tutorials were:

- “Vision, Language and Action: from Captioning to Embodied AI” by Lorenzo Baraldi, Marcella Cornia, and Massimiliano Corsini;
- “Transferring Knowledge Across Domains: an Introduction to Deep Domain Adaptation” by Massimiliano Mancini and Pietro Morerio;
- “Fingerprint Presentation Attacks Detection: Lessons learned and a ROADMAP to the Future” by
- “Probabilistic and deep learning for regression in computer vision” by Xavier Alameda-Pineda and Stéphane Lathuilière;
- “Anomaly Detection in Images” by Giacomo Boracchi and Diego Carrera; and
- “High-Dynamic-Range imaging: improvements and limits” by Alessandro Rizzi.

The half- or full-day satellite workshops were:

- “Pattern Recognition for Cultural Heritage (PatReCH 2019)” organized by Francesco Fontanella, Mario Molinara, and Filippo Stanco;
- “Deep Understanding of Shopper Behaviours and Interactions in Intelligent Retail Environment” organized by Emanuele Frontoni, Sebastiano Battiato, Cosimo Distanto, Marina Paolanti, Luigi di Stefano, Giovanni Maria Farinella, Anette Wolfrath, and Primo Zingaretti;
- “BioFor Workshop on Recent Advances in Digital Security: Biometrics and Forensic” organized by Daniel Riccio, Chang-Tsun Li, Francesco

Marra, and Diego Gragnaniello; and

- “eHealth in the Big Data and Deep Learning Era” organized by Tanmoy Chakraborty, Stefano Marrone, and Giancarlo Sperl.

The workshop papers were all collected in a separate volume of the LNCS series by Springer (Vol. 11808). We thank all the workshop organizers and tutorial speakers who made possible such an interesting pre-conference program.

Several awards were conferred during ICIAP 2019.

- The “Eduardo Caianiello” Award supported by Springer and IAPR was assigned after a careful selection made by an appointed committee. The award was attributed to the best paper authored or co-authored by at least one young researcher (PhD student, postdoc, or similar). This was assigned to the paper “RE-OBJ: Jointly learning the foreground and background for object instance re-identification” co-authored by Vaibhav Bansal, Stuart James and Alessio Del Bue.
- The Best Paper Award supported by Springer and the IAPR was assigned after a careful selection made by an appointed committee. This award was named in the memory of Professor Alfredo Petrosino [see “In Memoriam” [IAPR Newsletter 41:3](#)] The winner was the article “Tackling Partial Domain Adaptation with Self-Supervision” co-authored by Silvia Bucci, Antonio D’Innocente, and Tatiana Tommasi.

Also a special mention was given to the following works:

- “Domain Adaptation for Privacy-preserving Pedestrian

Detection in Thermal Imagery”, My Kieu, Andrew D. Bagdanov, Marco Bertini, and Alberto Del Bimbo

- “Regularized Evolutionary Algorithm for Dynamic Neural Topology Search”, Cristiano Saltori, Subhankar Roy, Nicu Sebe and Giovanni Iacca

The organization and the success of ICIAP 2019 were made possible thanks to the cooperation of many people. First of all, special thanks should be given to the area chairs, who, with all the members of the PC, made a big effort on the selection of the papers. Second, we would also like to thank the industrial, special session, publicity, publication, and Asia and US liaison chairs, who, operating in their respective fields, made this event a successful forum of science.

Special thanks go to the workshop and tutorial chairs as well as all workshop organizers and tutorial lecturers for enriching the conference program with notable satellite events. Last but not least, we are indebted to the local Organizing Committee, mainly colleagues from MHUG lab in the University of Trento and the TEV Lab of Fondazione Bruno Kessler, who dealt with almost every aspects of the conference. Thanks very much indeed to all the aforementioned people.

We hope that ICIAP 2019 met its aim to serve as a basis and inspiration for future ICIAP editions.

Proceedings were published as Springer LNCS volumes

- Part 1: <https://link.springer.com/book/10.1007/978-3-030-30642-7>
- Part 2: <https://link.springer.com/book/10.1007/978-3-030-30645-8>
- Workshops: <https://link.springer.com/book/10.1007/978-3-030-30754-7>

Also available online at [SpringerLink](#)

Fourth International Conference on Computer Vision & Image Processing

September 27-29, 2019

Jaipur, India

<http://cvip2019.mnit.ac.in>

Honorary Chairs:

Uday Kumar R.Yaragatti (MNIT Jaipur)
Anil Kumar Jain (Michigan State Univ., USA)
Bidyut Baran Chaudhari (ISI Kolkata)

General Chairs:

Mohamed Abdel-Mottaleb (Univ. of Miami, USA)
Mohan S Kankanhalli (NUS, Singapore)



CVIP2019, 4th in the series endorsed by International Association for Pattern Recognition, was organized by the Malaviya National Institute of Technology Jaipur.

About 202 original submissions were received from nine countries: US, South Korea, Norway, Malaysia, Iceland, Ethiopia, Canada, Bangladesh and India.

73 full papers and 10 short papers were for 13 oral technical session presentations as well as publication in the conference proceedings.

The international Program Committee members—all experts in the field—along with a group of additional reviewers were responsible for reviewing and providing feedback to authors on their work. A peer review process was carried out by each track. Each paper received at least 3, several received up to 5 reviews. The papers were evaluated on their relevance to the conference track or topics, scientific correctness and clarity of

presentation. Final selection was based on these reviews and on further discussion of each paper among the involved PC members. We are very grateful for the commitment and enthusiastic support displayed by all of the reviewers.

Proceedings: The proceedings of the conference will be published by Scopus Indexed – Springer, Communications in Computer and Information Science series (CCIS). The previous proceedings were also published by Springer, AISC Advances in Intelligent Systems and Computing.

Expert Talks: CVIP2019 featured eminent keynote speakers:

- Prof Matti Peitkenan, University of Oulu, Finland. "Face Analysis for Emotionally Intelligent Systems"
- Prof Mohammad Abdel Mottaleb, University of Miami, USA. "Digital Image Processing in Ophthalmology"
- Prof P C Yuen, HongKong Baptist University. "Is Face Recognition Secure?"

Banquet Dinner: For the 100 plus attendees, a social event with performances by folk artists followed by a banquet dinner at Holiday Inn was organized on 28 September 2019.

Best Paper Awards:



IAPR Best Student Paper prize was awarded to

"Tackling Multiple Visual Artifacts: Blind Image Restoration using Conditional Adversarial Networks" by M Anand, A Ashwin Natraj, V Jeya Maria Jose, K Subramanian, Priyanka Bhardwaj, R Pandeewari and S Deivalakshmi



IAPR best paper prize was given to "Real-Time Driver

Drowsiness Detection using Deep Learning and Heterogeneous Computing on Embedded System" by Shivam Khare, Sandeep Palakkal, Hari Krishnan T V, Chanwon Seo, Yehoon Kim, Sojung Yun and Shankarnarayanan Parameswaran.



2019 International Conference on Digital Image Computing: Techniques and Applications

General Chairs:

[Ajmal Mian](#) (UWA, Australia)
[David Suter](#) (ECU, Australia)
[Mohammed Bennamoun](#) (UWA, Australia)
[Wanquan Liu](#) (Curtin University, Australia)

Technical Program Chairs:

[Jiwen Lu](#) (Tsinghua University, China)
[Hamid Laga](#) (Murdoch University, Australia)
[Ferdous Sohel](#) (Murdoch University, Australia)

By Prof. Ajmal Mian

This year, the APRS International Conference on Digital Image Computing: Techniques and Applications (DICTA) returned to the beautiful city of Perth, Australia, after six successful editions held in other Australian cities.

Established in 1991, DICTA, which has emerged into an international event, continues to showcase some of the most exciting advances in image processing, computer vision, pattern recognition, machine learning and artificial intelligence, with a series of keynote talks, oral presentations, poster sessions and various tutorials/workshops.

DICTA2019 offered an outstanding technical program, thanks to the dedicated work of the Technical Program Committee members and reviewers.

We were honoured to have four keynote presentations from four distinguished researchers:

- "Transport-Aware Cameras" by Professor Kyros Kutulakos (Department of Computer Science, University of Toronto, Canada)
- "Video Capsule Networks: Human Action Detection, Video Object Segmentation and Video

Segmentation Conditioned on Text" by Professor Mubarak Shah (Center for Research in Computer Vision, University of Central Florida, USA)

- "Towards Embodied Action Understanding" by Dr Ivan Laptev (INRIA Paris, France),
- "SLAM in the Era of Deep Learning" by Professor Ian Reid (University of Adelaide, Australia)

As a truly international event, DICTA2019 attracted research paper submissions from different countries across Africa, Asia, Australasia, Europe, and North America.

To ensure the quality of the conference, each submission underwent a rigorous double-blind review process, with at least three independent reviews solicited before a decision was made. Based on the recommendations of the reviewers, the Technical Program Committee accepted 82 high-quality papers to be presented at the conference. 37 of the accepted papers were from 13 different countries outside Australia. This year, some authors were also given the opportunity to revise their paper based on the reviewers' comments. These papers underwent a second round of review by the Program Chairs to make the final decisions.

Thirty-eight (38) of the accepted papers were presented in the following seven oral sessions:

- Classification
- 3D Vision
- Detection and Localization
- Medical Image Analysis
- Computer Vision Applications
- Image and Text
- Remote Sensing

These papers were selected based on positive comments by the reviewers and the Program Chairs. The remaining papers were presented in two poster sessions. This year, all oral papers were offered the opportunity to also present their work as a poster.

All accepted papers presented in DICTA2019 were published in the conference proceedings by the IEEE and archived in the IEEE Explore digital library.

Proceedings of
DICTA 2019
are available through



<https://ieeexplore.ieee.org/xpl/conhome/8943071/proceeding>



Besides the main technical program, DICTA2019 also put together a post-conference workshop day at the University of Western Australia. The workshop was structured in two sessions: the first session on Language and Vision and the second on Adversarial Attacks on Deep Learning and their Defenses.

As per DICTA tradition, the organizing committee nominated four outstanding papers to receive best paper awards. The winners of these awards were announced during the conference banquet—an exquisite buffet dinner served while cruising the beautiful Swan River on the MV James Stirling, a high-class Captain Cook Cruise Vessel.

**DEFENCE SCIENCE
TECHNOLOGY
BEST CONTRIBUTION TO
SCIENCE AWARD**

***Fast Point Cloud Registration
using Semantic Segmentation***
Giang Truong, Syed Zulqarnain
Gilani, Syed Islam and David Suter

**DICTA 2019 APRS/IAPR
BEST PAPER AWARD**

***Visual Localization Under
Appearance Change: A Filtering
Approach***

Dzung Anh Doan, Yasir Latif, Tat-
Jun Chin, Yu Liu, Shin-Fang Ch'ng,
Thanh-Toan Do and Ian Reid

**DICTA 2019 APRS/IAPR
BEST STUDENT
SCIENTIFIC PAPER AWARD**

***Perspective-consistent
multifocus multiview 3D
reconstruction of small objects***
Hengjia Li and Chuong Nguyen

**DICTA 2019 IEEE BEST
STUDENT TECHNICAL PAPER
AWARD**

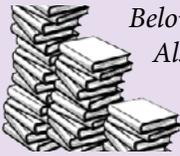
***To What Extent Does
Downsampling, Compression,
and Data Scarcity Impact Renal
Image Analysis?***

Can Peng, Kun Zhao, Arnold
Wiliem, Teng Zhang, Peter
Hobson, Anthony Jennings and
Brian C Lovell

On behalf of all the general chairs, I would like to thank the Technical Program Chairs, Local Arrangements and Web Chair, Proceedings Chair, Publicity Chairs, Workshop Chair, Treasurer and Finance Chair, the Advisory Committee and the reviewers. There were also a number of administrative staff and student volunteers who provided valuable ongoing support to make the conference run smoothly. This event could not have been possible without the time and effort of all of these volunteers.

Finally, we would like to thank the long-term support from our sponsors, the Defence Science and Technology (DST), PCB, IEEE, IAPR, UWA, ECU and Murdoch University. Their support is an essential part of the program.

BOOKSBOOKSBOOKS



Below is a list of recently or soon-to-be published titles by Springer and CRC Press.

Also, please let us know if you have a new book coming out, and we'll list it here.

Happy reading!

~[Jing Dong](#), IAPR Newsletter EiC



New titles published by Springer:

The following recently-published Springer titles may be of interest to the IAPR members:

- * **Selfie Biometrics** by Ajita Rattani et al. (Eds.): <https://www.springer.com/book/9783030269715>
- * **Deep Learning and Convolutional Neural Networks for Medical Imaging and Clinical Informatics** Le Lu et al. (Eds.): <https://www.springer.com/book/9783030139681>
- * **Video Verification in the Fake News Era** by Vasileios Mezaris et al. (Eds.): <https://www.springer.com/book/9783030267513>
- * **Human Activity Recognition and Behaviour Analysis** by Liming Chen and Chris D. Nugent: <https://www.springer.com/gb/book/9783030194079>
- * **Image Texture Analysis** by Chih-Cheng Hung, Enmin Song and Yihua Lan: <https://www.springer.com/book/9783030137724>
- * **Fundamentals of Image Data Mining** by Dengsheng Zhang: <https://www.springer.com/book/9783030179885>
- * **Domain Adaptation for Visual Understanding** by Richa Singh et al. (Eds.): <https://www.springer.com/book/9783030306700>
- * **Handbook of Vascular Biometrics** by Andreas Uhl et al. (Eds.): <https://www.springer.com/book/9783030277307>
[Open Access]

And, this title is due to publish very soon:

- * **Guide to Deep Learning Basics** by Sandro Skansi (Ed): <https://www.springer.com/book/9783030375904>



New titles published by CRC Press:

Books for the first quarter of 2020:

- * **Fundamentals of Satellite Remote Sensing: an Environmental Approach, Third Edition** by Emilio Chuvieco <https://www.crcpress.com/Fundamentals-of-Satellite-Remote-Sensing-an-Environmental-Approach-Third/Chuvieco/p/book/9781138583832>
- * **Hyperspectral Satellites and System Design** by Shen-En Qian <https://www.crcpress.com/Hyperspectral-Satellites-and-System-Design/Qian/p/book/9780367217907>
- * **Nonimaging Optics: Solar and Illumination System Methods, Design, and Performance** by Roland Winston, Lun Jiang, and Vladimir Oliker <https://www.crcpress.com/Nonimaging-Optics-Solar-and-Illumination-System-Methods-Design-and-Performance/Winston-Jiang-Oliker/p/book/9781466589834>



**This bulletin board
contains items of interest to the
IAPR Community**

CV ONLINE

**The Evolving, Distributed, Non-Proprietary,
On-Line Compendium of Computer Vision**

Add your image/video dataset to the CVonline index?

Do you have an image/video dataset that you would like to be included in the CVonline list of datasets? With ICCV and CVPR recently passed, there must be some new ones.

CVonline's list is at: <http://homepages.inf.ed.ac.uk/rbf/CVonline/Imagebase.htm>

CVonline lists more than 1200 different datasets of interest to the image processing and computer vision communities.

The current main categories are listed below. If you'd like your dataset included, tell me about it with these details:

- URL
- database title
- 1 sentence describing it
- who to credit for the dataset
- what category it belongs in the list below

Why contribute?

- 1) Most databases have an associated paper, and you can get more citations!
- 2) Comparing results on the same dataset advances computer vision methods!

Thanks, Bob

Main Categories:

- Action Databases
- Agriculture
- Attribute recognition
- Autonomous Driving
- Biological/Medical
- Camera calibration
- Face and Eye/Iris Databases
- Fingerprints
- General Images
- General RGBD and depth datasets
- General Videos
- Hand, Hand Grasp, Hand Action and Gesture Databases
- Image, Video and Shape Database Retrieval
- Object Databases
- People (static and dynamic), human body pose
- People Detection and Tracking Databases (See also Surveillance)
- Remote Sensing
- Robotics
- Scenes or Places, Scene Segmentation or Classification
- Segmentation
- Simultaneous Localization and Mapping
- Surveillance and Tracking (See also People)
- Textures
- Urban Datasets
- Vision and Natural Language
- Other Collection Pages
- Miscellaneous Topics

Meeting and Education Planner

The IAPR web site has the most up-to-date information on IAPR events. Click [here](#).

NOTE: Highlighting indicates that the paper submission deadline is still open.

+ Plus sign denotes pending application for IAPR endorsement/sponsorship + * Asterisks denote non-IAPR events *

	Meeting	Report on previous edition	Venue
2020	FEB	ICPRAM 2020 : 9th Intl. Conf. on Pattern Recognition Applications and Methods	ICPRAM 2019 Malta
	APR	IWBF 2020 : 8th IAPR International Workshop on Biometrics and Forensics	IWBF 2019 Portugal
	MAY	DAS 2020 : 14th IAPR Intl. Workshop on Document Analysis Systems	DAS 2018 China
	JUN	* ICISP 2020 : 9th International Conference on Image and Signal Processing *	ICISP 2018 Morocco
		SSB 2020 : 17th Intl. Summer School for Advanced Studies on Biometrics for Secure Authentication: FORENSICS AND IDENTITY SCIENCE FOR HUMAN-CENTERED APPLICATIONS	SSB 2019 Italy
	JUN	MCPR 2020 : 12th Mexican Conference on Pattern Recognition	MCPR 2019 Mexico
	JUL	ISAIR 2020 : 5th International Symposium on Artificial Intelligence and Robotics	ISAIR 2019 Japan
	SEP	ANNPR 2020 : 9th Workshop on Artificial Neural Networks in Pattern Recognition	ANNPR 2018 Switzerland
		ICFHR 2020 : 17th Intl. Conference on Frontiers of Handwriting Recognition	ICFHR 2018 Germany
		ICPR 2020 Workshops: coming soon...	ICPR 2018 Italy
		ICPR 2020 : 25th International Conference on Pattern Recognition	ICPR 2018 Italy
	DEC	+ IJCB 2020 : 4th International Joint Conference on Biometrics (IJCB is a triennial conference) +	IJCB 2017 USA



Thoughts on articles you've read in this issue of the IAPR Newsletter?

Ideas for features you'd like to see in the IAPR Newsletter?

*Send your comments to:
Jing Dong,, Editor-in-Chief
jdong@nlpr.ia.ac.cn*

The IAPR Newsletter is published in association with the IAPR website, www.iapr.org.
The IAPR Newsletter is published four times per year, January, April, July, and October.

**Deadline for the next issue:
March 15, 2020**



To contact us:

Editor-in-Chief

Jing Dong, jdong@nlpr.ia.ac.cn

Layout Editor

Linda J. O'Gorman, secretariat@iapr.org



<https://www.linkedin.com/groups/8159047>

