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a Glimpse @ an Inspiring Technical Paper

by Jing Dong, *IAPR Newsletter* EiC
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http://cripac.ia.ac.cn/en/EN/column/item113.shtml

Editor's note:
I'm glad to introduce this new series, "A Glimpse @ an Inspiring Technical Paper" in this column. The aim is to introduce recent papers that advance technology towards the benefit of humanity, inspiring us all to strive in that direction.
~ Jing Dong, EiC

This work has come just ahead of increased attention around the world on vaccinations due to the pandemic. This infant biometric research project led by Professor Anil.K. Jain from Michigan State University (MSU), was in the spotlight at ID4Africa 2019 in South Africa.

Despite the efforts of international health organizations and NGOs, nameless children are still dying because it was believed that it was impossible to use body traits such as fingerprints for accurate identification for children. This research has just demonstrated that it is indeed possible. The work culminates Jain's team's eight-year effort to build an end-to-end ergonomic and accurate recognition system for infants, especially for those in developing countries. This system allows for accurate digital records, which are imperative for ensuring safety not only from the virus but other vaccine preventable diseases as well.

Professor Jain also shared some behind-the-scenes stories about this work: "Our involvement in infant and child recognition using fingerprints has an interesting beginning with roots in polio eradication. The Global Polio Eradication Initiative (GPEI) was launched in 1988. Polio is a vaccine-preventable disease and thanks to huge financial support

C A L L S f o r P A P E R S

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/*

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PRIP 2021 (online)
15th Intl. Conf. on
Pattern Recognition and Informatin Processing
Minsk, Belarus
Deadline: Aug. 8, 2021
Dates: Sep. 21-24, 2021

CVIP 2021 (hybrid)
6th Intl. Conf. Computer Vision and Image Processing
Rupnagar, Punjab, India
First Round Deadline: Jun. 30, 2021
Second Round Deadline: Aug. 31, 2021
Dates: Dec. 3-5, 2021

2 0 2 2

ICPRAI 2022
3rd International Conference on
Pattern Recognition and Artificial Intelligence
Paris, France
Deadline: Dec. 15, 2021
Dates: Jun. 1-3, 2022

IGS 2021
20th Conference of the
International Graphonomics Society
Las Palmas de Gran Canaria, Spain
Deadline: Dec. 15, 2021
Dates: Jun. 7-9, 2022 (moved from Sep.13-15, 2021)

ICPR 2022
26th Intl. Conf. on Pattern Recognition
Montréal, Québec, Canada
Paper Registration Deadline: January 10, 2022
Paper Submission Deadline: January 17, 2022
Dates: Aug. 21-25, 2022

from the Bill and Melinda Gates Foundation (BMGF), polio is close to being eradicated. Despite this progress, efforts must continue to completely eradicate poliovirus globally or else it will reemerge as a threat to children."

The U.S. Centers for Disease Control (CDC) recommends that children should get four doses of polio vaccine in total, with one dose at each of the following ages: two months, four months, six through 18 months, and four through six years.

But, when a child comes to a vaccination clinic, how does the health care worker know whether this child has already been immunized with polio vaccine? In the least developed countries of the world, a significant portion of the population, both adults and children, do not have any form of identification documents. Even India's hugely successful civil ID program, launched in 2009, issues a 12-digit Aadhaar number only at the age of five.

As a major supporter of polio vaccination, the BMGF wanted to know if biometrics could be used to recognize children at the health clinics. About eight years back, Prof.Jain was invited by the Foundation to give a 10-minute presentation to Bill Gates and his advisors about the feasibility of using biometrics to recognize

infants and children and which trait(s) would be most suitable in terms of social acceptability, cost, ease of use, and accuracy.

"At that time of my presentation, there was very little work done on biometric recognition for infants (ages 0-12 months) and toddlers (ages 12 months-24 months). Our presentation to Bill Gates resulted in a grant support from BMGF which helped us launch our successful program in child recognition based on fingerprints. The data collection for this program was facilitated by our collaborators, Dr. Anjoo Bhatnagar, a pediatrician at the Saran Ashram Hospital, Dayalbagh, India and Dr. Prem Sudhish, a professor of computer Science at the Dayalbagh Educational Institute." said Professor Jain.

The major contributions of this work as summarized by the authors are as follows:

1. "This is the first comprehensive study to develop an **entire**, end-to-end infant fingerprint

recognition system [...] and then rigorously evaluate the system on a longitudinal, insitu dataset to successfully demonstrate that infants can be enrolled at ages of less than 3 months, and then recognized after a time lapse of 12 months with acceptable accuracy."

2. Design and prototype (open source) of a compact (1" x 2" x3"), low-cost (~US$85), ergonomic, high-resolution (to accommodate small inter-ridge spacing of infants), and high throughput fingerprint reader.

3. An end-to-end robust and accurate fingerprint matcher to accommodate low quality

(distorted, dirty, wet, dry, motion blurred), high-resolution (1900 ppi) fingerprint images.

4. The authors believe that this work "will make a major dent in achieving Goal #3 of the United Nations Sustainable Development Goals, namely, '*Ensuring healthy lives and promoting well-being for all, at all ages.*'"

This research, conducted in India, has also been hailed by identity experts as a milestone in efforts to solve the problem of child identification, as highlighted by Dr. Joseph Atick, executive chairman of digital identity movement ID4Africa.

August 21-25 • Montréal, Québec

iCPR 2022

26TH International Conference on Pattern Recognition

https://iapr.org/icpr2022

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Calls from IAPR Committees

From the IAPR Education Committee:
Call for Applications for IAPR Research Scholarships
https://iapr.org/docs/IAPR-EC-RS-Call-2018.pdf

COVID-19: Applications are welcome, assuming pandemic travel regulations allow a visit during the proposed period.

Description: IAPR Research Scholarships 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. 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.

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:
(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:

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

NOTE: At the time of publication, there were 42 opportunities listed and more than 10,800 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/winter schools are training activities that expose participants to the latest trends and techniques in the particular pattern recognition field.

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/winter 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.

An interview with Yunhong Wang, IAPR Fellow
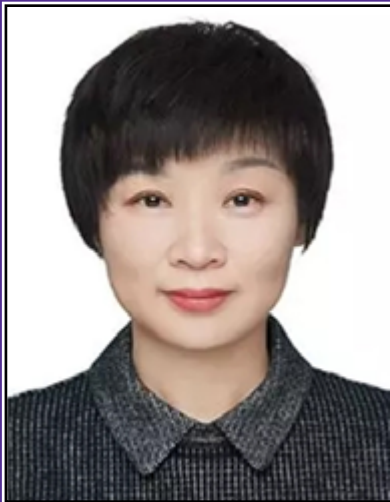
Yunhong Wang received her Ph.D. degree from Nanjing University of Science and Technology in China in 1998. She is a Professor and the past Deputy Chair of the School of Computer Science and Engineering at Beihang University. Prior to that, she was an Associate Professor at Institute of Automation, Chinese Academy of Sciences. She was named a Fellow of the International Association of Pattern Recognition (IAPR) for her contributions to the fields of biometrics, computer vision and pattern recognition in 2018.

Her research areas include face recognition, iris recognition, gait recognition, video surveillance, fusion of multiple biometrics, and watermarking. She has proposed many effective approaches for biometric texture representation and robust feature matching, achieving top performance in a number of applications. She has published in excess of 200 academic papers in areas largely related to biometrics, surveillance, and image processing. Her major work has appeared in IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Image Processing, IEEE Transactions on Information Forensics and Security, IEEE Transactions on Cybernetics, etc. She has contributed to professional activities as associate editors (for IEEE Transactions on Information Forensics and Security, etc.), TPC members, and reviewers of major international journals and conferences. As one of the leading researchers in biometrics in China, Prof. Wang has played a major role (general or program chairs) in organizing the annual Chinese Conference on Biometric Recognition (CCBR) for 14 consecutive years until 2020. She served as the Track Chair of 2020 ICPR, and Area Chair of CVPR2021.

Yunhong Wang, IAPR Fellow
ICPR 2018, Beijing
For contributions to biometrics, computer vision, and pattern recognition

EiC: Can you identify the most important factors for computer vision/ pattern recognition/ object recognition, in the past 20 years?

In the past twenty years, the most important factor for computer vision is visual representation, which is a key medium for transforming digital image/video signals into high-level semantics. Two recent milestones for visual representation are respectively the hand-crafted local feature with SIFT (Scale Invariant Feature Transform) as the representative, and deep learning based feature extraction methods represented by convolutional neural networks (CNN).

In 1999, David Lowe proposed the SIFT (Scale Invariant Feature Transform) local feature descriptor that depicts low-level image features, and is considered as the foundation of advanced visual cognition. Some subsequent methods (e.g. the SURF descriptor proposed by Herbert Bay et al., DAISY descriptor designed by Engin Tola et al., etc.) made further progress in this direction, providing task-independent image feature descriptions and laying the foundation for multi-level perception of computer vision.

Deep learning methods e.g. CNNs and its variants, have achieved great success in specific recognition tasks recently. In the field of computer vision, deep learning has also contributed to the significant performance improvements for many recognition problems, e.g. face recognition in controlled environments. Deep learning has greatly promoted the development of research and applications of computer vision in recent years.

EiC: What factors do you address when you supervise students and when working with your team members?

(1) Stay curious and enjoy exploring.
For research and the real world, we should always be curious, discover problems with an inquiring perspective, and solve them with a focused attitude. In the process of problem solving, both failures and successes are extremely valuable for experience accumulation. After all, learning to deal with frustrations in the research process is an

important part of research training.

(2) Recognize the importance of communication.
Let students and team members pay attention to their communications with peers, with non-peers, with advisors, with teams, and with other students. Communication is an important part of scientific research, for which two abilities need to be cultivated, namely the ability of clear expression, i.e. being able to express one's thoughts accurately, and the ability of quick understanding, i.e. being able to understand other people's ideas timely.

(3) Be patient.
Research is a lifetime work. Any researcher will encounter unsatisfactory things such as academic opinions not being accepted, papers being rejected, experimental results coming in far from expectations, etc. These are all inevitable setbacks in the long research career, and it is vital to be patient with the research and possess self-confidence.

EiC: What are your thoughts on beyond deep learning in computer vision at this time?

Even though significant progress has been made in the field of computer vision in recent years, especially with the rise of deep learning which has promoted related research and applications, tasks and their assumed environments are still far from to be treated as complicated or practical. Accordingly, two research issues that we should pay attention to in the future are as follows.

(1) From Perception to Cognition
Great progress has been achieved for visual perception recently, but there still exist gaps between the considered tasks and applied environments and the practical ones.

Accurate visual cognition is the basic requirement for the next-generation intelligent agents, where automatic inferences need to be achieved. Moreover, multiple tasks that are related need to be considered and solved simultaneously, which deserves more attention from researchers.

(2) Interactive Intelligence
Biological cognition is hierarchical, and is not a one-time training and learning process. Living creatures recognize through active interactions with the open environment. For visual perception and cognition methods, interactions with the environment also need to be included, which can help these methods achieve better performance especially when the environments are complex and the problems to be solved for specific tasks are unpredictable. Common sense and background knowledge of the physical and social worlds are better considered for practical tasks and environments.

IAPR Then and Now...2018 IAPR Fellows

IAPR Newsletter, Vol. 40 No. 4, October 2018

From Left: Simone Marinai (IAPR President, 2016-2018), Huangong Zhang, Pong Chi Yuen, Junsong Yuan, **Yunhong Wang**, Jingdong Wang, Richa Singh, Dingang Shen, Ling Shao, Bernt Schiele, Arun A. Ross, Paul L. Rosin, Javier Ortega-Garcia, Janne T. Heikkilä, Songcan Chen, and Andrea Cavallaro

IAPR...The Next Generation

In this series of Feature Articles, the IAPR Newsletter asks young researchers to respond to three questions:

- *Briefly: How did you get involved in pattern recognition?*
- *In more detail: What technical work have you done and what is/are your current research interest(s)?*
- *How can the IAPR help young researchers?*

~Jing Dong, Editor-in-Chief

Tayeb Benzenati

Tayeb Benzenati received his bachelor's and master's degrees in computer science from Boumerdes University, Boumerdes, Algeria. He is pursuing a Ph.D. degree in computer science with the Digital Research Center of Sfax (CRNS), Sfax, Tunisia. His research interests include the application of deep learning on remote sensing image fusion. In particular, when the technology reaches its limits in remote sensing, our work aims to provide novel fusion techniques based on the tremendous advance in deep learning field, to propose alternative effective solutions. So far, we have addressed two hot problems of remote sensing fusion relating to pansharpening, and multi-sensor multi-temporal fusion. The first problem aims to increase the spatial resolution of multispectral images often by a factor of 4, benefiting from the high resolution panchromatic at grayscale, although the second one permits the estimation of daily satellite imagery for effective satellites, which are unable to do so due to budget and physical constraints.

by Tayeb Benzenati, PhD Student, Digital Research Center of Sfax, Sfax Tunisia

Briefly: How did you get involved in pattern recognition?

I've been excited about each element relating to artificial intelligence since I was a young boy. AlphaGo was the source of my inspiration. I watched the 2016 game between AlphaGo (developed by Google Deepmind using machine learning) and the master Go player Lee Sedol in which AlphaGo won 4 games of 5. I was amazed by the impressive performance of machine learning, and on that day, I knew that one day this field would overtake human capacity in almost all fields.

I got involved in pattern recognition towards the final year of my master's degree in computer science. I wanted strongly to pursue my doctoral studies, as I had not yet done enough research. After winning my valedictorian scholarship to the digital research center of Sfax in Tunisia, I was determined to choose a Ph.D. topic relating

to deep learning. I am a big big fan of Yan Lecun and Ian Goodfellow, and I read their books about deep learning—especially, "Deep Learning" by Goodfellow, which helped me understand the fundamental concepts.

I also always had an interest in remote sensing and optical imagery, that is why I decided to relate deep learning to remote sensing and do my best to propose new approaches that resolve some major problems of remote sensing image fusion.

In more detail: What technical work have you done and what is/are your current research interest(s)?

Many people think that satellites around the world are perfect, and they already reach their limits in terms of quality of acquisition of images since we can have access currently to satellite images with a spatial resolution of less than one meter. Unfortunately, this is not the case yet and a lot of effort needs to be made.

Nowadays, satellites have not only technological and physical constraints, but also budget limitations as the cost of development of each satellite is extremely large. In an effort to solve the latter issues, researchers have successfully proposed many remote sensing (RS) fusion techniques to integrate the best features of satellites images into one more informative product and to make the best use of them. Often, satellites, particularly optical sensors, have to make a trade-off between spatial, spectral, radiometric, and temporal resolutions depending on the type and proprieties of the sensor and the satellite's mission. Currently, the acquisition of data with the best resolutions in all aspects is not feasible.

In the last few years, the evolution of machine learning, in particular the emergence of deep learning (DL), has improved considerably the accuracy in many fields including RS image fusion. My objective is to relate RS image fusion and DL by developing possible and innovative techniques to deal with major problems of RS fusion. I am interested particularly in pansharpening, a common problem aiming to integrate multispectral images with low spatial and high spectral resolution and panchromatic images with higher spatial resolution (up to four) at grayscale to produce images with high both spatial and spectral resolution.

This work has been the subject of several papers based on convolutional networks, residual networks, and recently generative adversarial networks. The key advantage of our approaches, in addition to the use of the appropriate network, is the imposition of constraint in loss function to conserve the spectral information vital for many monitoring applications, especially vegetation and water. Currently, among the many challenging problems in RS fusion, I am also specifically interested in multi-sensor multi-temporal fusion, which aims to combine different images captured by different sensors and characterized by complementary spatial, spectral, and temporal resolutions. We introduced this work at the 4th Mediterranean Conference on Pattern Recognition and Artificial Intelligence (MedPrai 2020) in a paper titled "End-to-End spectral temporal fusion using Convolutional Neural Network", which received the best student paper award. Several works have been proposed in the literature to deal with this problem but they generally utilize inputs that include

a very large up-sampling scale of spatial resolution (up to 16), and employ traditional shallow architectures borrowed from other computer vision applications that require three dates in the training and prediction stages, and thus, the problem becomes more complex and the obtained results very modest. In our work, we considered, on the one hand, Planetscope satellite that provides daily images at 3 meter resolution by operating more than 200 nanosatellites at low spectral resolution. On the other hand, Sentinel-2 produces images at a higher spectral resolution but a low revisit time of 5 days. The ability to provide Sentinel-2 like images on a daily basis via an appropriate approach is highly recommended and can address many issues in RS applications thanks to their very high spectral quality especially for vegetation monitoring applications including stress and disease detection for precision crop protection.

To deal with this issue, we proposed a spectral and temporal fusion approach of Sentinel-2 and Planetscope imagery to generate daily Sentinel-2 products based on attention mechanism. Attention mechanism to ameliorate fusion performance and allowed us to focus only on pertinent features while ignoring the irrelevant ones, which helped us to catch important regions that undergo significant changes in the training stage as the approach assists the network by Planetscope images at prior and prediction dates and the available sentinel-2 image at a prior date.

How can the IAPR help young researchers?

As a young researcher, I do believe that IAPR can help young researchers by offering platforms that bring together researchers from all over the world. Such a

platform can facilitate not only exchanges among them but can also represent a way to present and advertise their work, motivate themselves, share their innovative ideas and most common problems with peers and also with senior researchers, and to evoke possible collaboration and training courses and so one.

In addition, I think that IAPR can help young researchers by assisting them to deal with situations during their research, that may prevent them from focusing entirely on their scientific work. These reasons may occur because of financial difficulties or stress factors that can affect their health status due to ineffective time management during the Ph.D. I think that IAPR can propose some useful workshops, conferences, online courses, paid internships for ideal Ph.D. students.

I believe that the best way that IAPR can help is to create an atmosphere to ameliorate the preparation of young researchers that includes all these options and allows any form of connection and exchange by which young researchers will be able to give their voice to the public to thrive and expand.

IAPR TC-7
REMOTE SENSING AND MAPPING

INTERNATIONAL ASSOCIATION FOR PATTERN RECOGNITION
Technical Committee 7
https://iapr.org/tc7

From the ExCo

The IAPR ExCo on…
Gender Visibility in the Pattern Recognition Community Part 1

by Bob Fisher (UK), IAPR Treasurer

News from the IAPR Executive Committee

- ICPR 2022 is only 12 months away! Check out the Call for Papers and Call for Workshops in this issue.

- Start planning whom you might nominate for the IAPR Awards and fellowships to be presented at ICPR 2022. Calls for nominations are forthcoming.

- The ExCo typically has two in-person meetings during a term: the first at the ICPR at which they are elected; the second hosted by the Past President in the interim year betewen ICPRs. This term's interim meetig will take place digitally. Look for news in the October issue of this newsletter.

- IAPR TCs all now have standardized website URLs (https://iapr.org/tc#) and emails. New TC Leadership has been confirmed for all IAPR TCs. See TC News in this issue or the IAPR website for contact information.

- Standing Committee chairs for the 2020-22 term have been appointed, and the IAPR website will be updated soon.

- The current news shows how relevant it is to have a commitee on Equity, Diversity and Inclusion. Feel free to send them your thoughts.

- Take care and stay well.

Who is the IAPR?

The answer is YOU! You are the IAPR. Any person from one of the 50 participating national societies is the IAPR.

Perhaps you don't feel entirely represented by the IAPR. Perhaps when you attend IAPR events you see a relatively uniform group; maybe that group doesn't entirely showcase you. But the IAPR is striving to make changes so that you and everyone else feel represented and included.

The IAPR celebrates the diversity of our membership around the world. Two examples of this are hosting the Women in Pattern Recognition W4PR Workshop series at ICPR and creating a new Standing Committee on Equity, Diversity, and Inclusion.

And now, through a new project, the IAPR hopes to support and encourage greater involvement from groups traditionally underrepresented.

Here are the details:

We all have two things in common: we're people and we do research. This project aims to provide a platform for people in underrepresented groups to share a bit about their research with the whole IAPR Community. That's the "who".

The "what" is a project currently called "Gender Visibility in the Pattern Recognition Community". The end result of the project will be a web page with a collection of one-minute YouTube videos.

If you see yourself among the "who", please consider contributing a one-minute YouTube video of you telling about your research interests, cool applications, big motivations, exciting projects, community engagement etc. Just email me (rbf@inf.ed.ac.uk) the URL.

We're very happy to share the link to the new web page at the IAPR website (*https://iapr.org/aboutus/gender-visibility.php*) where you'll find the first video, from the *IAPR Newsletter's* EiC Dr. Jing Dong, has been posted.

We are ready to start collecting more videos and plan to add them to the IAPR web site shortly. More details will follow in another From the ExCo column.

Activities of the
Chilean Association for Pattern Recognition
ACHiRP
http://www.achirp.org/

IAPR Member Society News

Sergio A. Velastin, Director of International Relations
César Astudillo, Vice-President

The Chilean Association for Pattern Recognition (ACHiRP, *http://www.achirp.org*, in Spanish), a member of the IAPR, is a non-profit scientific association whose aim is to develop and disseminate the subfield of computer science known as Pattern Recognition (PR). The following is a brief report of the main activities organised by ACHiRP during the last 12 months.

Monthly Technical Talks

ACHiRP has a monthly talk with presenters from all over Latin America. The talks are virtual and focused on a Spanish-speaking audience. We have had presenters from Chile, Argentina, Colombia, USA, and Ecuador. This monthly activity has been a place for interacting and sharing novel ideas on PR, including theoretical and practical advancements. Speakers also have an opportunity to present their research groups and institutions. These regular seminars also serve the useful purpose of increasing the visibility of the association, not only nationally but also internationally. The talks are recorded and made publicly available. Such talks have included:

- Dr Alex Foessel: Applications of AI to farming and construction
- Dr Andrés Álvarez: Machine learning in neuro-engineering
- Dr Cristhian Aguilera: Fast stereo depth estimation on embedded devices
- Jorge Charco & Dr Boris Vintimilla: 3D Human Pose Estimation based on deep learning techniques from Multi-view environments
- Dr Juan Bekios: Multidimensional classifiers for face analysis in images and videos
- Dr Julio Jacobo: A tutorial on Support Vector Machines (SVM)

International Conference on Pattern Recognition Systems - ICPRS-21

The 11th International Conference on Pattern Recognition Systems (ICPRS) was part of an annual event that followed ICPRS-19, ICPRS-18, ICPRS-17, and ICPRS-16, a continuation of the successful Chilean Conference on Pattern Recognition that reached its 6th edition in 2014.

(Please see the full report on ICPRS-21 in this issue of the IAPR Newsletter. What follows here are some key facts about this edition.)

ICPRS-21 was entirely virtual due to COVID restrictions.

The conference was organized by Prof. César A. Astudillo from the Universidad de Talca, Chile, (Local Chair), together with Prof. Sergio A Velastin from Queen Mary University of London (UK) and Universidad Carlos III de Madrid (Spain) (General Chair), Dr. Héctor Allende-Cid from Pontificia Universidad Católica de Valparaíso, Chile (ACHIRP chair), and Dr. Marco Mora from Universidad Católica del Maule, Chile (Tutorials Chair).

The conference included four plenary speakers: Prof. Johan Debayle, Prof. Angel Sappa, Prof. Marie Beurton-Aimar, and Prof. Julian Fierrez.

Most of the presentations are available on YouTube: *https://www.youtube.com/channel/UCfYx12DYXawbrvksfu5HzBQ/videos*.

We gained significant experience in organising and running a fully virtual event. A positive aspect is that this allowed people to attend that even under normal circumstances would have found it difficult to do so, such as students and academics from developing countries. We will continue to offer online options in the future.

International Conference on Pattern Recognition Systems - ICPRS-22

The next ICPRS will take place in St-Étiéne, France on June 7-10, 2022.

C A L L f o r P A P E R S

ICPR 2022

The 26th International Conference on Pattern Recognition
Montréal, Québec, Canada
August 21-25, 2022

Important dates	
Paper registration deadline	Jan.10, 2022
Paper submission deadline	Jan.17, 2022
Acceptance/Rejection/Revision decision	Mar.14, 2022
Revision/rebuttal deadline	Apr. 11, 2022
Final decision on submissions	May 9, 2022
Camera ready manuscript deadline	Jun. 6, 2022
Early bird registration deadline	Jun. 6, 2022
ICPR 2022	**Aug. 21-25, 2022**

ICPR 2022 will employ a two-round review process. Papers must be registered prior to submission via PaperCept.

Papers submitted (maximum six pages + references) by the paper deadline will be reviewed using single-blind peer review.

The result of the first review round will either be accept (possibly with recommended changes), reject, or revise to resubmit for a second review round. Accepted papers will be published by IEEE and be available in IEEE Xplore.

The International Conference on Pattern Recognition (ICPR) is the premier world conference in Pattern Recognition, covering both theoretical issues and applications of the discipline.

ICPR 2022 solicits original research for publication in the main conference. Topics of interest include all aspects of Pattern Recognition, Computer Vision, and Image Processing.

https://iapr.org/icpr2022

General Chairs: Michael Jenkin (Canada), Cheng-Lin Liu (China), and Henrik I. Christensen (USA)	**Program Chairs:** Gregory Dudek (Canada), Zhouchen Lin (China), Ingela Nyström (Sweden), and Simone Marinai (Italy)

Topics of Interest by Track

Track 1: Artificial Intelligence, Machine Learning for Pattern Analysis
● classification and clustering ● statistical learning theory ● syntactic and structural pattern recognition ● neural network architectures and models ● graph models ● deep learning ● representation learning ● online learning and continual learning ● supervised, unsupervised, self-supervised and semi-supervised learning ● transfer learning and meta learning ● multi-modal and multi-view learning ● active and ensemble learning ● reinforcement learning ● compressed sensing and sparse representation ● large scale learning and big data ● recurrent networks, temporal models and non-feed-forward methods ● low-shot and long-tailed learning ● generative models ●

Track 2 : Computer Vision and Robotic Perception
● early and low-level vision ● stereo and 3D vision ● multiple view geometry ● object detection and recognition ● motion, tracking and video analysis ● deformable models and registration ● learning for vision ● scene analysis and understanding ● action and behavior recognition ● vision and language ● perception for autonomous navigation and/or driving ● vision for robotics, robot navigation and SLAM ● perceptually driven reinforcement learning ●

Track 3: Image, Video, Speech, and Signal Analysis
● sensor array and multichannel signal processing ● image and video processing ● enhancement, restoration and filtering ● segmentation, features and descriptors ● coding, compression and super-resolution ● speech and speaker recognition ● audio and acoustic processing ● computational photography ● models, representations, and techniques for image mining ● image analysis with ill-structured and spatial information ●

Track 4: Biometrics and Human-Machine Interaction
● hard biometrics: face, iris, fingerprint, palmprint ● soft biometrics: skin, hair, ear, vein, facial expression ● gait and behavior ● multi-biometrics ● person identification and re-identification ● human-robot interaction ● brain-computer interfaces ● social robotics ● human body motion and gesture-based interaction ● speech and natural language-based interaction ● affective computing ● surveillance and security ● ethics and fairness issues in the use of biometrics ●

Track 5: Document and Media Analysis
● text and symbol recognition ● handwritten text recognition ● document image analysis ● document understanding ● natural language processing ● scene text detection and recognition ● graphics recognition ● content based image retrieval and data mining ● visual question and answering ● multimedia document analysis ● media analysis for augmented and virtual reality ● multimodal fusion ● table detection, recognition, and structure extraction ● video text detection and recognition ● Human-document interaction ●

Track 6: Biomedical Image Analysis and Informatics
● data-driven modeling of clinical care ● clinical predictive modeling ● biostatistics ● biomedical imaging techniques ● quantitative microscopy ● medical image analysis ● interactive segmentation ● visualization and 3D printing ● medical applications ●

IAPR ⬡ Technical Committee News

For this ICPR 2020 Special issue of the IAPR Newsletter *the TC News section provides a list of all IAPR TCs with their websites and leadership boards. Future issues will share current happenings in the TCs.*

~Jing Dong, IAPR Newsletter *EiC*

NEW!

Standardized URLs for all TCs!

https://iapr.org/tc#

IAPR TC3 Neural Networks & Computational Intelligence
https://iapr.org/tc3
Hazem Abbas (Ain Shams University, Egypt), Chair
Mirco Ravanelli (Université de Montréal, Canada), Vice Chair

The scope of the IAPR's Technical Committee 3 is to constitute a forum and promote research in the areas of artificial neural networks, computational intelligence, and machine learning techniques for pattern recognition.

As of January 2021, new Chair, Hazem Abbas, and Vice-Chair, Mirco Ravanelli, have been appointed.

During 2020, IAPR TC3 organized ANNPR2020, the 9th edition of the biennial meeting, in (virtual) Winterthur (*https://iapr.org/annpr2020*) which turned out to be as successful as ever. The workshop proceedings were published by Springer (*https://link.springer.com/book/10.1007/978-3-030-58309-5*) are available now to all interested parties. I wish to thank the ANNPR2020 organizers, namely Dr. Frank-Peter Schilling and Prof. Dr. Thilo Stadelmann, for their terrific work in spite of the pandemic. (Please see report in *IAPR Newsletter* [43:1], January/February 2021.)

Planned activities of TC3:

- After soliciting for bids, we are now preparing for the 10th edition ANNPR workshop series that will be held at Heriot-Watt University, Dubai Campus,UAE (https://www.hw.ac.uk/dubai/) by end of 2022. The Workshop will be chaired by Neamat Elgayar, Hazem Abbas TC3 Chair, Mirco Ravanelli TC3 Vice-Chair, and Edmondo Trentin. Details pertinent to the event will be published in the next Newsletter.

Please check the TC3 website at *https://iapr.org/tc3* where you can learn more about TC3, access new resources, and possibly join us (our mailing list features more than 250 fellow scientists worldwide).

𝕸ore IAPR 𝕿echnical 𝕮ommittee 𝕹ews

IAPR TC7 Remote Sensing and Mapping
https://iapr.org/tc7
Ribana Roscher (University of Bonn, Germany), Chair
Charlotte Pelletier (Université Bretagne Sud, France), Vice Chair
Sylvain Lobry (Paris Descartes University, France) Vice Chair

IAPR TC7 can report a successful 11th IAPR International Workshop on Pattern Recognition in Remote Sensing (PRRS 2020, please see workshop report in the ICPR 2020 Highlights section of *IAPR Newsletter [43:2]*, April 2021), held on January 10, 2021, in conjunction with the International Conference on Pattern Recognition (ICPR 2020). PRRS serves as an event that brings together researchers from both pattern recognition and remote sensing, with a focus on the application of pattern recognition methods to remotely sensed data. The program of the workshop began with a keynote given live by Bertrand Le Saux (ESA) entitled "Beyond Labels: Weakly-supervised, Continual and Semi-supervised Learning for Earth Observation." The rest of the afternoon was filled with 7 presentations that covered current research in pattern recognition and remote sensing. For example, current approaches such as crowdsourcing, self-supervised learning, or multi-modal learning with social media inputs were presented. The program with presentation slides and videos can be found at *http://iapr-tc7.ipb.uni-bonn.de/prrs2020/*.

As a follow-up to the successful workshop, there is a **special issue on "Advances in Pattern Recognition in Remote Sensing"** in the *IEEE Journal of Selected Topics in Applied Earth Observations* (*https://www.grss-ieee.org/publications/call-for-papers/jstars-special-issues/*), guest edited by Ribana Roscher, Gabriele Cavallaro, Jie Shan, Eckart Michaelsen, and Uwe Stilla. We expect that the diverse topics will benefit a wide range of readers, either in their research or professional practice. The **submission window is May 1, 2021 - November 30, 2021**.

In addition to our website, we will now also send out a monthly newsletter informing TC7 members about current events and conferences related to remote sensing and pattern recognition. You are welcome to subscribe to the TC7 newsletter.

The information in the newsletter and current developments of the TC-7 are now also distributed via

LinkedIn (*https://www.linkedin.com/groups/9029609*)

and

Twitter (@IAPR_TC7). Stay up to date by becoming a follower.

And ^ More IAPR ⊛ Technical Committee News

IAPR TC9 Pattern Recognition in Human Machine Interaction
https://iapr.org/tc9
Mariofanna Milanova (University of Arkansas Little Rock, USA), Chair
Xavier Alameda-Pineda (Inria Grenoble Rhône-Alpes, France), Vice Chair
Steering Board: Roland Goecke, Sumantra Dutta Roy, Stefan Scherer, Freidhelm Schwenker

The goal of this Technical Committee is to encourage research works in Multimodal Human-Computer Interaction at the intersection of Pattern Recognition, Spatial-Temporal Analysis, Psychology   and Social Science   More on TC9 can be found on its website: *https://iapr.org/tc9*.

Below is a summary of the current activities of TC9:

- The papers presented at the 6th IAPR Workshop on Multimodal Pattern Recognition for Social Signal Processing in Human-Computer Interaction (MPRSS 2020) are published under the Pattern Recognition ICPR International Workshops and Challenges Proceedings: *https://link.springer.com/book/10.1007% 2F978-3-030-68780-9*

- TC9 is organizing a Special Issue in the Frontiers Journal.

- TC9 is Co-organizing the International Workshop on Mathematical Models and their Applications 2021. Publications are available in the special Issue: MDPI Algorithms Special Issue "Mathematical Models and Their Applications II". *https://www.mdpi.com/journal/algorithms/special_issues/Mathematical_Models_ Algorithms*

- TC9 offers and delivers FREE organized by NVIDIA Deep Learning workshops and tutorials. The participants after accomplishing the tasks are going to receive the NVIDIA Certificate. One example is the training workshop entitled:"Fundamentals of Deep Learning Workshop" by NVIDIA. *https://www.nvidia.com/ content/nvidiaGDC/us/en_US/training/instructor-led-workshops/fundamentals-of-deep-learning/* For more information contact: Mariofanna Milanova *mgmilanova@ualr.edu*.

- Deeptails Seminar and MIAI: The Deeptails Seminar series and MIAI were started over a year ago to raise awareness about the amount of engineering work necessary to prepare solid scientific contributions based on deep neural networks. Hence the name "The devil is in the deeptails," or just "deeptails." The seminars covered topics related to computer vision, audio processing and robotics, with a strong core contribution based on machine learning. All seminars are recorded and publicly available, and all the information can be found at: *https://project.inria.fr/ml3ri/dissemination-and-communication/deeptails/*. From now on, the Deeptails Seminars will be included in the scientific events of the Multidisciplinary Institute of Artificial Intelligence (MIAI).

  MIAI (*https://miai.univ-grenoble-alpes.fr/*) aims to conduct research in artificial intelligence at the highest level, to offer attractive courses for students and professionals of all levels, to support innovation in large companies, SMEs and startups and to inform and interact with citizens on all aspects of AI. The activities of MIAI are structured in two main themes: Next Stage AI and AI for Human Beings & the Environment. For more information contact : *xavier.alameda-pineda@inria.fr*

And more & More IAPR ⬤ Technical Committee News

IAPR TC11 Reading Systems
https://iapr.org/tc11
Faisal Shafait (National University of Sciences and Technology NUST, Pakistan), Chair
Jihad El-Sana (Ben-Gurion University of the Negev, Israel), Vice Chair

At the "2nd Future of Document Analysis and Recognition Workshop" (at ICDAR 2019), the future of the document analysis community was discussed. During 2020, a Task Force was set by TC10 and TC11 to continue the discussions towards the definition of a strategic plan for the document analysis and recognition community. Detailed information of the activity (including kialo discussions, forms for feedback, etc.) is available at the website: *https://sites.google.com/view/darstrategy*.

A key proposal of the Task Force was to decide whether we want an annual ICDAR conference. All members in the community were invited to vote and give their opinion on the opportunity to have an annual high quality ICDAR conference. We are glad to announce that the majority (~76%) of the DAR community opted for holding ICDAR annually.

A call for bids to host ICDAR 2024 will be opened soon. We are excited to share this news with the IAPR community and look forward to the successful organization of ICDAR every year.

16th International Conference on Document Analysis and Recognition ICDAR 2021
September 5-10, 2021, Lausanne, Switzerland

www.iapr.org/icdar2021

https://icdar2021.org/registration/regstration/

And still ∧ More IAPR ◉ Technical Committee News

IAPR TC12 Multimedia and Visual Information Systems
https://iapr.org/tc12
Hugo Jair Escalante (INAOE and CINVESTAV, China), Chair
Henning Müller (HES-SO, Sierre, Switzerland), Vice Chair
Martha Larson (Delft University, The Netherlands), Vice Chair
Sergio Esclara (University of Barcelona, Spain), Vice Chair
Albert Ali Salah (Utrecht University), Information Officer

ChaLearn Looking at People Workshop and Challenge on Understanding Social Behavior in Dyadic and Small Group Interactions (DYAD), to be held in conjunction with [ICCV 2021](#). The challenge features two competition tracks (self-reported personality recognition and behavior forecasting) that are based on the recently released UDIVA v0.5 dataset[1]. For more information on the workshop, please visit *http://chalearnlap. cvc.uab.es/workshop/44/description/*.

[1] [Palmero et al. "Context-Aware Personality Inference in Dyadic Scenarios: Introducing the UDIVA Dataset," Winter Conference on Applications of Computer Vision (WACV) Workshops, 2021.](#)

Sensors journal special issue **"Computer Vision Techniques Applied to Human Behaviour Analysis in the Real-World"** organized by Oya Çeliktutan, Albert Ali Salah, and Dongmei Jiang. The key aim of this special issue is to bring together cutting edge research and innovative computer vision techniques applied to human behaviour analysis. Deadline for manuscript submissions: August 31, 2021.
https://www.mdpi.com/journal/sensors/special_issues/human_behaviour_analysis

The IEEE conference series on **Automatic Face and Gesture Recognition** is the premier international forum for research in image and video-based face, gesture, and body movement recognition. The 16th IEEE International Conference on Automatic Face and Gesture Recognition will be held in Jodhpur, India (Hybrid Event). Second Round submission deadline: August 20, 2021. More information: *http://iab-rubric.org/fg2021/*

ImageCLEF 2021 is an evaluation campaign that is being organized as part of the [CLEF initiative](#) labs. For the 2021 edition, ImageCLEF organizes 4 main tasks with a global objective of promoting the evaluation of technologies for annotation, indexing and retrieval of visual data with the aim of providing information access to large collections of images in various usage scenarios and application domains: medical, nature, Internet and social media.

The 2021 edition of the related LifeCLEF proposes three data-oriented challenges related to the identification and prediction of biodiversity: (i) [BirdCLEF 2021](#): bird species recognition in audio soundscapes, (ii) [GeoLifeCLEF 2021](#): location-based prediction of species based on environmental and occurrence data, (iii) [PlantCLEF 2021](#): a cross-domain image classification task aimed at identifying plants in pictures based on a training set of herbarium sheets, and (iv) [SnakeCLEF 2021](#): an image-based snake identification task.
More information: *https://www.imageclef.org/2021*

IAPR TC15 Graph-Based Representations
https://iapr.org/tc15
Donatello Conte (Université de Tours, France), Chair
Vincenzo Carletti (University of Salerno, Italy), Vice Chair

Among the topics covered by IAPR TC15 we find: graph matching, graph-based segmentation and graph pyramids, graph-based clustering regression, graph representation learning or classification together with clustering, classification and regression of graphs using various methods such as graph edit distance, graph embeddings, graph kernels and graph neural networks.

The main event of TC15 is the biennial IAPR-TC15 Workshop on Graph-based Representations (GbR). We wer unable to organize GbR 2021 due to COVID-19. Therefore, in agreement with IAPR TC2 on Structural and Syntactical Pattern Recognition, a special session on graph-based representation in pattern recognition will be organized within the S+SSPR conference in 2022.

Nevertheless, to stay connected with TC15 members and to discuss on consolidated topics and new trends in graph methods for pattern recognition, some online seminars will be organized in the last quarter of this year.

More on TC15 and latest news (including seminar information) can be found at: *https://iapr.org/tc15*.

IAPR TC18 Discrete Geometry and Mathematical Morphology
https://iapr.org/tc18
Benjamin Perret (ESIEE Paris, France), Chair
Sara Brunetti (Università di Siena, Italy), Vice Chair
email: *tc18@iapr.org*; Twitter: @IAPR_TC18 *https://twitter.com/IAPR_TC18*

Since March 2021, Benjamin Perret (https://perso.esiee.fr/~perretb/) and Sara Brunetti (https://docenti.unisi.it/it/brunetti-0) have been appointed as the new Chair and Vice-chair of TC18.

DGMM: The first edition of the new conference on Discrete Geometry and Mathematical Morphology (DGMM) was held from May 24 to 27 (*https://iapr.org/dgmm2021*). The event was entirely online and all presentations are available on YouTube. (Please see the DGMM2021 report in this issue.)

Other events:

- The Conference on Digital Geometry and Discrete Variational Calculus (DGDVC) was held from March 29 to April 2 (*https://dgdvc.sciencesconf.org/*). The 126 participants experienced a rich program, punctuated by ample breaks of discussions, and consisting of 10 keynote lectures and 14 oral presentations whose recordings are available on the meeting webpage.

- TAIR Meeting on Tomography and Applications Discrete Tomography, Neuroscience and Image Reconstruction was held on May 4-5 (*https://www.eko.polimi.it/index.php/TAIR/TAIR2021*). This edition brought together 40 participants around 6 invited talks and 4 round tables. All the sessions were recorded and are now freely accessible from the meeting webpage.

wow! ^ More IAPR ◉ Technical Committee News

IAPR TC19 Computer Vision for Cultural Heritage Applications
https://iapr.org/tc19
Guillaume Caron (Université de Picardie Jules Verne, France), Chair
Olga Regina Pereira Bellon (Universidade Federal do Parana, Brazil), Vice Chair
Takeshi Oishi (University of Tokyo, Japan), Webmaster
Advisors: Katsushi Ikeuchi, Roberto Scopigno, El Mustapha Mouaddib, and Takeshi Oishi

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1) International workshop

Members of TC19 co-organize the 1st Workshop on "E-Heritage and Robotics" that will be held online in conjunction with the IEEE/RSJ International Conference on Intelligent Robots and Systems on October 1, 2021. All information will be provided on *https://www.cvl.iis.u-tokyo.ac.jp/EHR2021*.

Invited speakers Oussama Khatib (Stanford), Michel L'Hour (DRASSM), Martin Saska (Czech Technical Univ.), Franck Ruffier (CNRS) and Cyrille Chaidron (Artéka) will present humanoid and flying robotics for archaeology, heritage mapping, monitoring, exploration and more.

Selected contributions will be offered to submit a full paper to the Special Issue on "Computer Vision and Robotics for Cultural Heritage: Theory and Applications" of the *Journal of Imaging* with no fee (*http://mdpi.com/si/71039*).

2) Special issue

The chairs of TC19 are guest co-editors of the Special Issue on "Computer Vision and Robotics for Cultural Heritage: Theory and Applications" of the *Journal of Imaging*. The call for articles is open until November, 30th 2021 (*http://mdpi.com/si/71039*).

We invite submissions of articles reporting new works within the multidisciplinary field of digital heritage, simultaneously contributing to computer and/or robot vision and digital heritage. More details on the scope are available on the website *http://mdpi.com/si/71039*.

Authors of articles submitted sufficiently early to this special issue will be proposed a presentation slot during the IEEE/RSJ IROS 2021 Workshop on "E-Heritage and Robotics" on October, 1st 2021 (*https://www.cvl.iis.u-tokyo.ac.jp/EHR2021*), upon decision by the program committee of the Workshop. Furthermore, authors submitting first an extended abstract to this Workshop before July, 31st 2021 can be selected, upon decision of the program committee, to submit the full article to the Special Issue for free.

Meeting Reports

Conferences, Workshops & Summer/Winter Schools

International Symposium on Artificial Intelligence and Robotics 2020

August 8-10, 2020   Kitakyushu, Japan

https://easychair.org/smart-program/ISAIR2020/

General Chairs:

Hyoungseop Kim, Kyushu Institute of Technology, Japan

Huimin Lu, Kyushu Institute of Technology, Japan

The 5th International Symposium on Artificial Intelligence and Robotics (ISAIR 2020) was held virtually.

ISAIR2020 was endorsed by the IAPR, IEEE Computer Society Big Data STC, and The Institute of Electrical Engineers of Japan and had the financial sponsorship of 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.

ISAIR2020 received 261 paper submissions from 10 different countries/areas (namely Australia, Austria, China, Japan, Malaysia, Mexico, Nigeria, Pakistan, South Korea, and USA). 31

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, 105 papers (40.2% of the total submissions) were accepted. The proceedings were electronically published and are now available as SPIE series Volume 11574, Intl. Symposium on Artificial Intelligence and Robotics (ISAIR) | 1-10 August 2020." 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 Transactions on Network Science and Engineering, IEEE Transactions on Fuzzy Systems, Applied Soft Computing, Wireless Networks, Journal of Ambient Intelligence and Humanized Computing.

In addition to the above scientific activities, three papers were selected by the award committee as the best papers.

Best Paper:
Jiaxin Deng, Weihua Ou, Jianping Gou, Heping Song, Anzhi Wang and Xing Xu for their paper "Representation Separation Adversarial Networks for Cross-Modal Retrieval"

Best Presentation Paper:
Jihua Zhu, Jie Hu and Zhongyu Li for their paper "Robust Motion Averaging under Maximum Correntropy Criterion"

Best Student Paper:
Jialiang Shen, Yucheng Wang and Jian Zhang for their paper "ASDN: A Deep Convolutional Network for Arbitrary Scale Image Super-Resolution".

At the closing ceremony, Fukuoka University in Japan was selected as the venue of ISAIR2021. Finally, we think the ISAIR2020 was a great conference both scientifically and socially.

SPIE. DIGITAL LIBRARY

https://www.spiedigitallibrary.org/conference-proceedings-of-SPIE/11574.toc?SSO=1#FrontMatterVolume11574

http://www.dicta2020.org/

Digital Image Computing:
Techniques and Applications

DICTA 2020

29 Nov - 2 Dec 2020
Melbourne Convention & Exhibition Centre

General Co-Chairs:
Paul Bonnington, Monash University, Australia
Tom Drommund, Monash University, Australia
Zongyuan Ge, Monash University, Australia
Conference Manager:
Ai-Lin Soo, Monash University, Australia

by Ai-Lin Soo

The flagship Australian Pattern Recognition Society conference for 2020 was hosted by Monash University with members of the General Co-Chairs from the Monash eResearch Centre and the Faculty of Engineering. Digital Image Computing: Techniques and Applications (DICTA) is an annual international conference attracting talent from around the globe in the areas of (but not limited to) machine learning, computer vision, robotics and biometrics. While previous years have seen DICTA hosted at some of Australia's most beautiful destinations, this year DICTA moved to a fully virtual experience.

Held the previous year in Perth, Western Australia, the committee had planned for DICTA2020 to be hosted in the heart of Melbourne, however with the strict restrictions in Australia and particularly Victoria, the conference was moved to a fully virtual conference. With the help of the conference management company Conference Design, DICTA2020 successfully hosted over 100 delegates on an interactive online conference portal that enabled all the best features of a traditional conference. Through the online portal, delegates could view pre-recorded and live presentations, visit posters, speak directly with presenters and network with one another. We thank the delegates for their participation despite the differing time zones.

Paper submissions:
DICTA2020 introduced a short paper track as part of the main conference experience to allow for a greater number of researchers to participate in the conference. Due to the ongoing pandemic, the DICTA committee acknowledged that there was less opportunity for researchers to share their work, and the short paper track allowed already published papers to be shared through an altered format.

An additional feature for DICTA2020 was the inclusion of submission for referral to top tier journals. 20-30% of high quality papers, as reviewed by the technical committee were recommended to journals such as IEEE Internet of Things Journal and Computers and Electrical Engineering.

Including short paper submissions, DICTA2020 received 87 papers. Following a double blind review, 49 of these were accepted as long papers and 16 accepted as short papers. For the full list of papers, please see http://www.dicta2020.org/home/program/.

Speakers:
DICTA 2020 had an array of leading international speakers who gave live key notes to the delegation. In addition, DICTA2020 provided up and coming young researchers (within 5 years of PhD completion) the platform to share their work as part of the Early Career Researcher (ECR) Awards.

Over the course of the three days, we heard key notes from:

- Professor Shaogang Gong, Queen Mary University of London. "Less is More: Visual Search without Image and User Ownership at the Edge"

- Professor Sven Dickinson,

University of Toronto. "The Role of Symmetry in Human and Computer Vision"

- Professor Peter Corke, Queensland University of Technology. "Creating robots that see"
- Professor Dana Kulić, Monash University. "Learning for Human-Robot Interaction"
- Associate Professor Chen Change Loy, Nanyang Technological University. "Deep Generative Prior"

Our ECR speakers were:

- Dr Qiuhong Ke, The University of Melbourne. 'Context modelling for human action recognition and anticipation"
- Dr Chang Xu, The University of Sydney. "Lightweight Neural Architectures for Efficient Deep Learning"
- Dr Yunchao Wei, The University of Technology Sydney. "Towards Data-Efficient Visual Segmentation"
- Dr Tongliang Liu, The University of Sydney. "Learning under label noise"
- Dr Qi Wu, The University of Adelaide. "Vision-and-Language Navigation"

Thank you to all the DICTA presenters for their time and patience in preparing for the conference. Their presentations contributed greatly to the success of DICTA.

Awards:
The APRS Early Career Researcher Award exists to recognise and celebrate up and coming Australian researchers who have made outstanding contributions to the advancement of Australia's pattern recognition and/or AI community.

We are honoured to award the ECR Award to Dr Qi Wu and Dr Qiuhong Ke.

DICTA2020 also hosted a number of other awards this year. The awards and winners are as follows;

APRS/IAPR Best paper award: Network-based structure flow estimation - Shu Liu (Australian National University), Nick Barnes (Australian National University), Haolei Ye (Australian National University), Robert Mahony (Australian National University)

APRS/IAPR Best student paper award: M2-Net: A Multi-scale Multi-level Feature Enhanced Network for Object Detection in Optical

Remote Sensing Images - Xinhai Ye (Nanjing University of Science and Technology, China), Fengchao Xiong (Nanjing University of Science and Technology, China), Jianfeng Lu (Nanjing University of Science and Technology, China), Haifeng Zhao (Jinling Institute of Technology, China), Jun Zhou (Griffith University)

Department of Science and Technology (DST) award for best contribution to science: WEmbSim: A Simple yet Effective Metric for Image Captioning - Naeha Sharif (The University of Western Australia), Lyndon White (Invenia Labs), Mohammed Bennamoun (The University of Western Australia), Wei Liu (The University of Western Australia), Syed Afaq Ali Shah (Murdoch University)

At the conclusion of the conference, it was announced by Dr Mohammad Awrangjeb that DICTA2021 would be hosted by Griffith University and held in the Gold Coast, Queensland.

http://dicta2021.dictaconference.org/

5th International Conference on
COMPUTER VISION & IMAGE PROCESSING

December 4-6, 2020 IIIT Allahabad, India (virtual)
https://cvip2020.iiita.ac.in/

Honorary Patron and General Chair:
Bidyut Baran Chaudhuri, Retired Professor, Indian Statistical Institute, Kolkata, India
P. Nagabhushan, Indian Institute of Information Technology - IIIT, Allahabad, India

General Co-Chairs
Shekhar Verma , Indian Institute of Information Technology - IIIT, Allahabad, India
Balasubramanian Raman, Indian Institute of Technology - IIT, Roorkee, India

Conference Chairs
Satish K. Singh, Indian Institute of Information Technology - IIIT, Allahabad, India
Vrijendra Singh, Indian Institute of Information Technology - IIIT, Allahabad, India
Sanjeev Kumar, Indian Institute of Technology - IIT, Roorkee, India
Partha Pratim Roy, Indian Institute of Technology - IIT, Roorkee, India

Conference Conveners
Mohammed Javed, Indian Institute of Information Technology - IIIT, Allahabad, India
Pritee Khanna, Indian Inst. of Info. Tech., Design & Manufacturing - IIIT-DM, Jabalpur, India
K. P. Singh, Indian Institute of Information Technology - IIIT, Allahabad, India
Shiv Ram Dubey, 5Indian Institute of Information Technology - IIIT, Sricity, India

by the Conference Chairs

The International Conference on Computer Vision & Image Processing (CVIP) is most prestigious and thematic premier conference focused on computer vision and image and video processing held on annual basis. With its high quality, it provides a great platform to students, academia and researchers. Previous editions of CVIP were held at MNIT Jaipur (CVIP2019), IIIT Jabalpur (CVIP2018), and IIT Roorkee (CVIP2017 and CVIP2016). The 5th edition of the conference CVIP2020, was a 3-day event held virtually under the endorsement of the IAPR.

CVIP2020 was a highly successful conference with 353 technical research paper submissions, and active participation from more than 21 countries such as Bangladesh, Canada, China, Chile, Croatia, Czechia, Germany, Italy, Malaysia, Norway, Poland, Portugal, Russia, Spain, Sri Lanka, Sweden, Taiwan, UAE, UK, USA, and India. The conference was comprised of 24 technical sessions, 13 plenary and invited lectures and a doctoral symposium.

CVIP2020 was virtually inaugurated in the presence following dignitaries: Dr. Bidyut Barun Chaudhury, the Fellow IEEE, and IAPR, and Senior Professor Indian Statistical Institute Kolkata, Dr. Umapada Pal, the Fellow IAPR, and Senior Professor Indian Statistical Institute Kolkata, Dr. Rajiv Tripathi, Senior Member IEEE and Director Motilal Nehru National Institute of Technology Allahabad, Dr. Sri Nivas Singh, Fellow IEEE, Ex-Vice Chancellor Madan Mohan Malaviya University of Technology Gorakhpur, Chairman IEEE India Council, and Senior Professor IIT Kanpur, Director IIIT Allahabad and General Chair, Prof. P. Nagabhushan.

Technical contributions to CVIP2020 were full of diversity from India, and the conference received 18 papers from West Bengal; 27 from Maharashtra, 10 from Andhra Pradesh, 26 from Uttar Pradesh, 49 from Karnataka, 14 from Madhya Pradesh, 20 from Tamil Nadu, 4 from Uttarakhand, 6 from Jharkhand, 1 from Punjab, 17 from Gujrat, 13 from Delhi, 7 from Himachal Pradesh, 6 from Assam, 3 from Goa, 5 from Odisa, 4 from Chattishgarh, 12 from Rajasthan, 2 from Pondicherry, 1 from J&K,

6 from Kerala, 1 from Meghalaya, 6 from Telangana, and 2 from Bihar. The conference received the papers from about 15 IITs, namely IIT BHU, Bombay, Delhi, Dharwad, Gandhinagar, Hyderabad, Jammu, Jodhpur, Kanpur, Kharagpur, Mandi, Patna, Ropar, Roorkee, and Tirupati; five MoE-IIITs, namely IIIT Allahabad, Gwalior, Jabalpur, Kanchipuram, and Kurnool; ISI Kolkata; 15 NITs, to name a few, NIT Allahabad, Jaipur, Hamirpur, Rourkela, Meghalaya, Nagpur; 12 PPP IIITs, and many Central and State Universities.

This year the conference also received technical contributions from many industries and R&D organizations, like, BMW Germany, CDAC Pune, CEERI Pilani, Continental Automotive India Pvt. Ltd, DRDO, HCL, ISRO, Apurba Technologies, Samsung R&D, and TCS.

So the conference was truly a conglomeration of personas from Academia, Industry, and R&D organizations.

The twelve eminent persons talking at the conference as invited keynote speakers were Prof. Massimo Tistarelli (University of Sassari, Italy), Prof. Ramakrishnan Ganesan Angarai (IISC Bangalore), Prof. Sushmita Mitra (ISI Kolkata), Prof. Xiaoyi Jiang (University of Münster, Germany), Prof. Gaurav Sharma (University of Rochester, USA), Prof. D. S. Guru (University of Mysore), Prof. Bhabatosh Chanda (ISI, Kolkata), Ms. Kamiya Khatter (Springer Nature, India), Prof. Umapada Pal (ISI, Kolkata), Prof. Shekhar Verma (IIIT Allahabad), Prof. Balasubramanian Raman (IIT Roorkee), and Prof. Kiran Raja (NTNU Norway).

The IAPR best paper award was given to the research paper **"On-Device Language Identification of Text in Images using Diacritic Characters"** by Vatsal et al.

The IAPR Best Student paper was awarded to the paper **"A Semi-Supervised Generative Adversarial Network for Retinal Analysis from Fundus Images"** by Smitha et al.

In addition to the IAPR awards, this year the conference organizing committee decided to select 10 CVIP2020 best paper awards on the basis of presentation, question answers, and other subjective parameters.

The 5th IAPR CVIP proceeding shall be published by the Springer Nature's Communications in Computer and Information Science Series. The authors of the best quality papers presented at the conference may be invited to submit their extended papers for possible publication in two Springer Nature Computer Science topical collections or special issues, namely Recent Trends in Computer Vision, and Progress in Image Processing.

In conclusion, CVIP 2020 was a highly successful conference with several state-of-the-art presentations from different countries, thereby generating new ideas and avenues for research collaborations within India and abroad.

The next edition of the conference CVIP 2021 will be held in November 2021.

6th IAPR International Conference on
COMPUTER VISION & IMAGE PROCESSING
3-5th Dec, 2021 IIT Ropar, Punjab-140001, INDIA
https://iitrpr.cvip2021.com/
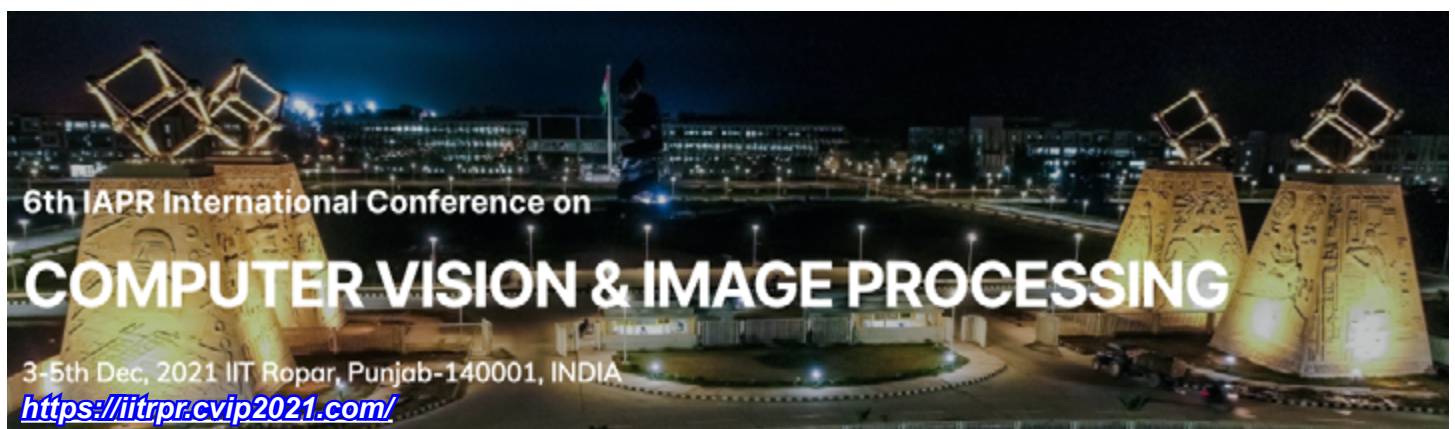
MedPRAI 2020

4th MEDITERRANEAN CONFERENCE ON PATTERN RECOGNITION AND ARTIFICIAL INTELLIGENCE
Hammamet, Tunisia 20|22 December 2020
https://medprai2020.sciencesconf.org/

General Chairs
Mohamed Jmaiel, Digital Research Center of Sfax, Tunisia
Chawki Djeddi, Larbi Tebessi University, Algeria
Program Chairs
Yousri Kessentini, Digital Research Center of Sfax, Tunisia
Imran Siddiqi, Bahria University, Pakistan

by Yoursi Kessentini

Following the three successful previous editions of MedPRAI (Algeria 2016, Morocco 2018 and Turkey 2019), the fourth edition of MedPRAI was organized in Tunisia. MedPRAI2020 was organized by the Digital Research Center of Sfax (CRNS) and MIRACL laboratory and aimed to provide researchers and practitioners from academia and industry with a forum on the latest developments in pattern recognition and artificial intelligence. The conference also provided a unique opportunity for sharing experiences from different backgrounds with the common interest in advanced methods in the above-mentioned fields. Due to the COVID-19 pandemic the conference was held online.

MedPRAI2020 received 72 regular paper submissions from 16 countries that went through a triple review process. Our two Chairs,

Yousri Kessentini and Chawki Djeddi, coordinated a set of nearly 80 technical program members in the reviewing process. From this arduous task resulted a set of 24 accepted papers. The technical program of the main conference included four oral sessions: two related to Computer Vision & Image Processing and one each on Document and Media Analysis, and Artificial Intelligence and Intelligent Systems.

Keynote talks
MedPRAI2020 was a three-day event and comprised two keynote talks. These very interesting talks set the bar high from the beginning of each day. On the first day, we welcomed Prof. Hedi Tabia (Université d'Évry, Université Paris Saclay) for a talk entitled "3D data Analysis". On the second day, Prof. David Picard (Senior Research Scientist at IMAGINE, École des Ponts ParisTech) met everyone's expectations to hear about a hot topic with his talk on "Image

Similarity: from Matching Kernels to Deep Metric Learning".

MedPRAI2020 was endorsed by IAPR and the proceedings were published in Springer's Lecture Notes in Computer Science, with workshop proceedings published in Springer's Communications in Computer and Information Science (*https://doi.org/10.1007/978-3-030-71804-6*).

Click on the image
to go to the
SpringerLink website
for this volume

Best paper awards

In order to testify to the value of the best contributions, the conference organization assigned six awards to be given during the conference: three Best Paper Awards, and three Best Student Paper Awards.

The winning papers were chosen by the Program/Conference Chairs based on the best combination of review marks as assessed by the Program Committee, and paper presentation quality as assessed by the Session Chairs and Program Chairs at the conference venue.

We would like to point out that authors of MedPRAI2020 selected papers are invited to submit an extended version of their work for a post-conference special issues in Neural Computing and Applications journal (Springer).

In conclusion, MedPRAI2020 was a great success academically and otherwise with several interesting presentations on state-of-the-art subjects, thereby generating new ideas and avenues of research. We are very thankful to the reviewers, the steering committee, and all the members of the young

local organization committee for their excellent work to make MedPRAI2020 a successful event.

The steering committee of MedPRAI is pleased to announce the next edition in Istanbul, Turkey. The proposed dates are December 17-18, 2021.

IMPORTANT DATES

Paper Submission: August 15, 2021
Review Notification: September 15, 2021
Registration Opens: September 15, 2021
Final Paper Submission: September 30, 2021
Early Bird Registration Closes: September 30, 2021
Conference Dates: December 17-18, 2021

Conference Chair
Ana Fred, Instituto de Telecomunicações and University of Lisbon, Portugal

Program Co-Chairs
Maria De Marsico, Sapienza Università di Roma, Italy
Gabriella Sanniti di Baja, Italian National Research Council CNR, Italy

Local Chair
Walter Kropatsch

by Ana Fred, Maria De Marsico, and Gabriella Sanniti di Baja

The 10th International Conference on Pattern Recognition Applications and Methods (ICPRAM2021) was supposed to be held in Vienna, Austria, February 4-6, 2021, but due to the COVID-19 pandemic it was held as an online streaming conference. As it has been the case for previous editions of the conference, ICPRAM2021 was organized in cooperation with the ACM Special Interest Group on Artificial Intelligence (ACM SIGAI), the International Neural Network Society (INNS), the Association for the Advancement of Artificial Intelligence (AAAI), the Italian Association for Artificial Intelligence (AI*IA), and the Associação Portuguesa de Reconhecimento de Padrões (APRP). ICPRAM2021 was sponsored by the Institute for Systems and Technologies of Information, Control and Communication (INSTICC), technically co-sponsored by the IEEE Computational Intelligence Society, and endorsed by the International Association for

Pattern Recognition (IAPR).

Since its first edition, ICPRAM has aimed to provide a shared forum for researchers involved in theoretical investigations and/ or design and implementation of applications related to the manifold branches of pattern recognition. This was the case also for ICPRAM2021, notwithstanding the difficulties due to the pandemic that prevented participants to meet in person.

ICPRAM2021 received, from 30 countries, 97 submissions on a noteworthy variety of topics, which were peer reviewed by at least two highly qualified reviewers. As a result of the reviewing process, 21 submissions were selected for oral presentation as full papers, 29 submissions for oral presentation as short papers, and 25 submissions for poster presentation.

Besides the accepted contributions, as a further matter of interest and scientific growth, the conference program also included three invited talks by internationally distinguished speakers, namely:

"Biases, Discrimination, and Fairness in Biometrics and Beyond" by Julian Fierrez (Universidad Autonoma de Madrid, Spain)

"3D Motion Analysis with Event-based Sensors" by Cornelia Fermüller (University of Maryland, United States)

"The Principle of Least Cognitive Action in Vision" by Marco Gori (University of Siena, Italy).

To acknowledge the value of the best contributions presented at ICPRAM2021, the conference organization set up four awards that were given during the conference: the Best Scientific Paper Award, the Best Student Paper Award, the Best Industrial Paper Award and the Best Poster Presentation Award. The works nominated for the first three awards were selected, ICPRAM2021 full papers. The winning papers were chosen by the Program/Conference Chairs based on the combination of two elements: the best combined review marks, assessed by

the Program Committee, and the paper presentation quality, assessed by Session Chairs at the conference venue. The Best Poster Presentation Award was given to the most appealing poster. For the 2021 edition, the winning papers were:

Best Paper Award
Active Region Detection in Multi-spectral Solar Images by Majedaldein Almahasneh, Adeline Paiement, Xianghua Xie and Jean Aboudarham

Best Student Paper Award
FLIC: Fast Lidar Image Clustering by Frederik Hasecke, Lukas Hahn and Anton Kummert

Best Industrial Paper Award
Improved HTM Spatial Pooler with Homeostatic Plasticity Control by Damir Dobric, Andreas Pech, Bogdan Ghita and ThomasWennekers

Best Poster Presentation Award
Knowledge Acquisition on Team Management Aimed at Automation with Use of the System of Organizational Terms by Olaf Flak

We remark that all accepted papers that were actually presented at the conference by their authors are going to be included in the conference proceedings, which will be submitted for indexation by well-known abstract and citation databases of peer-reviewed literature.

Besides the conference proceedings, we will also publish a volume in the Springer series Lecture Notes in Computer Science including the extended versions of selected papers, as well as a special issue of the

Springer Nature Computer Science journal with extended versions of the best conference papers.

We take the opportunity to thank the Authors, the Local Chair, all the members of the international Program Committee and the additional reviewers, the invited speakers and all members of the INSTICC team whose collaboration has been fundamental for the success of this conference. In particular, we feel really indebted to the INSTICC team for having organized this conference twice. In fact, they started with setting all the contacts and contracts necessary to hold the conference in Vienna and then had to re-organize everything for the online streaming version of ICPRAM2021.

We look forward to meeting you at the 11th edition of ICPRAM in Vienna, Austria, February 3-5, 2022 (*http://www.icpram.org/*).

http://www.icpram.org/

ICPRAM 2022
11th International Conference on Pattern Recognition Applications and Methods
Vienna - Austria
3 - 5 February, 2022

ICPRAM 2022 will be in Vienna: put it in your agenda!

VISAPP 2021
16th International Conference on Computer
Vision Theory and Applications

Online Streaming 8 - 10 February, 2021

http://www.visapp.visigrapp.org/?y=2021

VISIGRAPP
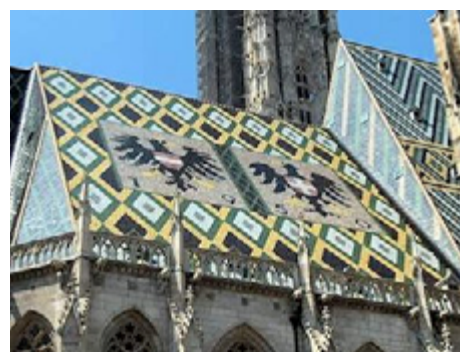
Conference Co-Chairs
Jose Braz, Escola Superior de Tecnologia de Setúbal, Portugal
Kadi Bouatouch, IRISA, University of Rennes 1, France

Program Co-Chairs
Giovanni Maria Farinella, Università di Catania, Italy
Petia Radeva, Universitat de Barcelona, Spain

by Jose Braz, Kadi Bouatouch, Giovanni Maria Farinella, and Petia Radeva

The 16th International Conference on Computer Vision Theory and Applications (VISAPP2021) was exceptionally held as an online event, from the 8th to 10th of February, 2021. VISAPP is part of VISIGRAPP, the 16th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications.

The VISAPP conference was sponsored by the "Institute for Systems and Technologies of Information, Control and Communication (INSTICC)", and endorsed by IAPR. For this edition, VISAPP2021 was organized "in cooperation" with a number of international organizations involved in research related to Image and Video Formation, Preprocessing and Analysis, Image and Video Understanding, Motion, Tracking and Stereo Vision, Mobile and Egocentric Vision for Humans and Robots, and Applications and Services: the European Association for Computer Graphics (EUROGRAPHICS), the VRVis Center for Virtual Reality

and Visualization Forschungs-GmbH, the French Association for Computer Graphics (AFIG), and the Society for Imaging Science and Technology (IS&T). The General Co-Chairs of the conference were José Braz and Kadi Bouatouch, and the Program Co-Chairs were Giovanni Maria Farinella and Petia Radeva.

The main goal of VISAPP is to become a major point of contact between researchers, engineers and practitioners on the area of computer vision application systems. During the conference, the attendees had the possibility to exchange ideas among them and also with the invited speakers, regarding their respective scientific achievements and future research plans. The intended goal was to spur new and original threads of collaboration to investigate brand new approaches.

VISAPP received 239 submissions from 40 countries. Out of the accepted papers, 56 were selected for oral presentation as full papers, 81 for oral presentation as short papers, and 52 for poster presentation.

In addition, the invited speakers

also presented the following plenary lectures:

Federico Tombari, Google and Technical University of Munich (TUM), Germany (Distinguished IAPR Speaker): ***3D Indoor Scene Understanding with Scene Graphs and Self-supervision***

Dieter Schmalstieg, Graz University of Technology, Austria: ***Visualization in the Real World: Confluence of Visualization and Augmented Reality***

Nathalie Henry Riche, Microsoft Research, United States: ***Data-driven Storytelling***

The conference organization assigned three awards to be given during the conference to testify the value of the best contributions: the Best Paper Award,the Best Poster Award and the Best Industrial Paper Award.

The winning papers were chosen by the Program/Conference Chairs based on the best combination of review marks, assessed by the

Program Committee, and of paper presentation quality, assessed by Session Chairs and Program Chairs during the sessions. For this edition, the winning papers were:

Best Paper Award
"Normalized Convolution Upsampling for Refined Optical Flow Estimation" *by Abdelrahman Eldesokey and Michael Felsberg*

Best Poster Award
"AR-Bot, a Centralized AR-based System for Relocalization and Home Robot Navigation" *by Matthieu Fradet, Caroline Baillard, Vincent Alleaume, Pierrick Jouet, Anthony Laurent and Tao Luo*

Best Industrial Paper Award
"Convolution Filter based Efficient Multispectral Image Demosaicking for Compact MSFAs" *by Vishwas Rathi and Puneet Goyal*

Furthermore, the Authors of VISAPP2021 selected papers will be invited to submit a revised and extended version of their work for a book in the Springer CCIS Series. A short list of best papers will also be invited for a post-conference special issue of the Springer Nature Computer Science Journal.

We look forward to meeting you at the 17th edition of VISAPP in Vienna, Austria, February 6-8, 2022 (*http://visapp.visigrapp.org/*).

VISAPP2022 will be in Vienna, Austria: put it in your agenda!

VISAPP 2022
17th International Conference on Computer Vision Theory and Applications
Vienna - Austria   6 - 8 February, 2022
http://visapp.visigrapp.org/   VISIGRAPP

UPCOMING SUBMISSION DEADLINES

Regular Paper Submission:	September 14, 2021
Position Paper Submission:	October 29, 2021
Doctoral Consortium Paper Submission:	December 9, 2021

CONFERENCE AREAS

1 . Image and Video Formation, Preprocessing and Analysis
2 . Image and Video Understanding
3 . Motion, Tracking and Stereo Vision
4 . Mobile and Egocentric Vision for Humans and Robots
5 . Applications and Services

ORGANIZATION
CONFERENCE CHAIR
Kadi Bouatouch, IRISA, University of Rennes 1, France
PROGRAM CO-CHAIRS
Giovanni Maria Farinella, Università di Catania, Italy
Petia Radeva, Universitat de Barcelona, Spain

11TH INTERNATIONAL CONFERENCE ON PATTERN RECOGNITION SYSTEMS

17-19 March 2021, Universidad de Talca, Curicó - Chile
(Virtually via Whova and Zoom)

Local Chair
Cesar Astudillo, Universidad de Talca, Chile

General Chair
Sergio A. Velastin, Queen Mary University of London, UK; Vision & Imaging Network, IET, UK; and Universidad Carlos III de Madrid, Spain

ACHiRP Chair
Hector Allende-Cid, Pontificia Universidad Catolica de Valparaiso, Chile

Ed.: Please see related [report on the Activities of the Chilean Association for Pattern Recognition](#) AChiRP.~ Jing Dong, EiC

Introduction

The 11th International Conference on Pattern Recognition Systems (ICPRS) followed ICPRS-19, ICPRS-18, ICPRS-17 and ICPRS-16, a continuation of the successful Chilean Conference on Pattern Recognition that reached its 6th edition in 2014. ICPRS-21 was organised by the Universidad de Talca (Chile) and the Chilean Association for Pattern Recognition (ACHiRP, a member of the IAPR), was endorsed by the IAPR and sponsored by the Vision and Imaging Professional Network of the Institution of Engineering and Technology (IET).

As in previous years, papers will be published in electronic proceedings by the IET. Accepted papers deemed to be of the required standard AND presented at the conference, will be normally indexed in Inspec, IEEE Xplore and Scopus. All paper submissions needed to be submitted via Conftool to be peer-reviewed by an international panel of experts.

Like its predecessors, ICPRS-21

aimed to create an important networking forum in which participants could discuss the present and future of pattern recognition systems.

General Statistics

ICPRS-21 received 78 contributions from 19 countries. After a rigorous double blind reviewing process, where each paper was reviewed by at least 3 experts, a total of 39 papers were accepted. All the accepted papers have scientific quality above the overall mean rating.

Keynotes

The conference included four plenary speakers:

 Prof. Johan Debayle ("Image Processing, Analysis and Modeling of Particle Populations")

 Prof. Angel Sappa ("Computer Vision Beyond the Visible Spectrum")

 Prof. Marie Beurton-Aimar ("Siamese networks for old document reassembly")

 Prof. Julian Fierrez ("Securing our Identity: from Biometric Anti-Spoofing to DeepFakes Detection").

Awards

Best Paper Award and Honorary Mention:
By a unanimous decision, the ICPRS-21 Best Paper Award was given to Nguyen-Anh-Minh Mai, Pierre Duthon, Louahdi Khoudour, Alain Crouzil, and Sergio A. Velastin for the paper "Sparse LiDAR and Stereo Fusion (SLS-Fusion) for Depth Estimation and 3D Object Detection".

An Honorary Mention was awarded to Gonzalo Nápoles, Isel Grau, Leonardo Concepción, Yamisleydi Salgueiro for the paper "On the

Performance of the Nonsynaptic Backpropagation for Training Long-term Cognitive Networks."

Best Student Paper Award and Honorary Mention:
The ICPRS Best Student Paper Award was given to Bruno Muller and Régis Lengellé for the paper "Influence of Data Centring in Kernel-Cross Alignment: Application to Transfer Learning". An Honorary Mention was awarded to Fernanda Weiss, Marcelo Mendoza, and Evangelos Milios for the paper "Time series classification for rumor detection."

Social Program
Since the event was fully virtual due to COVID restrictions, the traditional Social Program was replaced by virtual interaction. These spaces occur before the sessions and on some occasions during the breaks. It was an opportunity to interact with colleagues from other countries in an informal and relaxed atmosphere.

Conclusion
The conference was a very useful forum in which the scientific community could exchange research experience, share new knowledge and foster cooperation among research groups in pattern recognition and related areas.

We used a system called Whova for the management of the agenda and social interaction. Whova allows sharing pre-recorded videos (from youtube) and live sessions (zoom) in a very intuitive way. It is advised that the local chair should be focused on this task. Also, for massive events, it is highly recommended to adopt a

conference management software like this. Additionally, we used a system called Eventbrite for managing electronic tickets. In general, the system worked well.

Having pre-recorded videos turned out to be an excellent idea in case of a poor connection or when presenters feel insecure. It is advisable that the speakers communicate beforehand if they prefer to talk or present the videos. We selected Google Drive as the tool for receiving the video files. Also, a copyright form was requested for making videos publicly available in YouTube. Requesting the copyright form by email gave extra work to the organizers. We advise to use another way to send this form.

A [YouTube channel](#) was created for ICPRS-21. We believe that the recorded videos will be an excellent legacy of the event. Our recommendation is that future organizers also make the presentation available to the public and mention this to the authors.

The number of participants fluctuated between 40 and 50 in each session. Even though this was perceived as a success, it was less than had been expected.

The website was redesigned by a professional team. We hope this modern look and feel will be helpful for future versions of the conference.

International conferences are expected to be in English. In our case, we had a hybrid program where reception, paper presentations and keynotes were in English. There were three workshops for graduate students

that were given in Spanish. The two languages of the conference were well managed as people were clearly informed on the webpage and by the presenters. This mixture was planned and discussed by the Steering Committee during the preparation of the event.

Parallel sessions were much harder than expected, requiring one dedicated person per parallel session. Many things can go wrong—speakers not showing up, bad internet connection, managing security permission for entering the rooms or for sharing screens, projecting the prerecorded videos, recording the talk, answering questions in the chat, moderating the session. The recommendation is that, if possible, to have a single-track event.

The breaks are very important and should be frequent. Hours of virtual talks can be very tiring. People need to stretch, make coffee, have lunch, read emails, etc. Setting the right break times can be very challenging if there are participants located all around the globe. The time and duration of the breaks must be carefully discussed by the organizing committee when elaborating the program.

We hope that these comments are helpful to future organisers of ICPRS and other virtual or hybrid conferences.

ICPRS-22
The 12th ICPRS will be held in St. Éttienne, France, organized by Dr. Johan Debayle, from the École Nationale Supérieure des Mines de Saint-Étienne. *http://www.icprs.org/*

1st IAPR International Conference on Discrete Geometry and Mathematical Morphology

(Fully digital remote event)
May 24-27, 2021
https://iapr.org/dgmm2021

Organizing Committee

Filip Malmberg, General Chair
Nataša Sladoje, Program Chair
Joakim Lindblad, Program Chair
Johan Öfverstedt, Local Chair
Eva Breznik, Webmaster
Robin Strand, Advisor
Ingela Nyström, Advisor
Gunilla Borgefors, Honorary Chair
Christer Kiselman, Honorary Chair

Editor's note:
Please see related report on the Activities of TC18 Discrete Geometry and Mathematical Morphology.

~Jing Dong, EiC

The first edition of the new conference on Discrete Geometry and Mathematical Morphology (DGMM) was the first joint event between the two main conference series of IAPR TC18, the International Conference on Discrete Geometry for Computer Imagery (DGCI) and the International Symposium on Mathematical Morphology (ISMM).

The conference was held entirely online with discussion sessions. All the presentations have been recorded and are available on Youtube *https://www.youtube.com/playlist?list=PL61jQAsCUDRLjTQt4KU_YcivUxo1Tysi8*.

The event was really successful comprising 36 high quality contributions highlighting the current trends and advances in discrete geometry and mathematical morphology, ranging from purely theoretical contributions, algorithmic developments, or novel applications in image processing, computer vision, and pattern recognition.

Three keynotes were presented:

Maria-Jose Jimenez, "On topological analysis of cells organization in biological images"

Jesús Angulo, "Some open questions on morphological operators and representations in the deep learning era"

Cecilia Holmgren, "Split trees — A unifying model for many important random trees of logarithmic height"

DGMM2021 dedicated one session to the memory and work of Reinhard Klette (See "In Memoriam: Reinhard Klette" [42:2]).

The best student paper award, sponsored by the IAPR, was won by Rémi Decelle et al. for the contribution entitled "Digital Straight Segment Filter for Geometric Description": congratulations to them!

The proceedings appeared in Springer's LNCS series (number 12708, DOI: 10.1007/978-3-030-76657-3) and a special issue with extended versions of selected outstanding contributions will be published on the Journal of Mathematical Imaging and Vision.

Given the success of this first edition, the steering committees of DGCI and ISMM have decided to send a call for organization for a second edition of DGMM *https://tc18.org/docspdf/DGMM_next_conference_call.pdf*!

Upcoming Special Issues

in

Pattern Recognition Letters

Pattern Recognition
Letters

https://www.journals.elsevier.com/pattern-recognition-letters

Self-Learning Systems and Pattern Recognition and Exploitation (VSI:SeLSPRE)

Guest Editors: Antonio Coronato, CNR-ICAR, Italy - Giovanna Di Marzo Serugendo, University of Geneva, Switzerland

Submission period: October 1 2021 - October 20 2021

More information at: *https://www.journals.elsevier.com/pattern-recognition-letters/call-for-papers/self-learning-systems-and-pattern-recognition-and-exploitati*

Computational Linguistics Processing in Indigenous Language (VSI:CLPIL)

Guest Editors: Parameshachari B.D., GSSS Institute of Engineering & Technology for Women, Mysuru, Karnataka, India - Tomasz RAK, Rzeszow University of Technology, Poland - Liyanage Chandratilak De Silva, Universiti Brunei, Darussalam, Brunei

Submission period: November 1 2021 - November 20 2021

More information at: *https://www.journals.elsevier.com/pattern-recognition-letters/call-for-papers/computational-linguistics-processing-in-indigenous-language*

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 *

All dates indicated below are as of the time of publication. Conference dates and venues may change due to COVID-19 concerns. Some may be held online. Please check the conference websites for the most up-to-date information.

		Meeting	Report on previous edition	Venue
2021	SEP	ICDAR 2021: 16th Intl. Conference on Document Analysis and Recognition	ICDAR 2019	**Hybrid** - Switzerland
		+ GREC 2021: 14th Intl. Workshop on Graphics Recognition (in conjunction with ICDAR 2021) +	GREC 2019	**Hybrid** - Switzerland
		PRIP 2021: 15th Intl. Conf. on Pattern Recognition and Information Processing	PRIP 2019	**Online** - Belarus
	OCT	IWAIPR 2021: VII Intl. Workshop on Artificial Intelligence and Pattern Recognition		**Cuba**
	NOV	ACPR 2021: 6th Asian Conference on Pattern Recognition	ACPR 2019	**Hybrid** - Korea
		+ DICTA 2021: 2021 Intl. Conf. on Digital Image Computing: Techniques and Applications +	DICTA 2020	**Australia +**
	DEC	CVIP 2021: 6th Intl. Conf. on Computer Vision and Image Processing	CVIP 2020	**Hybrid** - India
2022	FEB	+ ICPRAM 2022: 11th Intl. Conf. on Pattern Recognition Applications and Methods +	ICPRAM 2021	**Austria**
		+ VISAPP 2022: 17th Intl Conf on Computer Vision Theory and Applications +	VISAPP 2021	**Austria**
	JUN	+ ICPRS 2022: 12th Intl. Conference on Pattern Recognition Systems +	ICPRS 2021	**France**
		ICPRAI 2022: 3rd Intl. Conf. on Pattern Recognition and Artificial Intelligence		**France**
		IGS 2021: 20th Conference of the International Graphonomics Society		**Spain**
	AUG	ICPR 2022: 26th International Conference on Pattern Recognition	ICPR 2020	**Canada**
	OCT	+ IJCB 2022: 2022 IAPR/IEEE International Joint Conferenct on Biometrics +		**UAE**

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*