THE INTERNATIONAL ASSOCIATION FOR PATTERN RECOGNITION

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Special Issue

with highlights from the 26th INTERNATIONAL CONFERENCE ON PATTERN RECOGNITION

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IN THIS Issue

From the President's Desk

by Arjan Kuijper
IAPR President 2022-24
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Writing this introduction is a new experience for me. Some years ago, I wrote the “From the Editor’s Desk” in this place (starting with 35:4, October 2013). It has been a great pleasure for me to get to know the IAPR as a truly international association, as editor of the *IAPR Newsletter* and then on the Executive Committee (ExCo) as Secretary. (By the way...excellent that you read this newsletter! It is the place where you can get to know all kinds of IAPR related activities.)

Like most of us, I am a member of a local IAPR society. I was member of the Dutch society NVPHBV during my PhD. I switched to the Danish society DSAGM when I became postdoc in Copenhagen. In that period, I had a paper at S+SSPR in Lisbon. It was a great way to enlarge my scientific circle by meeting fellow researchers at a conference jointly organised by the IAPR Technical Committees 1 and 2 (see report on the most recent edition of this joint workshop in this issue).

After that, my scientific output and horizon started to grow. I attended —with a paper—ICPR in Cambridge. Over the years, via the Austrian IAPR member society (ÖAGM) and the one from Germany (DAGM), I got to meet more and more people and broadened my network. During my Austrian years, I started to do book reviews for the *IAPR Newsletter*. Later, I became the Editor-in-Chief and wrote regular columns "From the Editor's Desk".

Today, I find myself as elected President of the IAPR. As probably all Presidents before me have written: it is truly an honour to be elected!

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CALLS for PAPERS

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

+ denotes pending IAPR Conferences & Meetings Approval +

2023

ICDAR 2023
17th International Conference on
Document Analysis and Recognition
San Jose, California, USA
Deadline: Jan. 8, 2023
Dates: Aug. 21-26, 2023

IWBF 2023
11th IAPR/EEE International Workshop on
Biometrics and Forensics
Barcelona, Spain
Deadline: Jan. 13, 2023
Dates: Apr. 19-20, 2023

ISPR 2023
3rd International Conference on
Intelligent Systems & Pattern Recognition
Hammamet, Tunisia
Deadline: Jan. 15, 2023
Dates: May 11-13, 2023

IbPRIA 2023
11th Iberian Conference on
Pattern Recognition and Image Analysis
Alicante, Spain
Deadline: Feb. 19, 2023
Dates: Jun. 27-30, 2023

GbR 2023
13th International Workshop on
Graph-based Representations in Pattern Recognition
Vietri sul Mare, Italy
Deadline: Apr. 14, 2023
Dates: Sep. 6-8, 2023

ICPRS 2023
13th International Conference on
Pattern Recognition Systems
Guayaquil, Ecuador
Deadline: Mar. 6, 2023
Dates: Jul. 4-7, 2023

MVA 2023
18th International Conference on
Machine Vision Applications
Hamamatsu, Japan
Deadline: Mar. 31 2023
Dates: Jul. 23-25, 2023

The same holds for my colleagues on the IAPR ExCo. We were elected by the Governing Board during ICPR 2022 (see Highlights in this Special Issue) and we will serve you in the period until ICPR 2024.

Looking back to my scientific activities over the years, I notice that I have seen all aspects of the IAPR, and I encourage, or better, I challenge you to do the same!

- First of all, we have the Member Societies. In each country I stayed, I have been a member of the local IAPR Member Society, which automatically made me an IAPR member. As nice add-on: this allows you to register for a reduced fee at IAPR-supported conferences, like ICPR, S+SSPR, and many more. Being scientifically connected in your country is an obvious thing to do.
- Second, there are the Technical Committees. Via S+SSPR, I got to know them. Here you can meet your peers in an international context. The TCs organize their own workshops and conferences, but offer a lot more. Who told you science was only a national thing? Get connected!
- Third, the IAPR has Standing Committees. They keep the IAPR as association up and running. Some have more administrative purposes, some deal with prizes, some with visibility. The *Newsletter* is only one aspect of all activities going on.
- Finally, we have ICPR, our flagship conference every second year. I enjoyed being in Cambridge and all other ICPR venues, including this year in Montreal. I look forward to being in Kolkata in December 2024. A conference is not only about presenting a paper. It is also about meeting people, sometimes scientifically, sometimes informally. I love poster sessions in that respect, but enjoy just as well the coffee breaks and the conference dinner!

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It's important to note that all of these aspects are carried out by volunteers. I am really thankful for all those people putting time and effort in keeping up the high quality of our meetings and activities. What I learned in these years is that there is indeed a “return on investment”. Getting to know people is so valuable!

As new ExCo, we stand on the shoulders of the previous ExCo, and I would like to thank Dan, Apostolos, Lale, Terence and Bob. Having been a part of that ExCo, I can say that we had a complicated time. As ICPR2020 was postponed to January 2021, we only had 1.5 years to find members of committees and manage the ongoing and new activities. This put quite some load on the shoulders of the standing committees as well.

I would like to share some of the achievements. They were reported at the governing board meeting in Montreal.

- We have a new member society. A warm welcome to our colleagues of the Colombian Association of Pattern Recognition (ACORP). (see report in this issue)
- The Standing Committee on Equality, Diversity and Inclusion (EDI) has been formally included in the Constitution and Bylaws. This committee collaborates with other committees to help ensure that everybody has the same possibilities in IAPR activities.
- We are financially healthy. That is not trivial and is something to be thankful for. This allows us to support travel to ICPR via stipends, support summer schools etc.
- The IAPR is issuing a first Open Call for Nominations for the King-Sun Fu, J. K. Aggarwal, and Maria Petrou Prizes to be given at ICPR 2024. The CnN can be found on page five of this issue of the *Newsletter* and, if not already, will soon be posted on the IAPR Prizes and Awards pages on the IAPR website.
- TC20 is back! With a name change from Pattern Recognition for Bioinformatics to Pattern Recognition for Bioinformatics and Digital Health, we enlarged the scope and have a new and active group a people revitalising this TC.

During the previous term, several initiatives were started and we will continue to implement them:

- Digitalization requires extra attention, and we are looking for additional support in laying out the newsletter in order to remove some of the workload from Linda who is also running the Secretariat. Similarly, social media play an increasingly important role. With an internship our visibility will be strengthened
- Organizing ICPR is a huge challenge. The Montreal people can confirm that. An external PCO can help with the local organisation, but still many scientific parts need to be handled. Since ICPR is our IAPR conference, we created a contract position to support the organizers with respect to IAPR related matters.
- We have 6 years of celebrations for the IAPR's 50th anniversary, from first ICPR committee meeting in 1972 to first IAPR GB meeting in 1978. Celebrating is always nice, so check the web site for that!
- Hybrid...in-person...virtual. We've seen all kinds of conferences in the past few years. The hybrid ICPR also showed all possible configurations of presentations. What are the main lessons learned for ICPR, but also our other meetings? This is the main question for an ad-hoc Committee on Hybrid Conferences to be formed and chaired by Terence Sim.
- I wrote about all these volunteers. Thank you for being one! ;) How can we keep track of people and get a good mixture of old and new people in committees? We're working on that. The EDI committee is of course in the loop!
- Springer proceedings for IAPR conferences & workshops can be accessed for IAPR members. Since members of IAPR societies are de facto members of the IAPR, this benefit applies to them. We're working out the details to get this benefit to you.

Together with First Vice President Lale Akarun, Second Vice President Cheng Lin Liu, Treasurer Bob Fisher, Secretary Josep Lladós and Past President Daniel Lopresti, I look forward to work on these topics. Not only with them: we are extremely happy that we have the support of Ed Sobczak (webmaster) and Linda O'Gorman (secretariat) to make sure that all those things we work on work out well.

We cannot do this alone. We are thankful for all volunteers at so many positions making the IAPR a vivid organisation. I hope to see you at some IAPR event in these two years – and latest in Kolkata in 2024.

Arjan Kuijper
IAPR President, 2022-24

Calls from IAPR Committees

From the IAPR Education Committee:

Call for Applications for IAPR Research Scholarships

https://iapr.org/docs/IAPR-EC-RS-Call.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

https://iapr.org/internships

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: webmaster@iapr.org
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 44 opportunities listed and around 17,000 accesses since November 2017.

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.

Open Calls for IAPR Prizes @ ICPR 2024

From the IAPR King-Sun Fu, J. K. Aggarwal, and Maria Petrou Prize Committees:

First Open Call for Nominations for the

2024 King-Sun Fu Prize (full CfN: *https://iapr.org/fellowsandawards/awards_kingsunfu.php*)
2024 J. K. Aggarwal Prize (full CfN: *https://iapr.org/fellowsandawards/awards_aggarwal.php*)
2024 Maria Petrou Prize (full CfN: *https://iapr.org/fellowsandawards/awards_petrou.php*)

Nomination letters accompanied by the nominee's CV are requested by December 2, 2023.

Nomination and Endorsement forms may be modified/submitted up until the final deadline that will be set by the K. S. Fu, J. K. Aggarwal, and Maria Petrou Prize Committees.

The 2024 Prizes will be presented at the

27th International Conference on Pattern Recognition (ICPR 2024)
Kolkata, India
December 2-6, 2024

The King-Sun Fu Prize, the IAPR's highest honor, is given in honor of the memory of Professor King-Sun Fu, who was instrumental in the founding of IAPR, served as its first president, and is widely recognized for his extensive contributions to the field of pattern recognition. The Prize is given to a living person in recognition of an outstanding technical contribution to the field of pattern recognition.

The J. K. Aggarwal Prize is given in honor of Professor J. K. Aggarwal, widely recognized for his extensive contributions to the field of pattern recognition and for his participation in IAPR's activities. The Prize is given to a young scientist, under the age of 40 at the date of the final deadline for nominations, who has brought a substantial contribution to a field that is relevant to the IAPR community and whose research work has had a major impact on the field.

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

Recipients of all prizes are expected to present an invited talk at the conference and to provide a contribution to the special issue of Pattern Recognition Letters that will include extended versions of all papers that received an IAPR award at ICPR 2024.

The Prize recipients shall be selected by the respective Prize Committees, subject to approval by the IAPR Governing Board, and based upon nomination criteria set out in the full CfNs on the IAPR website. Members of the IAPR Executive Committee, as well as of the Maria Petrou Prize Committee, shall be ineligible for the prize and may not serve as nominators or endorsers.

Nomination and endorsement forms (see links below) may be submitted on a preliminary basis to the IAPR Secretariat (see information below) and modified up to the final submission deadline that will be set by each Prize Committee. Only complete applications will be considered for the 2024 Prizes.

Contact information: IAPR Secretariat, c/o Linda O'Gorman, *secretariat@iapr.org*

Please see the full CfN pages on the IAPR website (links above) for links to Nomination and Endorsement forms.

Getting to know...

Sergio Escalera, IAPR Fellow

Sergio Escalera is a Full Professor at the Department of Mathematics and Informatics of the Universitat de Barcelona, where he is the head of the Informatics degree. He leads the Human Behavior Analysis Group. He is a Distinguished Professor at Aalborg University. He has been a visiting professor at TU Delft and Aalborg Universities. He is also a member of the Computer Vision Center. He is vice-president of the ChaLearn Challenges in Machine Learning, leading the ChaLearn Looking at People events. He is co-creator of the Codalab open source platform for challenges organization and co-founder of the NeurIPS competition and Datasets & Benchmarks tracks.

He is also a Fellow of ELLIS, the European Laboratory for Learning and Intelligent Systems working within the Human-centric Machine Learning program. He has been chairing and is the current vice-Chair of IAPR TC12: Multimedia and Visual Information Systems. He participated in several international funded projects and received an Amazon Research Award.

He has published more than 300 research papers and participated in the organization of several scientific events. He received a CVPR best paper award nomination and a CVPR outstanding reviewer award. His research interests include inclusive and transparent analysis of humans from visual and multi-modal data.

Sergio Escalera, IAPR Fellow
ICPR 2022, Montreal

For contributions in pattern recognition and human behavior analysis

Since I started my PhD in 2003 at the Computer Vision Center in Barcelona, I have been always interested in the creation of Pattern Recognition models that can discriminate a large set of visual categories. My PhD was focused on visual multi-class classification. At that time, we were seeking a proper trade-off between discriminative visual descriptors and accurate classification strategies. While I started with the research of some point of interest detectors and visual descriptors, I moved quickly to the design of ensemble of experts based on error correcting output codes (ECOC). The idea was seminal by TG Dietterich and G Bakiri in 1994 in JAIR, and we worked on its generalization to any dense and sparse design, to the combination of an arbitrary number of binary or multi-class classifiers, including neural networks, to the automatic generation of ensembles based on data (S Escalera et at. TPAMI 2008, S Escalera et at. TPAMI 2010).

More recently we showed how deep learning architectures could also benefit from our research based on error correction output coding and designed general-purpose deep architectures with a low dimensional target embedding to discriminate many categories, "Beyond One–hot Encoding: lower dimensional target embedding, Image and Vision Computing", IMAVIS in 2018.

At the time of defending my PhD in 2008 I got very interested in automatically analyzing a much more complex visual "object", the human being. My interest was 2-fold, methodological and practical. From a methodological point of view, the articulated nature of the human body, its changes in appearance, presence of self-occlusions, the background vs body relationships (scene information, human-object, human-human interactions, etc.), and the huge variability and multi-modality nature of human behaviors in video were exciting challenges to research. From a practical point of view, if intelligent systems can understand our behavior, they will be able to assist us in an accurate and personalized way. With the previous aims in mind, in 2009 I created the Human Behavior Understanding group, HuPBA, at the University of Barcelona and the Computer Vision Center.

During the last 15 years, I have focused on analyzing human faces, hands, bodies, behaviors (e.g. actions and gestures) from visual and multi-modal data, and thanks to the support of a great team of students and national and international collaborators, we have been pushing research on human behavior understanding (HBU) and affective computing. In 2020, I had the privilege to chair the IEEE Faces and Gestures as the general co-chair. The developed research has been transferred to society in projects to support emotional evolution of children with stroke in neuro-rehabilitation game scenarios, emotional analysis in mental health treatment with schizophrenia diseases, diagnosis support in children with attention deficit disorder, risk event recognition for people with reduced autonomy, automatic recognition of sign language for the deaf, and virtual coaching for the elder for healthy living, among others.

From 2013, and after winning one of the challenges organized by ChaLearn related to gesture recognition at ICPR 2012, I became co-president of ChaLearn, a non-profit organization in Berkeley for the organization of scientific challenges. Since 2013, I have been leading the ChaLearn Looking at People (LAP) events (*https://chalearnlap.cvc.uab.cat/*) organizing competitions and associating them to international events to push research on HBU while approaching real application needs.

Until now, together with ChaLearn President Prof. Isabelle Guyon and collaborators, we have created and made public for research purposes more than 20 large annotated human-centered databases to support applications for good related to human behavior understanding. We have organized associated scientific competitions, workshops, and special issues, making all material public under proper licenses. Thousands of participants joined our competitions, which were also supported by several sponsors, including Microsoft Research, Google, NVIDIA Corporation, Disney Research, Facebook, and Amazon. We also co-developed the Codalab open source platform for challenges organization (*https://codalab.org/*), and I participated as co-founder of the NeurIPS competition track and advisory board for the creation of the NeurIPS Datasets & Benchmarks tracks. These initiatives aim to increase sensitivity to the importance of data. There is no bias-free data, so it is very important to properly design benchmarks and understand their research versus practical impact, in my case always considering a human-centered perspective. I also push this human-centered perspective as a Fellow of the European Laboratory for Learning and Intelligent Systems, ELLIS, working within the Human-centric Machine Learning program.

Clearly, it is important to comment on HBU research progress that was allowed thanks to the deep learning revolution. Since 2012, deep learning architectures have been defining the state-of-the-art in several pattern recognition and computer vision problems, including those related to HBU. Now, the robustness of our HBU technology allows us to transfer it to several real scenarios. However, this new incursion of intelligent systems into daily living scenarios is generating a global alarm associated with ethics and data protection. From my point of view part of the technology developed by the research community has been transferred rapidly to society without proper democratization and regulation. We sometimes, unfortunately, delivered works without proper ethics analyses about their implications when applied to real cases, possible negative uses or possible associated bias and lack of generalization they may have under specific conditions. However, I am pleased to see that recently our community is seriously considering accountability in research, and that trustworthy AI is becoming a mandatory standard.

In relation to the current state of the technology, while the automatic recognition of fine-grain events in video is increasing its robustness, still the field of human behavior understanding is in its infancy. We should keep pushing interdisciplinary research to better understand human behavior that can be transferred into intelligent systems. In this regard, our group's current research interests on HBU are around self-supervision (to benefit from large non-annotated data), domain knowledge injection (to use some partial knowledge we have about the world), bias detection and mitigation (to allow for fair and inclusive systems), uncertainty estimation and explainability (to allow human-in-the-loop systems and promote acceptability of AI), continuous learning (to update model knowledge in a changing world), human behavior forecasting and behavior anticipation (for the early update of AI behavior), multimodal video understanding (to allow for fine-grain HBU), and domain adaptation and synthetic data (to allow models to generalize to different environmental conditions).

I hope progress on these research lines will further help in the design of inclusive and transparent applications of HBU and affective computing.

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

Pritish Sahu

Editor's note: Pritish Sahu received the 2022 Piero Zamperoni Best Student Paper Award, presented at ICPR 2022, as well as the ICPR 2022 Track 1 Artificial Intelligence, Machine Learning for Pattern Analysis Best Student Paper Award. Please see the ICPR 2022 Highlights in this issue.

~ Jing Dong, EiC

Pritish Sahu is a 5th year PhD candidate in the Computer Science department at Rutgers University. His research interests span the machine learning field specifically in computer vision and learning to design algorithms that improve the IQ of machines. Recent works are focused on learning factorized representations, solving reasoning problems and determining existence of knowledge hierarchy such as Bloom's Taxonomy in trained large language models, if any. Pritish received his M.S. degree from the Computer Science department at Rutgers University.

by Pritish Sahu,

Briefly: How did you get involved in pattern recognition?
As an undergraduate, I was fascinated by the huge developments in Artificial Intelligence and Machine Learning. With little knowledge of the field, I took my first step in pattern recognition during my senior year, working on an image processing application to remove see-through effects in old, scanned documents (undergraduate thesis). I also participated in several robotic events such as line follower bots.

It was the broad range of course subjects I took during my M.S. at Rutgers University that fueled my interest in pursuing research in Pattern Recognition, especially the "Machine Learning" and "Pattern Recognition" course taught by Prof. Vladimir Pavlovic. I was also involved in a research project on using pattern recognition on crowd simulation with Prof. Mubbasir Kapadia and Prof. Vladimir Pavlovic. After that I decided to pursue a Ph.D. and joined the "Sequence Analysis and Modeling (SEQAM) Lab" under Prof. Pavlovic.

In more detail: What technical work have you done and what is/are your current research interest(s)?
My focus in research is to design representations learning algorithms in the quest for Artificial Intelligence (AI). Learning representation and slowly growing less dependent on feature engineering expands the scope and ease of applicability of machine learning. I have worked mostly on representation learning in the field of computer vision and natural language processing.

In computer vision, my initial works were to learn representation for transfer learning task, especially in domain adaptation. To simply describe, transfer learning is the task of designing algorithms where a machine learning model trained to solve one task, also gains the necessary knowledge to solve a different but related task. The above work led to three publications in top vision conferences.

In the next phase, I got excited about another key aspect of a good representation which is disentanglement. Learning disentangled representations is to identify and map the underlying explanatory factors hidden in the observed onto several independent axes. Any variation added to a single factor is sensitive to change in one generative factor while the rest remain invariant to these changes. I had another two publications in this area.

Associating the above research areas, I moved on to the next phase where I design representations that solve abstract visual reasoning problems, especially Raven's Progressive Matrices (RPM). In the last year, I have published two works on this area, one of which was published at ICPR 2022 titled "DAReN: A Collaborative Approach Towards Reasoning And Disentangling" in collaboration with Kalliopi Basioti and Vladimir Pavlovic. Our work, in the first step learns to associate representation with the true object attributes in the underlying RPM images meanwhile disentangling them. In the next step, it uses these representations to find satisfying relations present in the images in a row. The common relations that satisfy all rows are used to solve the puzzle, i.e., locate the correct image for the final row from among a list of candidate images.

On the other hand, I have interest in studying large language models. These models have achieved state-of-the-art results in all benchmarks and have shown impressive results in solving tasks in zero/few-shot regime. High performance on datasets does not mean these models understand the textual world around them, one needs deeper analysis into those models, such as can they generalize to real world scenario?. My work in this area delves into studying the knowledge contained in these models, whether this knowledge is hierarchical in nature, e.g., Bloom's Taxonomy, whether these models possess conceptual knowledge in any question answer task? Do they just answer these questions based on the style of the language they have seen during training, or do they really understand the concepts and the relationships they share in a question? The above work has led me to publish two papers in this area.

How can the IAPR help young researchers?

Over the last seven years as an MS and a PhD student, I have learned that staying motivated and loving the work you do is the best way to keep growing in any field. While young researchers usually are eager and motivated to learn and publish papers, keeping this fire burning is the key to success. However, most researchers go through difficult periods in their PhD term with the constant pressure to keep publishing or balance work and personal life, which overall creates a negative effect on their love for research. I believe the IAPR is a research community that can help nourish young researchers with proper guidance to keep the fire burning and provide updates on new research directions.

Conference and workshop venues provide an open platform to engage with other research colleagues. It provides a platform to showcase your research work and broaden your connections with other researchers. It enables discussion with other researchers to share experiences and learn how others have been coping with similar problems in their PhD. Listening to senior fellows and their journeys could impart necessary wisdom on how to successfully complete the PhD and move towards successful careers.

PHD Comics
https://phdcomics.com/about.php

INSIDE the IAPR

The IAPR Welcomes the Colombian Association of Pattern Recognition (ACORP)

by Manuel Guillermo Forero Vargas, ACORP President

Editor's note: During the 2020-22 term, the IAPR Membership Committee worked with the Colombian Association of Pattern Recognition (ACORP) to prepare an application for membership in the IAPR. The application was approved during the biennial Governing Board meeting at ICPR 2022. Please see the ICPR 2022 Highlights in this issue for other news from the Governing Board Meeting.

~ Jing Dong, EiC

In Colombia, research in pattern recognition began approximately in the 1980s, being carried out independently by members of different universities. Over the years, the number of researchers grew, and the works carried out increased in number and matured in quality. Thus, their participation was increasing in congresses sponsored by the International Association for Pattern Recognition - IAPR-, such as CIARP, MCPR, and IbPRIA.

The Colombian Association for Pattern Recognition - ACORP - was officially constituted on January 1, 2022, as a non-profit scientific association and operating as the Pattern Recognition chapter of the Colombian Computer Society.

ACORP aims to promote and disseminate knowledge of the theory and practice in pattern recognition and related fields, such as machine learning, data mining, signal and image processing, computer vision, natural language processing, speech recognition, and big data, among others. It also seeks to promote and disseminate research in pattern recognition in a lasting way for the benefit of the community nationally and internationally, contributing to the development of its members through academic and research exchange.

With the valuable support of Professor Sergio Velastin, IAPR Membership Committee representative for Latin America, the ACORP was able to apply to become an official member of the IAPR. The IAPR accepted ACORP's application at the Governing Board meeting, which took place at ICPR-2022 in Montréal - Canada, in August 2022.

ACORP has more than 25 members, mainly from universities and teaching and research institutions in all regions of Colombia. It periodically holds meetings to disseminate and present research results on topics of interest and to conduct strategic planning.

The activities and dissemination meetings are held monthly, seeking to be spaces for communicating, discussing progress on pattern recognition, and generating opportunities for collaboration and integration among all members. Thanks to the support of the Universidad Señor de Sipán, the monthly conferences are disseminated among researchers based in Peru. Since their first editions, the ACORP dissemination meetings have counted on the active participation of researchers from Colombia, Peru, Chile, Spain, and Germany. Additionally, the videos of these conferences will be open for free use and available on the ACORP website.

The strategic management meetings aim to fulfill ACORP's objectives and are attended by all ACORP members. Professor Manuel G. Forero chairs these meetings, and his leadership brought together pattern recognition researchers in Colombia for the official formation of ACORP. Currently, serving ACORP as vice-president and secretary are Professors Iván Cabezas and Jorge Espinosa.

ACORP is already working on planning a first meeting and a series of conferences, inviting the participation of its members, and the general public with interest in the area of pattern recognition.

More information about ACORP is available at: *https://sco2.org/reconocimiento-de-patrones/*

ICPR 2024 INDIA

https://iapr.org/icpr2024

27TH International Conference on Pattern Recognition
December 01-05, 2024, Kolkata, India

PRELIMINARY CALL FOR PAPERS

(Information tentatively listed and subject to final approval by IAPR. More will be added soon)

General Chairs
Umapada Pal, India
Josep Kittler, UK
Anil Jain, USA

Program Chairs
Rama Chellappa, USA
Apostolos Antonacopoulos, UK
Cheng-Lin Liu, China
Subhasis Chaudhuri, India

Workshop Chairs
Edwin Hancock, UK
P. Shivakumara, Malaysia
Stephanie Schuckers, USA
Jean-Marc Ogier, France

Tutorial Chairs
B. B. Chaudhuri, India
Guoying Zhao, Finland
Michael R. Jenkin, Canada

Competition Chairs
Richard Zanibbi, USA
Lianwen Jin, China
Laurence Likforman, France

Doctoral Consortium Chairs
Daniel Lopresti, USA
Véronique Eglin, France
Mayank Vatsa, India

Publicity Chairs
Dipti Prasad Mukherjee, India
Bob Fisher, UK
Xiaojun Wu, China

Publications Chairs
Wataru Ohyama, Japan
Ananda S. Chaudhury, India

Awards Committee Chair
Arpan Pal, India

International Liaison / Visa Chairs
Palash Ghosal, India
Yue Lu, China, China

Finance Chairs
Kaushik Roy, India
Michael Blumenstein, Australia

Organizing Chairs
Saumik Bhattacharya, India
Sk Md Obaidullah, India
Swagatam Das, India

The International Conference on Pattern Recognition (ICPR) is the flagship conference of the International Association of Pattern Recognition (IAPR) and the premier conference in pattern recognition, covering computer vision, image, speech and video processing, machine intelligence, and other related areas. It is a 5-day event that comprises the main conference, Workshops, Tutorials, different Competitions, Doctoral Consortium etc. ICPR-2024 is the 27th event of the series and it provides a great opportunity to nurture new ideas and collaborations for students, academics and industry researchers.

Main Topics of Interest

ICPR-2024 has 6 tracks as follows:

- Artificial Intelligence, Machine Learning for Pattern Analysis
- Computer and Robot Vision
- Image, Speech, Signal and Video Processing
- Biometrics and Human Computer Interaction
- Document Analysis and Recognition
- Biomedical Imaging and Bioinformatics

Important Dates

- First Call for Papers: August 2022
- Second Call for Papers: August 2023
- Paper submission open: March 1, 2024
- Paper submission deadline: May 1, 2024
- Reviews sent to authors: July 25, 2024
- Author rebuttal: August 5, 2024
- Acceptance notification: August 15, 2024
- Camera-ready submission: September 15, 2024
- Conference: December 1-5, 2024

Submission and Review

ICPR-2024 will follow a single-blind review process. Authors can include their names and affiliations in the manuscript.

Paper Format and Length

IEEE Conference Proceedings format with maximum 6 pages (without bibliography) during paper submission. The authors will have an option of purchasing up to 1 extra page to take care of the reviewers' comments, if necessary. This will have to be paid after paper acceptance and at the time of registration.

Contact: For any enquiry please contact the ICPR-2024 Secretariat via email at icpr2024@gmail.com and icpr2024@isical.ac.in

Track Chairs

Track 1: Artificial Intelligence, Machine Learning for Pattern Analysis
Larry O'Gorman, USA
Petia Radeva, Spain
Sushmita Mitra, India
Dacheng Tao, Australia

Track 2: Computer and Robot Vision
Maja Pantic, UK
C. V. Jawahar, India
João Paulo Papa, Brazil

Track 3: Image, Speech, Signal and Video processing
P. K. Biswas, India
Shang-Hong Lai, Taiwan

Track 4 : Biometrics and Human Computer Interaction
Massimo Tistarelli, Italy
Wei-Shi Zheng, China
Richa Singh, India
Vishal Patel, USA

Track 5: Document Analysis and Recognition
Xiang Bai, China
Josep Llados, Spain
Mita Nasipuri, India
David Doermann, USA

Track 6: Biomedical Imaging and Bioinformatics
Xiaoyi Jiang, Germany
Seong-Whan Lee, Korea
J. Mukhopadhayaya, India

Women in ICPR Chairs
Ingela Nyström, Sweden
Alexandra B. Albu, Canada
Jing Dong, China
Sarbani Palit, India

Sponsorship Chairs
P. J. Narayanan, India
Yasushi Yagi, Japan
Venu Govindaraju, USA
Alberto Del Bimbo, Italy

ORGANIZING / TECHNICAL PARTNERS

https://iapr.org/icpr2024

icpr2024@gmail.com / icpr2024@isical.ac.in

IAPR Technical Committee News

In this issue: TC20 Pattern Recognition for Bioinformatics and Digital Health

Editor's note: TC20, formerly Bioinformatics and now Pattern Recognition for Bioinformatics and Digital Health, was reformed during 2021. The Bioinformatics-only TC had been inactive for many years and was suspended in 2018. With new leadership, motivation and goals, TC20 was reinstated by the IAPR Governing Board during its biennial meeting during ICPR 2022. Please see the ICPR 2022 Highlights in this issue for other news from the Governing Board Meeting and a report on PRHA2022, the workshop organized by IAPR TC20.

~ Jing Dong, EiC

IAPR TC20 Pattern Recognition for Bioinformatics and Digital Health

https://iapr.org/tc20

Bert Arnrich (University of Potsdam, Germany) Chair
Arzucan Özgür (Boğaziçi University, Turkey) Vice Chair
İnci M. Baytaş (Boğaziçi University, Turkey), Communications Officer

Motivation and Goals:

IAPR TC20 aims to pursue cutting-edge developments in pattern recognition for health and to encourage interdisciplinary collaborations at the intersection of pattern recognition and bioinformatics, biomedical informatics, and digital health analytics. The activities organized by TC20 will enable a two-way knowledge transfer between pattern recognition and health domains.

Pattern recognition has been offering essential tools for extracting meaningful information from biological and clinical data leading to frameworks that support clinical decision-making and research. In recent years, pattern recognition techniques have been successfully applied to various healthcare tasks, such as risk prediction, patient subtyping, and medical text classification. Healthcare tasks pose numerous challenges for pattern recognition. The heterogeneous, high-dimensional, non-linear, temporal, and distributed nature of the patient and biological data complicates traditional techniques. Such challenges inspire the pattern recognition domain to explore new ideas to solve specific challenges in the health domain.

The technical committee will play a role in encouraging pattern recognition researchers to tackle specific challenges in healthcare. The scope of the TC20 includes but is not limited to

- Biomedical informatics
- Digital health
- Pervasive health
- Bioinformatics
- Computational biology
- Health informatics
- Cheminformatics

The first event TC20 organized was the ICPR 2022 Workshop on Pattern Recognition in Healthcare Analytics, held virtually on August 21 st , 2022. (see report in the ICPR 2022 Highlights section of this issue).

Event website: *https://iapr.org/prha2022*

Contact:
İnci M. Baytaş, Department of Computer Engineering, Boğaziçi University, Turkey
inci.baytas@boun.edu.tr

ICPR 2022 Highlights

Comments from the ICPR 2024 General and Program Chairs

General Chair Michael Jenkin welcomes delegates to ICPR 2022. Seated are Program Chairs Gregory Dudek, Ingela Nyström, and Simone Marinai. Missing are General Chairs Henrik Christensen and Cheng-Lin Liu and Program Chair Zhouchen Lin.

Photo: Andrew Monia http://www.andrewmonia.com

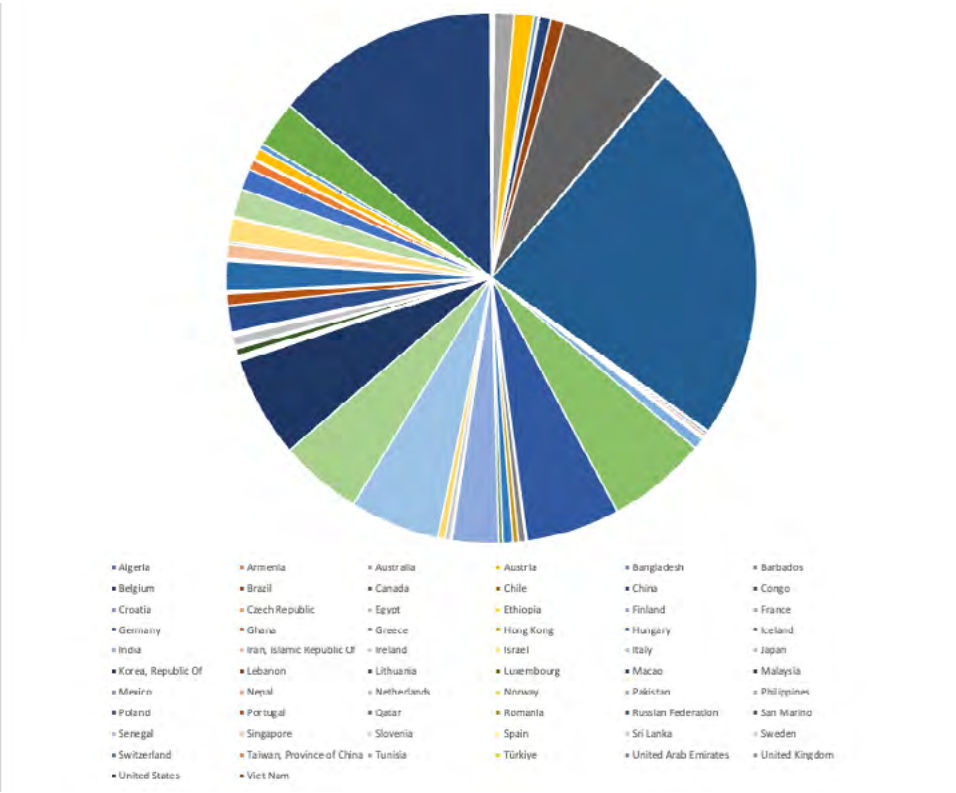
The 26th International Conference on Pattern Recognition, ICPR 2022, successfully convened in hybrid mode August 21-25, 2022, in Montreal, Canada. Although originally planned as a full in-person event, the ongoing pandemic required that the conference operate in a hybrid mode. Despite the physical absence of some attendees, the conference was a success, and many of us who were physically present took great pleasure in seeing our colleagues face-to-face again and appreciated the ability to see many presentations in person.

We had 1070 registered attendees from 62 countries (see chart on next page). In addition to the main conference, the ICPR 2022 program included 24 workshops, 6 tutorials, and 7 challenges. The main conference was organized into six tracks: Artificial Intelligence, Machine Learning for Pattern Analysis; Computer Vision and Robotics and Intelligent Systems; Image, Video, Speech, and Signal Analysis; Biometrics, Human Analysis and Behavior Understanding; Document and Media Analysis; and Biomedical Image Analysis and Informatics.

The ICPR main conference employed a two-round review process. In the first round papers were either accepted, rejected or invited to resubmit the manuscript after revision. Over the two rounds there were a total of 1547 submissions of which 716 were accepted. Papers were submitted from 68 countries.

We were honored to feature eight exceptional Keynotes in the program of the ICPR 2022 main conference: Tieniu Tan (IAPR 2022 King-Sun Fu Prize), Yunhong Wang (IAPR 2022 Maria Petrou Prize), and Jiliang Tang (IAPR 2022 J. K. Aggarwal Prize), C. V. Jawaharar, Hatice Gunes, Xian-Sheng Hua, Kristen Grauman and Marleen de Bruijne.

ICPR 2022 Highlights



Several best paper prizes were awarded, including the Piero Zamperoni Award for the best paper authored by a student, the Best Industry Related Paper Award (BIRPA), and per-track Best Scientific Paper Awards and Best Student Paper Awards, as described elsewhere in this special issue of the *IAPR Newsletter*.

The success of such a large conference would not have been possible without the help of many people. We deeply appreciate the vision, commitment, and leadership of the ICPR 2022 Track Chairs, the Associate Editors, and the Reviewers. We also want to acknowledge the efforts of the conference committee, including the Challenge Chairs, the Local Chair, Financial Chairs, Invited Speakers Chairs, Publication Chair, Tutorial Chairs, Women in ICPR Chairs, and Workshop Chairs. Many thanks, also, for the efforts of the dedicated staff from MCI who performed the crucially important work behind the scenes.

Throughout the planning process, the advice and guidance from the IAPR ExCo were most appreciated. Finally, we are grateful to the conference sponsors for their generous support of the ICPR 2022 conference.

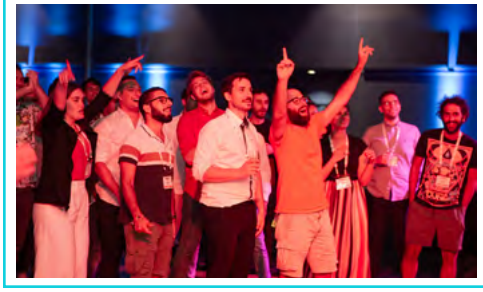
Henrik I. Christensen, Michael Jenkin and Cheng-Lin Liu – General Chairs

Gregory Dudek, Zhouchen Lin, Simone Marinai, and Ingela Nyström – Program Chairs

Scenes from the Conference Dinner

Photos: Andrew Monia http://www.andrewmonia.com/

Band: The Directors https://thedirectors.ca/



Winner of the 2022 K. S. Fu Prize

Tieniu Tan (谭铁牛)

Institute of Automation, Chinese Academy of Sciences (CASIA), China

For pioneering and landmark contributions to biometrics with practical applications

Iris Recognition: Progress and Challenges

Abstract: Iris recognition has proven to be a most reliable biometric solution for personal identification and has received much attention from the pattern recognition community. However, it is far from being a solved problem as many open issues remain to be resolved to make iris recognition more user-friendly and robust. In this talk, I will present an overview of our decades' efforts on iris recognition, including iris image acquisition, iris image pre-processing, iris feature extraction and security issues of iris recognition systems. I will discuss our most recent work on light-field iris recognition and all-in-focus simultaneous iris recognition of multiple people at a distance. Examples will be given to demonstrate the successful routine use of our work in a wide range of fields such as mobile payment, banking, access control, welfare distribution, etc. I will also address some of the remaining challenges as well as promising future research directions before closing the talk.

Summary (by Larry O'Gorman): Professor Tieniu Tan of the Institute of Automation, Chinese Academy of Sciences (CASIA) in China was the recipient of the King-Sun Fu Prize. This prize is given to a living person in recognition of an outstanding technical contribution to the field of pattern recognition. It honors the memory of Professor King-Sun Fu who was instrumental in the founding of IAPR, served as its first president, and is widely recognized for his extensive contributions to the field of pattern recognition.

The title of Professor Tan's talk was, "Iris Recognition: Progress and Challenges". The human iris has been considered a highly distinctive biometric since its first publication in the early 1990s. One current challenge is acquisition, in particular extending iris capture from a single person facing a camera at close range to capturing iris images from multiple people at distances ranging from 1-3 meters and across a field of view up to 360°. For such acquisitions, iris image preprocessing is very challenging, for instance, localization, deformation correction due to off-angle capture, and specular noise reduction. Besides human iris recognition, Professor Tan spoke of iris recognition for animals. His lab has collected 40,000 iris images from 2,000 dogs, developed a portable device for acquisition, and with 99% accuracy, this has become a less intrusive alternative to tattooing or microchipping a pet.

Five iris challenges were mentioned: 1) the desire for less user constraint during capture, 2) occlusion and capture angle, 3) heterogeneous acquisition distance, 4) spoofing, and 5) fairness, privacy, and security. Some future innovations include hardware/software co-design, device-agnostic recognition, and central cloud processing. Finally, he spoke of the fusion of iris and face recognition for added robustness of these two at-a-distance and unconstrained modalities.

Tieniu Tan received his BSc from Xi'an Jiaotong University in 1984, and his MSc and PhD from Imperial College London in 1986 and 1989 respectively. He subsequently moved to The University of Reading to work at the Department of Computer Science. He returned to China in 1998 to join the National Laboratory of Pattern Recognition (NLPR) at the Institute of Automation of the Chinese Academy of Sciences. He is currently Professor and Director of the Research Center for Intelligent Perception and Computing (CRIPAC) of the Institute. He has served as member of many committees and editorial boards including President of IEEE Biometrics Council, Vice President of IAPR, General Chair of ICPR 2018 and Editor-in-Chief of Machine Intelligence Research. He has published over 600 papers in refereed international journals and conferences, with current research interests in biometrics, computer vision, visual content forensics and multi-modal intelligence. He is a Fellow of Chinese Academy of Sciences, TWAS, IEEE and IAPR, and an International Fellow of the UK Royal Academy of Engineering and a Corresponding Member of the Brazilian Academy of Sciences.

Winner of the 2022 J.K. Aggarwal Prize

Jiliang Tang

Michigan State University, USA

For fundamental contributions to learning and recognition on graphs, and for application of graph networks in social media, education and biology

Graph Neural Networks: Models, Trustworthiness, and Applications

Abstract: Graph Neural Networks (GNNs) have shown their power in graph representation learning. They have advanced numerous recognition and learning tasks in many domains such as biology and healthcare. In this talk, I will first introduce a novel perspective to understand and unify existing GNNs that paves a principled and innovative way to design new GNN models. As GNNs become more pervasive, there is an ever-growing concern over how GNNs can be trusted. Then I will discuss how to build trustworthy GNNs. Given that graphs have been leveraged to denote data in real-world systems, I will finally demonstrate representative applications of GNNs.

Summary (by Larry O'Gorman): Professor Jiliang Tang, of the Data Science and Engineering Lab of Michigan State University received the J.K. Aggarwal Prize. This prize is given to a young scientist who has brought a substantial contribution to a field that is relevant to the IAPR community and whose research work has had a major impact on the field. Professor Aggarwal is widely recognized for his extensive contributions to the field of pattern recognition and for his participation in IAPR's activities.

The title of Professor Tang's talk was "Graph Neural Networks GNN): Models, Trustworthiness, and Applications." Professor Tang began by describing the key to the work described in his talk to be how a GNN foundation facilitates graph representational learning. From the many applications whose entities can be described in graph format, including biometrics, computer vision, and natural language, Professor Tang chose a biology application to speak in detail, single cell analysis whose features include genomic variants, genetic regions, genes, proteins, and metabolites. A challenge in this analysis is the multimodal aspect of the features listed, which require heterogeneous graphs, those that contain for instance, genes and cells. Professor Tang's group has created and made available the DANCE tool for this application, Deep Learning Library and Benchmark for Single-Cell Analysis.

Several future challenges were described. Trustworthiness and understanding relate to the appropriateness of the graph representation to an application. Because many applications contain heterogeneous components, a question of appropriateness involves the quality of homophily versus heterophily, that is the degree of similarity of types of nodes. However, as for the single-cell application, applications involving heterophily are possible. Finally, related to appropriateness is the effort to find new applications for the GNN approach. One new application to which GNNs have recently been applied is deep learning chip development.

Jiliang Tang is a University Foundation Professor in the computer science and engineering department at Michigan State University. He was an Associate Professor (2021-2022) and an Assistant Professor (2016-2021) in the same department. Before that, he was a research scientist in Yahoo Research.

He got his Ph.D. from Arizona State University in 2015 and MS and BE from Beijing Institute of Technology in 2010 and 2008, respectively. His research interests include graph machine learning, trustworthy AI, and their applications in Education and Biology. He authored the first comprehensive book "deep learning on graphs" with Cambridge University Press. He was the recipient of various career awards (2022 SIAM SDM, 2021 IEEE ICDM, 2021 IEEE Big Data Security, 2020 ACM SIGKDD, 2019 NSF), and 8 best paper awards (or runner-ups) including WSDM2018 and KDD2016.

Winner of the 2022 Maria Petrou Prize

Yunhong Wang

Beihang University, China

For contributions to pattern recognition and biometrics, service to the IAPR community and being a role model as leading scientist

Towards Practical Biometrics: Face and Gait

Abstract: Biometrics are unique physical or behavioural characteristics that can be adopted for identification. In the last few years, substantial advancements have been made in this field with the development of deep learning theories and technologies. This is evidenced by not only the high results on large-scale benchmarks but also the attempts accounting for soft-biometrics, including gender, expression, age, etc. Meanwhile, recent studies show additional challenges in uncontrolled conditions, such as severe variations in scale, pose, illumination, occlusion and cluttered background, which should be well handled for real-world applications. This talk focuses on two typical representatives, face recognition and gait recognition, with dedicatedly designed deep learning based methodologies towards practical use, covering the tasks from identity recognition to attribute analysis, presenting the latest progress on the interpretability and robustness of deep neural networks. Finally, some perspectives are discussed to facilitate future research.

Summary (by Larry O'Gorman): Professor Yunhong Wang of the School of Computer Science and Engineering at Beihang University in China was the recipient of the Maria Petrou Prize. This prize is given to a living female scientist/engineer who has made substantial contributions to the field of Pattern Recognition and whose past contributions, current research activity and future potential may be regarded as a model to both aspiring and established researchers. It honors the memory of Professor Maria Petrou as a scientist of the first rank, and particularly her role as a pioneer for women researchers.

The title of Professor Wang's talk was "Toward Practical Biometrics: Face and Gait." She spoke about two biometrics, face, which she described as the most widely deployed biometric, and gait, which has complementary applications to those traditionally used for authentication. One of the advances in face identification and authentication has been the use of 3D to enhance both recognition robustness and resistance to spoofing over 2D face images. Professor Wang discussed this use for authentication and for soft biometrics, the latter which she demonstrated the use of deep GANs to enable smooth transition of face structure as aging progresses.

Professor Wang transitioned to dynamic signals for her work on gait recognition because she has found these features to be more robust than static, template-based features. She identified two challenges of this work, determination of robust features from a range of views of a person walking (not just perpendicular to their path), and scenario change, which includes robustness across environments such as walking surfaces, turning while walking, and carrying objects. One of the interesting points she mentioned was that including background features in gait recognition enhanced accuracy versus simply extracting the dynamic foreground as may be the more obvious approach. Although current accuracy rates for gait recognition are much lower than for static biometrics (low 90% versus high 90% range), gait has good use for reidentification and as a preliminary step toward higher-accuracy recognition modes.

Keynote Speakers

C. V. Jawahar

C. V. Jawahar is a Professor at International Institute of Information Technology (IIIT) Hyderabad, India. He worked with the Center for Artificial Intelligence and Robotics, Bangalore until December 2000, before moving to IIT, Hyderabad.

His interest lies in problems that overlap with computer vision, machine learning and multimedia systems. He has published in broad areas including document image understanding, audio visual processing and multimedia retrieval. He is also interested in applications in road safety, assistive technologies, healthcare, cultural heritage, and entertainment.

Talk: Towards Multimodality in Perception Tasks

Hatice Gunes

Hatice Gunes is a Professor of Affective Intelligence and Robotics (AFAR) and the Head of the AFAR Lab at the University of Cambridge's Department of Computer Science and Technology.

Her expertise is in the areas of affective computing and social signal processing cross-fertilising research in multimodal interaction, computer vision, signal processing, machine learning, and social robotics. She has published over 125 papers in these areas (H-index=34, citations > 6,000), with most recent works on lifelong learning for facial expression recognition, fairness, and affective robotics; and longitudinal HRI for wellbeing.

Her research highlights include RSJ/KROS Distinguished Interdisciplinary Research Award Finalist at IEEE RO-MAN'21, Distinguished PC Award at IJCAI'21, Best Paper Award Finalist at IEEE RO-MAN'20, Finalist for the 2018 Frontiers Spotlight Award, Outstanding Paper Award at IEEE FG'11, and Best Demo Award at IEEE ACII'09.

Prof Gunes is the former President of the Association for the Advancement of Affective Computing (AAAC), and was the General Co-Chair of ACII'19, and the Program Co-Chair of ACM/IEEE HRI'20 and IEEE FG'17. She is a member of the Human-Robot Interaction Steering Committee and was the Chair of the Steering Board of IEEE Transactions on Affective Computing (2017-2019). In 2019 she was awarded the prestigious 5-year EPSRC Fellowship as a personal grant to investigate adaptive robotic emotional intelligence for wellbeing and was named a Faculty Fellow (2019-2021) of the Alan Turing Institute – UK's national centre for data science and artificial intelligence.

Talk: Artificial Emotional Intelligence: Quo Vadis?

Keynote Speakers (continued)

Kristen Grauman

Kristen Grauman is a Professor in the Department of Computer Science at the University of Texas at Austin and a Research Director in Facebook AI Research (FAIR).

Her research in computer vision and machine learning focuses on visual recognition, video, and embodied perception. Before joining UT-Austin in 2007, she received her Ph.D. at MIT. She is an IEEE Fellow, AAAI Fellow, Sloan Fellow, and recipient of the 2013 Computers and Thought Award. She and her collaborators have been recognized with several Best Paper awards in computer vision, including a 2011 Marr Prize and a 2017 Helmholtz Prize (test of time award). She served/serves as an Associate Editor-in-Chief for PAMI and as a Program Chair of CVPR 2015, NeurIPS 2018, and ICCV 2023.

Talk: Audio Visual Learning

Marleen de Bruijne

Prof. Dr. Marleen de Bruijne is professor of AI in medical image analysis at Erasmus MC, The Netherlands, and at the University of Copenhagen, Denmark. She received an MSc degree in physics (1997) and PhD degree in medical imaging (2003) from Utrecht University. From 2003 to 2006 she was assistant professor and later associate professor at the IT University of Copenhagen, Denmark. Prof. de Bruijne has (co-)authored 230 peer-reviewed full papers in international conferences and journals, holds 7 patents, is the recipient of the prestigious NWO-VENI, NWO-VIDI, NWO-VICI, and DFF-YDUN awards, and is elected fellow of the MICCAI Society. She has (co)-supervised 30 PhD students. She is program chair of the international conferences MICCAI (2021) and MIDL (2021, 2020) and is a regular member of the program committees of MIDL, MICCAI, SPIE Medical Imaging, ISBI, and IPMI. She is chair of the EMBS Technical Committee on Biomedical Imaging and Image Processing and member of the MICCAI board, the ISBI Steering Committee, the Information Processing in Medical Imaging (IPMI) board, and the editorial boards of IEEE Transactions on Medical Imaging, Medical Image Analysis, Journal of MachinE Learning for Biomedical imAging, and Frontiers in ICT. Her research is in machine learning for quantitative image analysis and computer aided diagnosis in different application areas.

Talk: Learning with less in medical imaging

Xian-Sheng Hua

Dr. Xian-Sheng Hua is now a Distinguished Engineer, Vice President of Alibaba Group, Head of City Brain Lab of DAMO Academy, leading a team working on large-scale visual intelligence systems on the cloud, covering areas such as smart city, healthcare, industrial manufacturing, agriculture, and the Internet. Dr. Hua is an IEEE Fellow, and an ACM Distinguished Scientist. He received the B.S. degree and the Ph.D. degree in applied mathematics in 1996 and 2001, respectively, both from Peking University, Beijing, China. He has authored or coauthored more than 200 research papers and has more than 60 granted patents. His research interests include big multimedia data analysis, search, and mining, as well as pattern recognition and machine learning. Dr. Hua served or is now serving as an Associate Editor for the IEEE Trans. on Multimedia, ACM Transactions on Intelligent Systems and Technology and IET Smart Cities. He served as a Program Co-Chair for IEEE ICME 2013, ACM Multimedia 2012, and IEEE ICME 2012. He was one of the recipients of the 2008 MIT Technology Review TR35 Young Innovator Award for his outstanding contributions on video search. Dr. Hua also served as the leading general co-chair of ACM Multimedia 2020.

Talk: Scalable Real-World Visual Intelligence System - from Algorithm to Platform to Application

ICPR 2022 Highlights - W4PR Panel

Support for equity, standing up against marginalization of under-represented groups, and authentic inclusiveness are long-standing values of our IAPR community. How can we efficiently and effectively pursue these values? What can we do better to encourage new attitudes, systems, and processes that are more suited to our goals?

The aim of this panel was to try to tackle these questions as well as other relevant questions from the audience. Panelists included established and early career women researchers.

The panel is an initiative of the IAPR Equality, Diversity and Inclusion (EDI) committee led by Maria De Marsico.

by Silvia Cascianelli, PhD, Assistant Professor (RTD-A), University of Modena and Reggio Emilia

During, ICPR 2022, the IAPR Equality, Diversity, and Inclusion (EDI) Committee organized the Women for Pattern Recognition (W4PR) panel aimed at tracing a picture of the current state of the research community in terms of equity and inclusiveness and discussing possible initiatives towards a more fair and welcoming research environment.

Both well-established and early-career women researchers from different countries participated in the panel, namely Prof. Alexandra Branzan Albu (University of Victoria, Canada), who also moderated the panel, Prof. Ingela Nyström (Uppsala University, Sweden), Prof. Nina S. T. Hirata (University of São Paulo, Brazil), and Dott. Silvia Cascianelli (University of Modena and Reggio Emilia, Italy). The event was attended by a large number of ICPR delegates, but here's the gist for those who could not join.

The discussion was organized into questions from the moderator and the public, which are as follows.

In your opinion, and based on your lived experience, what are the biggest hurdles that women researchers face in the advancement of their careers? The main difficulties pointed out were related both to life choices that women find themselves having to make (i.e., personal) and to bias and misconceptions encountered at the workplace (i.e., environmental). As an example, the panelists referred to the necessity to stop or at least pause traveling for conferences when becoming parents, which might limit their opportunities to build their international collaboration network. Other aspects pointed out concern the preconceptions that co-workers can have about women co-workers, due to the fact that they are not used to having a woman colleague in a leading position (as an example, most of the time applicants for Ph.D. or research positions write their application letters assuming it will be evaluated by a man). The third

point raised applies to minorities in general and the initial difficulty in engaging or being engaged in casual conversations, which is usually the quickest way to build trust, strengthen relationships, ease also professional communication, and thus, create a better working environment.

Please share with us one key moment from your career or personal life when being a woman made all the difference. Parenthood was also mentioned in the discussion of this point. It emerged that even researchers who are dedicating all their energy to advancing their careers (which is sometimes particularly hard for those belonging to minorities), when becoming a parent, find themselves in the position to reconsider their life-work balance and value it more. From the personal experience of the panelists, pursuing this balance increased the quality of their research, thus making parenthood a positive turning point in their career.

Other than that, pinpointing key moments when being a woman was detrimental was also acknowledged. The panelists referred to general, little discrimination episodes when they were unheard in favor of male colleagues saying the same thing that might have obtained more opportunities as a result.

On the other hand, episodes were mentioned that put the woman researcher in a position to accept unique professional opportunities. In particular, initiatives involving travel grants for women and other minorities to attend conferences and "positive discrimination" policies in the workplace (e.g., it can be considered "fancier" to send a woman as a delegate to certain events).

What advice do you have for young women researchers entering the field of pattern recognition?
The discussion on this question can be summarized in the following two pieces of advice that don't apply solely to young women researchers:

1. Although it could be unfair if you feel like you need to work twice as hard and stand up twice as tall for yourself compared to your co-workers in order to be recognized and heard and you deem being recognized and heard important (which you should), then do it: work twice as hard and stand up twice as tall, but do not overlook your work-life balance.
2. Find yourself a mentor: someone who values you and can guide you in your career and possibly help you find opportunities. Finding a mentor can be difficult, but don't be afraid to ask, knock on doors, and be assertive when it comes to your career

Do you have any suggestions on how to tackle the problem of the gender gap in our field, and in general in STEM disciplines? Many ideas emerged on this point, starting from outside the Pattern Recognition field. These entail trying to teach kids that STEM disciplines are interesting and can be very satisfying so they feel less intimidated.

In addition to this, it is important to share the success stories of both men and women in STEM research to create the narrative that gender bias in the STEM disciplines is unjustified.

Encouraging young women researchers to enter the Pattern Recognition field is important, but it is also important to make them stay once in the field. This can be achieved by creating a pleasant and supportive work environment, and openness and diversity are two of its key ingredients.

More practically speaking, among the specific initiatives that were suggested were the ideas of organizing a (paid) childcare service at conferences to encourage parents to attend and organizing region-level or nation-level travel to conference venues that could help those who are worried to travel alone and also serve as great occasions to strengthen the IAPR network.

Interesting questions were also raised by the public during the discussion. Among those, was a reflection on whether a person belonging to a minority group should change their behavior to adapt and blend into the majority group in their working environment. As for the previously mentioned points, individuality and diversity are resources that should not get lost in the working environment. Instead, proactively looking for a common ground for casual conversation can and should be initiated also by the person in the minority group.

Another interesting point concerned the role of virtual meetings in building and managing professional relationships. In the ambit of fairness and equality, virtual meetings can be a resource by making the attendees more neutral towards the others (for not being able to see them completely)

and by offering the same opportunity and time to express their thoughts to all the attendees (when well moderated). Both these characteristics help reduce potential bias and build trust.

Very positive feedback about the panel was collected. Among those, an emblematic example is the comment of a young attendee that he was positively surprised by the panel: he came there with some preconception that it would have been a bit cliché but instead found it super interesting and got to reflect on things that emerged during the discussion, which he had never put attention to, but, as soon as they were mentioned, he "saw" them. As examples, he referred to the casual conversation topics between men and women co-workers and the application letter headings he gets to read.

It was a pleasure and an honor for all of the panelists to take part in the event, which hopefully will contribute to keeping the conversation about equality and inclusiveness of under-represented groups in the IAPR community active and fruitful.

Alexandra Branzan Albu (moderator) is a professor in the Department of Electrical and Computer Engineering at the University of Victoria (BC), Canada. Dr. Branzan Albu's research focus is on computer vision. From a practical standpoint, her contributions to this field address research questions that are closely linked to societal needs such as environmental monitoring, document image analysis, and medical imaging. Dr. Branzan Albu has served as the Special Advisor to the Dean of Engineering at UVic in 2021. She has a long-standing record of service on the IAPR executive committee, first as secretary, then as first vice-president, from 2014 to 2021.

Silvia Cascianelli (panel member) received the Ph.D. cum laude in Information and Industrial Engineering from the University of Perugia, in 2019, working on deep learning-based knowledge representation methods for service robotics applications. She was a Visitor Researcher at the Queen Mary University of London in 2018. Currently, she is an Assistant Professor with the Department of Engineering "Enzo Ferrari" at the University of Modena and Reggio Emilia. Her research interests include vision and language, embodied AI, and AI for cultural heritage. She regularly serves as a Reviewer for international conferences and journals and is an Associate Editor for the IEEE Robotics and Automation Letters.

Nina S. T. Hirata (panel member) is a professor in the Computer Science Department, Institute of Mathematics and Statistics, at the University of São Paulo, Brazil. Her research covers multiple aspects of Pattern Recognition, from concepts and algorithms to applications, especially in image processing and analysis. From an early stage, she has developed a particular interest in machine learning, and the emergence of Big Data scenarios led her to many opportunities for multidisciplinary research. Her current research projects involve problems in diverse fields such as Astronomy, Oceanography, Document and Biomedical Imaging. She also enjoys teaching and demystifying machine learning.

Ingela Nyström (panel member) is a professor with the Center of Image Analysis at Uppsala University, Sweden. Her research interests are interactive segmentation, visualization, digital geometry, and quantitative shape analysis of volume images with their medical applications. She has held a number of national and international leadership positions, for example, as the Director of the Centre for Image Analysis since 2012. She served as member of the IAPR Executive Committee (2nd Vice-President 2008-2010, Secretary 2010-2014, President 2014-2016, Past President 2016-2018). Currently, she is the Chair of the Board of the Swedish National Infrastructure for Computing (SNIC) as well as member of the Board of Directors of the Norwegian UNINETT Sigma2.

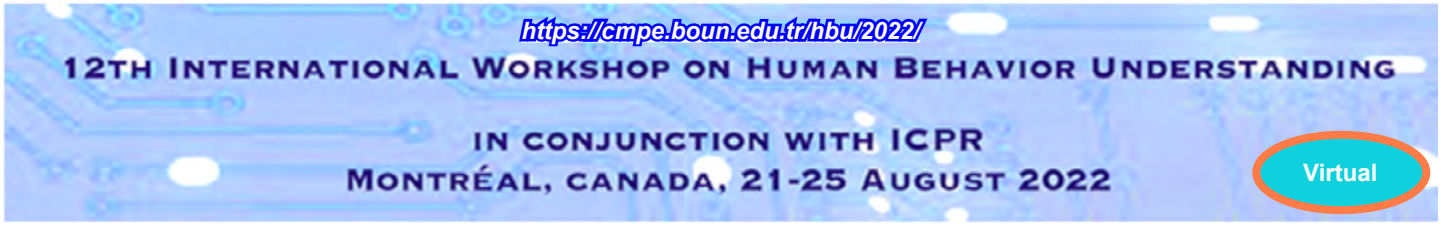
The 5th IAPR Workshop on Computer Vision for the Analysis of Underwater Imagery (CVAUI 2022), a flagship event of IAPR TC5 Computer Vision for Underwater Environmental Monitoring, was held in person in Montreal in conjunction with the International Conference on Pattern Recognition (ICPR) on 21 August 2022. This workshop further consolidated the series that was started in Stockholm (CVAUI 2014), and continued in Cancun (CVAUI 2016), Beijing (CVAUI 2018), and online (CVAUI 2020).

Monitoring marine and freshwater ecosystems is of critical importance in developing a better understanding of their complexity, including the effects of climate change and other anthropogenic influences. The collection of underwater video and imagery, whether from stationary or moving platforms, provides a non-invasive means of observing submarine ecosystems in situ, including the behaviour of organisms. Oceanographic data acquisition has been greatly facilitated by the establishment of cabled ocean observatories, whose co-located sensors support interdisciplinary studies and real-time observations. Scheduled recordings of underwater video data and static images are gathered with Internet-connected fixed and PTZ cameras, which observe a variety of biological processes. These cabled ocean observatories, such those operated by Ocean Networks Canada (www.oceannetworks.ca), offer a 24/7 presence, resulting in unprecedented volumes of visual data and a “big data” problem for automated analysis. Due to the properties of the environment itself, the analysis of underwater imagery imposes unique challenges which need to be tackled by the computer vision community in collaboration with biologists and ocean scientists.

This workshop provided a forum for researchers to share and discuss new methods and applications for underwater image analysis. We received 13 submissions, out of which 8 were accepted based on a thorough, single-blind peer review process. Most of the submitted papers were of high quality, so the acceptance rate reflects a self-selection process performed by the authors. We thank the members of Program Committee for lending their time and expertise to ensure the high quality of the accepted workshop contributions.

Two Keynote Lectures enhanced the workshop program. Dr. Filippo Ferario (Fisheries and Oceans Canada) presented ‘Machine Learning and AI for Underwater Imagery Analysis: a benthic ecologist's perspective’. Dr. Yogesh Girdhar (Woodshole Oceanographic Institution) spoke about ‘Enabling Ecologically Curious Robots for Monitoring Coral Reefs.

ICPR 2022 Highlights - IAPR Workshop Reports



Workshop Organizers:

Albert Ali Salah, Utrecht University, NL
Sergio Escalera, University of Barcelona, ES
Cristina Palmero, University of Barcelona, ES
Henning Müller, HES-SO, CH
Hugo Jair Escalante, INAOE, MX

Invited Speakers:

Juan Wachs, Purdue University, USA
Ehsan Hoque, University of Rochester, USA
Rich Caruana, Microsoft Research, USA

The 12th edition of the HBU Workshop had a focus theme of applications of human behavior analysis for clinical and behavioral sciences. Both the invited talks and most of the papers presented in the workshop discussed issues on reliable detection of behavioral cues usable in real-life settings, as well as challenges of deploying technologies around such approaches.

Within this context, Juan Wachs showcased hand gesture controlled robotic tools and virtual reality based tools in the healthcare and rehabilitation domains.

Rich Caruana discussed interpretable machine learning and glass-box models for clinical decision making.

Ehsan Hoque gave insights about deploying research as real-life applications, such as web-based diagnosis of movement disorders performing neurological tests.

Presented papers included further applications such as autistic behavior analysis, suicide risk assessment, interaction analysis for neurodiverse individuals.

Juan Wachs, "Bridging Fingers - Gestures for Knowledge Gain", Abstract: In this talk, I will discuss the importance of natural physical expression as means for interacting with devices, machines and robots in the healthcare domain. While the main discussion focus is on using gesture interaction, the area of embodiment will be explored as well. With the recent advent of commodity sensors, like the Kinect, Wii, Leap Motion and MYO arm bands, exciting and provocative directions of research and applications are gaining traction among the industry and academic communities. In this talk, I will discuss insights and findings about the use of gestures to control robots for collaboration with surgeons, for surgical training and for rehabilitation.

Rich Caruana, "Using Interpretable Machine Learning to Understand Clinical Behavior and Optimize Healthcare", Abstract: Clinicians are human just like everyone else. Because of this, they sometimes make suboptimal decisions or exhibit bias. We have developed a glass-box machine learning method that is as accurate as black-box methods such as deep neural nets, boosted trees and random forests on tabular clinical data, and yet which is fully interpretable. Using this model on clinical datasets has revealed a wealth of information about how clinicians make decisions. It has also suggested ways in which clinical decision making might be improved. Glass-box models trained on clinical data also demonstrate the risk of relying on black-box models in healthcare --- all clinical data has surprising flaws that cause models trained on them to be potentially risky. In the presentation we'll talk about human clinical decision making, surprises that are lurking in clinical data, using glass-box machine learning to optimize healthcare delivery, and methods for protecting privacy and detecting bias.

Ehsan Hoque, "Should we deploy our research?", Abstract: Deploying our research in the real world to collect and validate behavioral data from humans is labor intensive. The cycle requires designing a protocol, getting approval from IRB, building the data collection infrastructure, workforce to support the continuous data collection process, and ensuring the diversity and integrity of data. After all this incredible (and not publishable) amount of effort, the data could be incomplete, noisy, and mostly unusable. Should academics even worry about deploying their work or continue to push the algorithmic boundaries using available data? In this talk, I will share our years of experience deploying work in the real-world setting, from allowing people to practice public speaking to individuals with movement disorders performing neurological tests - using a computer browser and a webcam. I will highlight some of the 'accidental findings' through deployment and how they led to new scientific discoveries and research opportunities. The talk will provide guidelines on making the call on deployment in academic research and translating challenges into new opportunities.

IMTA-VIII-2022

8th International Workshop on Image Mining Theory and Applications

in conjunction with ICPR 2022; Montreal, Canada; August 21, 2022
https://iapr.org/imta2022

Virtual

Workshop Organizers:

IMTA-VIII-2022 was conducted by IAPR TC16 "Algebraic and Discrete Mathematical Techniques in Pattern Recognition and Image Analysis" of the International Association for Pattern Recognition (IAPR) and by the National Committee for Pattern Recognition and Image Analysis of the Russian Academy of Sciences.

Dr. Igor Gurevich, Russian Academy of Sciences, Russian Federation
Davide Moroni, National Research Council of Italy (CNR), Italy
Heinrich Niemann - Friedrich-Alexander-University of Erlangen-Nuremberg, Germany
Maria Antonietta Pascali, National Research Council of Italy (CNR), Italy
Dietrich Paulus, University Koblenz-Landau, Germany
Bernd Radig, Munich Technical University, Germany
Gerhard Ritter, University of Florida, USA
Vera Yashina, Russian Academy of Sciences, Russian Federation

IMTA-VIII-2022 was scheduled as a full-day event in conjunction with ICPR 2022. It consisted of invited talks, contributed talks, informal discussions and a wrap-up session.

The primary purpose of the IMTA workshops has been to provide the fusion of modern mathematical approaches and techniques for image analysis/pattern recognition with the requests of applications.

This year we received 38 submissions for reviews from authors belonging to 11 different countries. After the review process, 34 papers were accepted and, eventually, 23 regular papers were included in the workshop program for oral presentation. The review process, based on a minimum of two reviews for each paper, focused both on paper quality and prospective interest in the themes of the IMTA workshop. A number of invited talks further enriched the program.``

All the scheduled talks were presented by the authors themselves. Notably, we had peaks of more than 30 attendees, with at least about 20 participants throughout.

We would like to thank all the members of the Scientific Committee that, besides helping in the review process, provided useful comments and remarks contributing to the success of the workshop. The success of the event is more remarkable considering the persistence of the COVID19 outbreak and the difficulties due to the geopolitical crisis that made the physical organization of events very hard. Also, the IMTA organizing committee experienced some extra difficulties in the organization of the virtual event.

The National Committee on Pattern Recognition and Image Analysis of the Russian Academy of Sciences and IAPR TC 16 plan to continue the series of IMTA workshops.

Invited contributions:

Viktoriya Evdokimova, Sergey Bibikov, Artem Nikonorov "Meta-Learning Ap-proach in Diffractive Lens Computational Imaging" (Image Processing Systems Institute of the Russian Academy of Sciences – Branch of the Federal Science Research Center "Crystallography and Photonics", Samara, the Russian Federation);

Patrizio Frosini "A New Approach to Topological Data Analysis and Geometric Deep Learning through Group Equivariant Non-expansive Operators" (Depart-ment of Mathematics, University of Bologna, Bologna, Italy);

Igor Gurevich and Vera Yashina "On Modelling of Descriptive Image Analysis Procedures at Specialized Turing Machine" (Federal Research Center "Computer Sciences and Control" of the Russian Academy of Sciences, Moscow, The Russian Federation);

Nataly Ilyasova and Nikita Demin "Application of Artificial Intelligence in Ophthalmology for the Diagnosis and Treatment of Eye Diseases" (Samara National Research University, Branch of the Federal Science Research Center "Crystallography and Photonics", Samara, the Russian Federation);

Alexander Khvostikov, Andrey Krylov, Ilya Mikhailov and Pavel Malkov "Visualization of whole slide histological images with automatic tissue type recogni-tion" Lomonosov Moscow State University, Moscow, the Russian Federation.

MANPU 2022

In-person

The 5th International Workshop on
coMics ANalysis, Processing and Understanding

August 21, 2022
Montréal Québec, Canada

organized in conjunction with ICPR2022 The 26th International Conference on Pattern Recognition, Montréal Québec, Canada, August 21-25, 2022

General Co-Chairs:

Jean-Christophe Burie
Motoi Iwata
Miki Ueno

Program Co-Chairs:

Rita Hartel
Yusuke Matsui
Tien-Tsin Wong

MANPU is the main workshop related to comics. It gathers mainly researchers in the field of computer science, but also some researchers in the field of human sciences.

Comics is a medium constituted of images combined with text and graphic information in order to narrate a story. Nowadays, comic books are a widespread cultural expression all over the world.

From a research point of view, comics images are attractive targets because the structure of a comics page includes various elements (such as panels, speech balloons, captions, leading characters, and so on), the drawing of which depends on the style of the author and presents a large variability. Therefore, comics image analysis is not a trivial problem and is still immature compared with other kinds of image analysis. Moreover, digital comics such as webtoons introduce new challenges in terms of analysis and indexing.

For this edition, we received 11 submissions and accepted 8 papers after the peer-review process.

MANPU 2022 consisted of 3 sessions dealing with “panel detection and segmentation”, “text analysis in comic album”, and “content analysis in comic clbums”.

The workshop started with an invited talk. The speaker was the deputy editor of the SHUEISHA company. He presented the strategy of the company for deploying the Manga Plus website worldwide.

Datasets and Links:

eBDtheque consists of 100 images with ground truth for panels, speech balloons, tails, text lines, leading characters. *http://ebdtheque.univ-lr.fr/*

Manga109 consists of over 20 thousand images of 109 volumes (21,142 images). *http://www.manga109.org/en/*

What is Manga + by SHUEISHA. *https://www.shonenjump.com/mangaplus/whatismangaplus/*

Workshop Organizers:

Mariofanna Milanova, University of Little Rock, USA
Xavier Alameda-Pineda, INRIA, France
Friedhelm Schwenker, Ulm University, Germany

The goal of the 7th IAPR TC 9 Workshop on Pattern Recognition of Social Signals in Human-Computer-Interaction (MPRSS2022) was to bring together recent research in pattern recognition and human-computer-interaction.

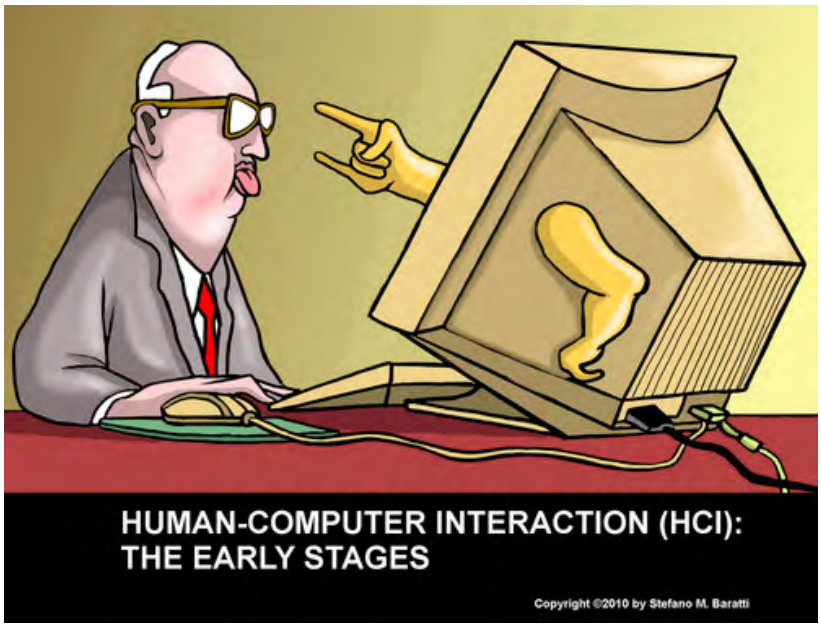
Research in the field of intelligent human-computer-interaction has made considerable progress in methodology and applications, however, building intelligent artificial companions capable of interacting with humans, in the same way humans interact with each other, remains a major challenge in this field. Pattern recognition and machine learning methodology play a major role in this pioneering field of research.

MPRSS 2022 was held as an online event.

This workshop would not have been possible without the help of many people and organizations. First of all, we are grateful to all the authors who submitted their contributions to the workshop. We thank the members of the program committee for performing the task of selecting the best papers for the workshop, and we hope that readers may enjoy this selection of papers and get inspired from these excellent contributions.

For the MPRSS 2022 workshop seven out of twelve papers were selected for publication. In addition to the regular presentations, program included an invited talk by Patrick Thiam, Ulm University on Deep Learning Architectures for Pain Recognition based on Physiological Signals as well as a tutorial session by Mariofanna Milanova entitled Deep Learning NVIDIA Tutorial.

MPRSS 2022 was sponsored by the International Association for Pattern Recognition (IAPR) and the IAPR Technical Committee on Pattern Recognition in Human Computer Interaction (TC 9).



Workshop Organizers:

İnci M. Baytaş, Boğaziçi University, Turkey
Edward Choi, Korea Advanced Institute of Science and Technology, South Korea
Arzucan Özgür, Boğaziçi, University, Turkey
Ayşe Başar, Ryerson University, Toronto, Canada (In transition to Boğaziçi University, Turkey)

Invited Speakers:

Kenney Ng
Ph.D. Principal Research Scientist, Accelerated Discovery, Healthcare and Life Sciences,
Senior Manager, Center for Computational Health, IBM Research AI, Cambridge, MA USA

Lale Akarun
1st Vice President, IAPR Executive Committee Member
Boğaziçi University, Istanbul Turkey

by Edward Choi

Healthcare analytics is an interdisciplinary domain aiming to assist physicians using computational techniques and digital health data.

Analyzing a vast amount of patient data is vital to infer the characteristics of a patient cohort. Pattern recognition offers essential tools for a wide variety of healthcare tasks, such as medical image processing and classification, risk prediction, disease progression, patient subtyping, and medical text classification.

Such tasks pose numerous challenges for pattern recognition. The heterogeneous, high-dimensional, non-linear, temporal, and distributed nature of the patient data complicate traditional techniques. Such challenges inspire the pattern recognition domain to explore new ideas to help solve specific problems in the healthcare domain.

The goal of the workshop was to present some of the latest developments in pattern recognition for healthcare analytics. The scope of the workshop entailed but was not limited to

- predictive modeling for heterogeneous patient data,
- disease progression modeling for temporal patient data,
- embedding learning for clinical notes,
- medical image classification, clustering for patient subtyping,
- patient similarity learning for personalized medicine,
- knowledge graph embedding for healthcare,
- interpretable models and
- interactive tools for clinical decision support.

PRHA 2022 was the first event sponsored by the newly revitalized IAPR TC20 on Bioinformatics and Digital Health. Please see the related article in this issue of the IAPR Newsetter.

Workshop Organizers:
Ribana Roscher
Charlotte Pelletier
Sylvain Lobry

The 2022 edition of PRRS was held in Montreal, Canada, in conjunction with the 25th International Conference on Pattern Recognition. The workshop format included two keynotes and nine oral presentations about the accepted papers.

11 manuscripts were submitted to the workshop and reviewed using a single-blind review process by a program committee of international experts. Nine papers were accepted, and all were presented as orals (virtual or on-site) during the workshop. This year, two keynotes were given that addressed current challenges in remote sensing.

One keynote was given by Prof. Elif Sertel (Istanbul Technical University) about 'Earth Observation Data for Geospatial Artificial Intelligence'.

The other keynote was given by Claudia Paris (University of Twente) with the title 'The Scarcity of Labels for Satellite Images: Opportunity and Challenges of Multi-source Geo-tagged Data'.

The papers were presented in three sessions: 'Learning with Multiple Models and Inputs', 'Analyzing and Interpreting SAR Imagery', and 'Semantic Segmentation and Detection'.

The papers cover a wide range of remote sensing application areas, including solar wind prediction, sea ice motion estimation, sea ice classification, road segmentation, tree detection, and utility network segmentation. The type of data considered by the papers varies from different sensors (optical and radar) to distinct remote sensing platforms (satellites, airborne).

Overall, the contributions of the nine accepted papers are in terms of new machine learning frameworks and novel neural network architectures. This includes, for example, novel and recent approaches for uncertainty quantification, few-shot learning, or self-training.

We take this opportunity to thank the program committee members for their efforts in the paper review. We also thank all the authors and the keynote speakers for their contributions, ESA Phi-Lab, IAPR, and the ISPRS for their sponsorship. We are grateful to the local organizers of ICPR 2022 for their assistance.

From the IAPR TC 7 website:

TC7 aims to promote pattern recognition methods for analyzing Earth observation data collected from satellites or airborne sensors. In addition, it offers an opportunity for interested researchers to understand better the many diverse research topics in remote sensing that require contributions from the pattern recognition community.

https://iapr.org/tc7

ICPR 2022 Highlights - IAPR Workshop Reports

by Bertrand Kerautret, Main Chair

The fourth edition of the IAPR endorsed Workshop on Reproducible Research in Pattern Recognition was held online on August 21, 2022, as a satellite workshop at ICPR. Following the three previous editions, this event covered advances on reproducibility platforms, on new reproducible research results, and on ICPR companion short papers. Taking advantage of the end of the pandemic, the workshop was able to present a full event in person, with only a few remote presentations.

The fourth edition of the IAPR endorsed Workshop on Reproducible Research in Pattern Recognition was held online on August 21, 2022, as a satellite workshop at ICPR. Following the three previous editions, this event covered advances on reproducibility platforms, on new reproducible research results, and on ICPR companion short papers. Taking advantage of the end of the pandemic, the workshop was able to present a full event in person, with only a few remote presentations.

As previous editions, four ICPR companion papers were accepted for oral presentation and the program was completed to form a total of seven presentations, including talks focused on concepts or experience feedback of reproducibility. 81% were authors who had never published at RRPR before. This rate is quite stable from the two previous editions (with successively 85% and 89%).

Motivated by the absence of contributions for the Reproducible Research framework, a new "Lightweight" presentation was proposed. This mode facilitates author participation by simply submitting an abstract first and allows authors more time to prepare their contributions to post proceedings. Each contribution was reviewed by three or four reviewers. The audience averaged 20 attendees (including authors presenting online).

For this edition, the event was extended beyond the workshop in two ways.

First, RRPR continued after ICPR with a new open poster presentation track at the second edition of the IAPR international conference DGMM (https://iapr.org/dgmm2022) that was held two months after RRPR. This new strategy was a step towards improving awareness of the RRPR events and also towards cross-fertilizing the topic of "reproducible research" across a wide range of IAPR activities, since it applies everywhere. In fact, this was the initial goal of embedding the RRPR workshop within ICPR.

Additionally, we were pleased to extend the workshop interaction beyond the workshop itself by including two focus groups initiated during the event. These focus groups are currently underway, and a concrete report incorporating the main discussion points is planned.

As usual, the proceedings will be published in Springer-Nature's LNCS series before the year's end.

XAIE 2022

2nd Workshop on Explainable and Ethical AI

in conjunction with ICPR 2022; Montreal, Canada; August 21, 2022
https://xaie-icpr.labri.fr/

In-person

Workshop Organizers:

Jenny Benois-Pineau, Univ. Bordeaux / LaBRI, France
Romain Bourqui, Univ. Bordeaux / LaBRI, France
Romain Giot, Univ. Bordeaux / LaBRI, France
Dragutin Petkovic, CS Department, San Francisco State University, USA

We are witnessing the emergence of an "AI economy and society" where AI technologies are increasingly impacting many aspects of business and everyday life. We read with great interest about recent advances in AI medical diagnostic systems, self-driving cars, the ability of AI technology to automate many aspects of business decisions like loan approvals, hiring, policing etc. However, as evidenced by recent experiences, AI systems may produce errors, can exhibit overt or subtle bias, may be sensitive to noise in the data, and often lack technical and judicial transparency and explainability. These shortcomings have been documented in the scientific—and importantly in the general—press (accidents with self-driving cars, biases in AI-based policing, hiring and loan systems, biases in face recognition systems for people of color, seemingly correct medical diagnoses later found to be made due to wrong reasons etc.). These shortcomings are raising many ethical and policy concerns not only in technical and academic communities, but also among policymakers and the general public, and will inevitably impede wider adoption of AI in society. While explainability and trustfulness are required nowadays for all AI tools, the development of these methods is far from being finished.

The problems related to Ethical AI are complex and broad technical, legal, political and ethical issues. One of the key components of Ethical AI systems is explainability, but other issues like detecting bias and the ability to control the outcomes and objectively audit AI systems for ethics are also critical for successful applications and adoption of AI in society. Consequently, explainable and ethical AI are current and popular topics in these communities.

XAIE 2022 was a follow-on to the first workshop on the subject, Explainable Deep Learning/AI, held at ICPR'2020.

In her welcome talk, Prof. Jenny Benois-Pineau gave insights on the development of XAI and its open research questions.

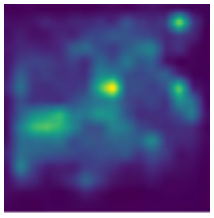
An invited talk by Carlos Toxtli-Hernandez, Clemson University, "Artificial Intelligence Tools to Promote Social Good in the Workplace" focused on ethical aspects of AI with human-centered approach with an interesting view on crowd workers and the impact of AI.

Seven presentations (6 long and 1 short) discussed various subjects related to explainability of AI methods. A variety of explainability technics were presented: features attribution (for classification and segmentation) with posthoc methods or attention, factual collection, counterfactuals generation, rule extraction. Two papers were related to the evaluation of XAI methods.

Each paper underwent a single blind review with three expert reviewers in the domain of AI. The program committee was composed of renowned researchers. The acceptance rate of full papers was 56% and for short papers – 50%.

Paper presentations sparked interest in the audience as expressed in numerous questions to the authors. There were 26 attendees in the conference room.

To illustrate, we use an image from Salicon data set http://salicon.net/ and its explanation map obtained by the MLFEM method published in *Luca Bourroux, Jenny Benois-Pineau, Romain Bourqui, Romain Giot: Multi Layered Feature Explanation Method for Convolutional Neural Networks. ICPRAI (1) 2022: 603-614*



ICPR 2022 Highlights - Non-IAPR Workshops @ ICPR

In addition to the 9 workshops discussed in the IAPR Workshops pages of this *Newsletter*, these 15 workshops, approved (but not sponsored or endorsed) by the IAPR took place.

A discussion of IAPR sponsorship/endorsement can be found here.

Workshop Title	Workshop Title
AI4D - **AI for De-escalation: Autonomous Systems for De-escalating Conflict in Military and Civilian Contexts (In-person)**	IML - 2nd International Workshop on Industrial Machine Learning (In-person)
AI4MFDD - **ICPR Workshop on Artificial Intelligence for Multimedia Forensics and Disinformation Detection (Virtual)**	MDMDR - **Multimedia Data for Mental Disorder Recognition (In-person)**
AIHA - **2nd International Workshop on Artificial Intelligence for Healthcare Applications (In-person)**	MMForWILD - **Workshop on MultiMedia FORensics in the WILD (Virtual)**
AMAR - **3rd Workshop on Applied Multimodal Affect Recognition (Virtual)**	PatReCH - **III International Workshop on Pattern Recognition for Cultural Heritage (Virtual)**
DLVDR - **Deep Learning for Visual Detection and Recognition (Virtual)**	SSL - **Theories, Applications, and Cross Modality for Self-Supervised Learning Models (Virtual)**
FairBio - **ICPR 2022 Workshop on Fairness in Biometric Systems (Virtual, see report below)**	T-CAP - **Towards a Complete Analysis of People: From Face and Body to Clothes (Virtual)**
FOREST - **Image analysis for forest environmental monitoring (In-person)**	UMDBB - **Understanding and Mitigating Demographic Bias in Biometric Systems (Virtual)**
VAIB - **Visual observation and analysis of Vertebrate And Insect Behavior (Virtual, see report on next page)**	

FairBio 2022

Workshop on Fairness in Biometric Systems

in conjunction with ICPR 2022; Montreal, Canada; August 21, 2022

https://sites.google.com/view/icpr2022-fairbio/home

Workshop Organizers:

Dr. Philipp Terhörst (NTNU, Norway)
Assoc. Prof. Kiran Raja (NTNU, Norway)
Dr. Christian Rathgeb (h_da, Germany)
Dr. Abhijit Das (TIET, India)
Dr. Ana Filipa Sequeira (INESC TEC, Portugal)
Dr. Antitza Dantcheva (INRIA, France)
Dr. Sambit Bakshi (NIT Rourkela, India)
Prof. Raghavendra Ramachandra (NTNU, Norway)
Dr. Naser Damer (Fraunhofer IGD, Germany)

Invited Speakers:

Yevgeniy Sirotin, PhD (Maryland Test Facility / IDSL / SAIC)
Ignacio Serna (University of Madrid / California Institute of Technology)

In recent years, biometric systems spread worldwide and are increasingly involved in critical decision-making processes, such as in finance, public security, and forensics.

Despite their growing effect on everybody's daily life, many biometric solutions perform very differently on different groups of individuals, as previous works have shown. Consequently, the recognition performances of these systems are strongly dependent on demographic and non-demographic attributes of their users. This results in discriminatory and unfair treatment of the user of these systems. The contributions presented at FairBio 2022 comprehensively analyzed these concerns and proposed sophisticated evaluation metrics and mitigation methods to address fairness concerns in various recognition scenarios.

ICPR 2022 Highlights - Non-IAPR Workshops @ ICPR

VAIB 2022

visual observation and analysis of Vertebrate And Insect Behavior

in conjunction with ICPR 2022; Montreal, Canada; August 21, 2022

https://homepages.inf.ed.ac.uk/rbf/vaib22.html

Workshop Organizers:

Robert Fisher (Chair), University of Edinburgh

Simone Palazzo, Università di Catania

Concetto Spampinato, Università di Catania

The eighth workshop on Visual observation and analysis of Vertebrate And Insect Behavior 2022 was held as part of the 26th International Conference on Pattern Recognition (ICPR 2022).

This was a half-day event held virtually as no hybrid option was available. Three of the authors met face-to-face after the workshop for discussions.

There were 7 oral presentations, particularly on land animal monitoring.

The goal of this workshop is to stimulate and bring together the current research in this area and provide a forum for researchers to share expertise.

The methods that researchers use can be applied to a variety of species at different sizes, such as fruit and house flies, crickets, cockroaches and other insects, farmed and wild fish, mice and rats, commercial farm animals such as poultry, cows and horses, and wildlife monitoring, etc. One aspect that they all have in common is video data.

As we wanted to make this more of a discussion workshop, we encouraged work-in-progress presentations.

Consequently, only 4 page extended abstracts were double-blind reviewed.

More details, including the program and PDFs from the extended abstracts can be found at: https://homepages.inf.ed.ac.uk/rbf/vaib22.html

Images from some of the papers presented:

Stereo Co-capture System for Recording and Tracking Fish with Frame- and Event Cameras

Friedhelm Hamann and Guillermo Gallego

Technische Universita ̈t Berlin, Einstein Center Digital Future and SCIoI Excellence Cluster, Berlin, Germany

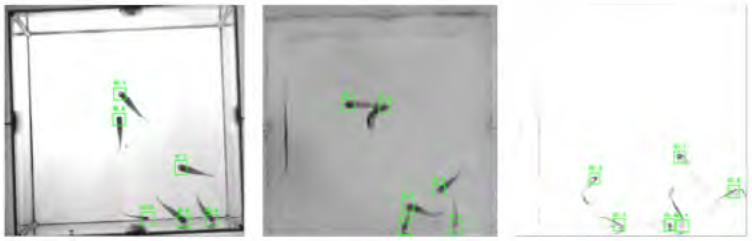


Fig. 1: Visualization of the tracking output on different sensor data. From left to right: tracking on grayscale frames of a conventional camera, on images reconstructed from event data using E2VID [1] and on time maps obtained from event data.

Automatically detecting and tracking goat position by 2D camera imaging and deep learning

Djahlin Nikue Amassah*, Xavier Desquesnes*, Bruno Emile*, and Sylvie Treuillet*

* Université d'Orléans - PRISME laboratory

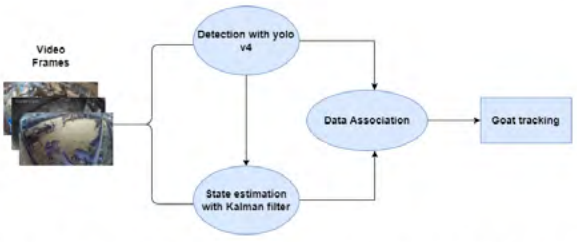


Fig. 1. Proposed method for detection and tracking of goats in a breeding farm

Fig. 2. dataset images

ICPR 2022 Highlights - Challenges & Tutorials @ ICPR

Challenges @ ICPR 2022

Challenge Title	Challenge Title
ODeuropa Competition on Olfactory Object Recognition - ODOR	Real-World Video Understanding for Urban Pipe Inspection - VideoPipe
Multimodal Subtitle Recognition - MSR	Moving Object Detection and Tracking in Satellite Videos - SatVideoDT
Face Recognition Under Drone Surveillance Concerning Turbulence - FaceDrone	Detection of wastewater contaminants through low cost sensors: a multi-class problem - WaterContaminants
Competition on HArvesting Raw Tables from Infographics - CHART-Infographics	

Click here for more information about the ICPR 2022 Challenges.

Tutorials @ ICPR 2022

Tutorial Title	Presenter(s)
Interactive Art and Pattern Recognition (In-person)	Larry O'Gorman, Nokia Bell Labs, USA
Target Class Learning for Anomaly/Outlier Detection: a robust strategy (Virtual)	P. Nagabhushan, Vignan's Foundation for Science, Technology & Research Sonali Agarwal, Indian Institute of Information Technology, Allahabad, India Sanjay Kumar Sonbhadra, ITER, Shiksha 'O' Anusandhan, Bhubaneswar, India Narinder Singh Punn, Indian Institute of Information Technology, Allahabad, India
General Adaptive Neighborhood Image Processing and Analysis (GANIPA) (In-person)	Johan DEBAYLE, MINES Saint-Etienne, France
Deep Learning Models for Weakly-Supervised Object Localization and Segmentation (In-person)	Soufiane Belharbi, Post-doc, École de technologie supérieure, Montreal, Canada Eric Granger, Professor, École de technologie supérieure, Montreal, Canada Ismail Ben Ayed, Professor, École de technologie supérieure, Montreal, Canada
Few-Shot Learning (In-person)	Ismail Ben Ayed, Professor, École de technologie supérieure, Montreal, Canada Malik Boudiaf, PhD student, École de technologie supérieure, Montreal, Canada Jose Dolz, Assoc. Professor, École de technologie supérieure, Montreal, Canada Imtiaz Ziko, Research Technology Lead, AI at Thales
Visual Fusion for Pattern Recognition (Virtual)	Tianyang Xu, Jiangnan University, China Xiao-Jun Wu, Jiangnan University, China Hui Li, Jiangnan University, China Xiaoqing Luo, Jiangnan University, China Josef Kittler, University of Surrey, UK

Click here for more information about the ICPR 2022 Tutorials.

ICPR 2022 Highlights - 2022 IAPR Fellows


Marco Cristiani
For contributions to the design of pattern recognition methods for social signal processing


Sergio Escalera
For contributions in pattern recognition and human behavior analysis

Jungong Han
For contributions to multimedia content analysis, multimodal computer vision, and deep learning

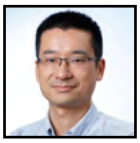
Junwei Han
For contributions to visual saliency computation and remote-sensing image analysis

Kaiqi Huang
For contributions to video analysis and human vision-inspired visual models

Tingwen Huang
For contributions in understanding the dynamics of neural networks in pattern recognition applications

Yu-Gang Jiang
For contributions to large-scale and trustworthy video understanding, and open-source datasets

Reinhard Koch
For contributions to image-based 3D scene reconstruction, underwater imaging, and service to the IAPR



Zhen Lei
For contributions to face analysis and pattern recognition

Liang Lin
For contributions to computational models for visual pattern matching and understanding

Siwei Lyu
For contributions to digital media forensics


Ajmal Saeed Mian
For contributions to geometric deep learning, 3D shape representation, and facial analysis

Hiroshi Murase
For contributions to object and image recognition and quick video search

Liqiang Nie
For contributions to multimedia content analysis and recognition


Guo-Jun Qi
For contributions to pattern recognition for computer vision and multimedia computing

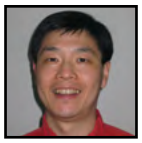
Carlo Sansone
For contributions in pattern recognition and biomedical image analysis

Jinhui Tang
For contributions to multimedia content analysis and recognition, and tensor completion methods

Mayank Vatsa
For contributions in secure biometric recognition

Xiaojun Wu
For contributions to image and video representation, image and multimodal fusion, and particle swarm optimization for pattern recognition

Gary G. Yen
For contributions in pattern recognition and optimization for intelligent systems



Zhongfei Zhang
For contributions to data understanding and mining

International Association for Pattern Recognition

Best Industry Related Paper Award

to

Steve Dias Da Cruz, Bertram Tactz, Thomas Stifter, and Didier Stricker

for the paper presented at the 26th International Conference on Pattern Recognition (ICPR 2022, Montréal)

Autoencoder for Synthetic to Real Generalization: From Simple to More Complex Scenes

August 23, 2022

Daniel P. Lopresti, President

International Association for Pattern Recognition

Piero Zamperoni Best Student Paper Award

to

Pritish Sahu

for the paper presented at the 26th International Conference on Pattern Recognition (ICPR 2022, Montréal)

DAReN: A Collaborative Approach Towards Visual Reasoning And Disentangling

by

Pritish Sahu, Kalliopi Basioti and Vladimir Pavlovic

August 25, 2022

Daniel P. Lopresti, President

Please see *related interview* with Pritish Sahu in this issue.

2022 IAPR Certificates of Appreciation

Since 1998, IAPR Executive Committees have awarded Certificates of Appreciation biennially as a way to recognize outstanding contributions to the IAPR.

The practice had fallen off after 2006, with only a few having being given since that time. To reassert the importance of individual efforts to the operation and vitality of the IAPR, the 2020-2022 Executive Committee reestablished the practice of awarding Certificates of Appreciation with a larger than normal cohort.

Alexandra Branzan Albu	*For long-term leadership service, including furthering IAPR's Equity, Diversity, and Inclusion initiatives*
Luc Brun	*For impactful service leading IAPR's Membership Committee*
Maria De Marisco	*For leadership service in furthering the IAPR's Equity, Diversity, and Inclusion initiatives*
Walter Kropatch	*For long-term contributions to the advancement of the IAPR, including leadership service*
Denis Laurendeau	*For long-term contributions to the advancement of the IAPR, including leadership service*
Cheng-Lin Liu	*For leadership service, including support of ICPR Liasion activities*
Josep Llados	*For long-term leadership service with impact on IAPR committees*
Simone Marinai	*For long-term contributions to the advancement of the IAPR, including leadership service*
Ingela Nyström	*For long-term leadership service and efforts to further IAPR's Equity, Diversity, and Inclusion initiative*
Linda O'Gorman	*For extraordinary, outstanding service to the IAPR*
Arun Ross	*For long-term service with impact leading IAPR committees*
Gabriella Sanniti di Baja	*For long-term leadership service and continued invaluable counsel*
Edward Sobczak	*For long-term service and excellent technical support as the IAPR's Webmaster*
Massimo Tistarelli	*For long-term leadership service with impact on IAPR committees*

Best Paper Awards @ ICPR 2022

ICPR 2022 Best Scientific Paper Awards by Track	ICPR 2022 Best Student Paper Awards by Track
Artificial Intelligence, Machine Learning for Pattern Analysis	
Alexandre L. M. Levada *A Curvature based Isometric Feature Mapping*	**Pritish Sahu**, Kalliopi Basioti and Vladimir Pavlovic *DAReN: A Collaborative Approach Towards Visual Reasoning And Disentangling*
Computer Vision and Robotic Perception	
Qingchao Zhao, Long Li, Yan Chu, Zhengkui Wang and Wen Shan *Density Division Face Clustering Based on Graph Convolutional Networks*	**Krushi Patel**, Andres M. Bur, Fengjun Li and Guanghui Wang *Aggregating Global Features into Local Vision Transformer*
Image, Video, Speech, and Signal Analysis	
Tao Liu and Shan Tan *Decoupled Frequency Learning for Dynamic Scene Deblurring*	**Guillaume Sérieys**, Camille Kurtz, Laure Fournier and Florence Cloppet *Text-guided visual representation learning for medical image retrieval systems*
Biometrics and Human-Machine Interaction	
Lin Fang, Shi Yin, Shangfei Wang and Ya'nan Chang *Adversarial Stacking Ensemble for Facial Landmark Tracking*	[no award was given in this category]
Document and Media Analysis	
Jizhao Ma, Lianwen Jin, Jiaxin Zhang, Jiajia Jiang, Yang Xue and Mengchao He *TextSRNet: Scene Text Super-Resolution Based on Contour Prior and Atrous Convolution*	**Mohammed El-Amine Ech-Cherif** and Mohamed Cheriet *Frank-Wolfe Based Multi-task Learning for Historical Document Restoration*
Biomedical Image Analysis and Informatics	
Michael Wan, Shaotong Zhu, Lingfei Luan, Prateek Gulati, Xiaofei Huang, Rebecca Schwartz-Mette, Marie Hayes, Emily Zimmerman and Sarah Ostadabbas *InfAnFace: Bridging the Infant–Adult Domain Gap in Facial Landmark Estimation in the Wild*	**Binke Cai** and Liyan Ma *A Transformer-based Cascade Network with Boundary Enhancement Loss for Retinal Vessel Segmentation*

The 2022 Meeting of the IAPR Governing Board

The IAPR Governing Board (GB) meets every two years during ICPR. Representatives from all of the IAPR's member societies get together to discuss and vote on matters of high importance to the governance of the IAPR. For ICPR 2022, for the first time, the meeting took place in hybrid mode.

Some of the key outcomes of the 2022 GB Meeting have been mentioned in the "From the President's Desk" column in this issue and are also highlighted below. To keep up to date on all IAPR matters, visit the IAPR website frequently and subscribe to IAPR Announcements.

- ICPR 2022 was the first hybrid ICPR. Its success is a tribute to the organizers. Please see Comments from the General Chairs in this issue.
- The Governing Board voted to admit the Colombian Association of Pattern Recognition (ACORP) into the IAPR. (see INSIDE the IAPR in this issue)
- Preparations for ICPR 2024 in Kolkata, India, are well underway. The webiste is here: *https://iapr.ogr/icpr2024*. Please see the first ICPR 2024 Call for Papers in this issue.
- The IAPR is issuing a First Open Call for Nominations for the King-Sun Fu, J. K. Aggarwal, and Maria Petrou Prizes to be given at ICPR 2024. See the IAPR Prizes and Awards page at the IAPR website for more information.
- The ExCo is in the process of forming an Ad Hoc Committee on Hybrid Conferences, chaired by Terence Sim (National University of Singapore), to review best practices and make recommendations.
- TC20 Pattern Recognition for Bioinformatics was reinstated. See related articles in this issue: TC News and the report on the Pattern Recognition in Healthcare Analytics Workshop (PRHA 2022) sponsored by this technical committee as well as the IAPR.
- Choosing from among bids of excellent quality, the Governing Board selected Lyon, France, as the venue for ICPR 2026.
- Over the next six years, the IAPR will mark a number of "50th anniversaries", from the first ICPR Committee meeting in 1972 to the formal start of the IAPR and the first IAPR Governing Board Meeting in 1978. Join in the celebrations!

Meeting Reports

Conferences, Workshops & Summer/Winter Schools

Chairs:

Adam Crzyzak, Concordia University, CENPARMI, Canada
Ching Y. Suen, Concordia University, CENPARMI, Canada
Andrea Torsello, Ca'Foscari University of Venice, Italy

by Ching Y. Suen, Co-Chair

As is the tradition, this edition of S+SSPR was co-located with ICPR.

We had about 50+ participants (about 35 in-person and 15 online) plus about 15 extra people for the banquet, with exciting performances consisting of folk songs, piano music, and Chinese opera.

Attendance was good throughout the workshop, especially during the Keynote presentations.

The Pierre Devivjer Prize Lecture on Deep Learning was given by the 2022 recipient, Dr. Yoshua Bengio.

In addition, there were three IAPR Invited Talks:

- Linda Shapiro, "Analysis of Whole Slide Images of Skin Biopsies"
- Mohamed Cheriet, "Robust Non-Traditional Methods for Traditional Problems in Sepctral Document Image Processing"
- Petia Radeva, "Addressing the Food Image Challenge By Uncertainty Modeling and Single-to-Multi-Label Food Recognition

All of the presentations were of high quality and the participants were, as we observed, very happy with the successful workshop.

We received 36 papers of high quality, accepting 28 for presentation (half as long papers, and half as short papers). Proceedings will be published by Springer.

Pattern Recognition Letters

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

Upcoming Special Issue

Recent Advances in Behavioral and Hidden Biometrics for Personal Identification (VSI:BEHINB)

Guest Editors: Giulia Orrù (MGE), University of Cagliari, Italy - Ajita Rattani, Wichita State University, United States - Imad Rida, Université de Technologie de Compiègne, France - Sébastien Marcel, Idiap Research Institute, Switzerland

Submission period: March 1 - March 20, 2023

More information at: *https://www.sciencedirect.com/journal/pattern-recognition-letters/about/call-for-papers#special-issue-on-recent-advances-in-behavioral-and-hidden-biometrics-for-personal-identification-behinb*

Call for Special Issues

We invite researchers in Pattern Recognition and related fields to submit proposals for new Special Issues. Special Issues are a unique occasion to collect high-quality papers that pertain to topics not strictly related to the journal, and therefore to expand the scientific offer for our readers.

Proposals are submitted about one year in advance with respect to the requested submission slot (i.e., the period in which submissions will be uploaded). Our current policy is to divide the year in 4 quarters (January-March, April-June, July-September, October-December). We collect the proposals for a given quarter of a given year (e.g., October-December 2023) during the first month of the quarter of the year before (e.g., October 2022), take the decision in the second month of the quarter of the year before (e.g., November 2022), and notify the prospective GEs in the third month of the quarter of the year before (e.g., December 2022). In this way, our decision can be taken by comparing all proposals for the same quarter.

Selection criteria include the following:

1. The VSI must be well focused on a current relevant topic, which has to be of interest for the international scientific community and, in particular, for researchers in Pattern Recognition; too wide topics such as “Deep Networks for image understanding” or “Advances in Pattern Recognition for image understanding” will not be taken into account.
2. The candidate GEs’ scientific production must testify sufficient experience in the proposed topics, in order to better evaluate the overall quality of both papers and reviews.
3. If more GEs participate in the proposal, a wide geographic distribution will be preferred, to assure a wider submission population; these proposals will be preferred.
4. GEs must underline in their CVs their engagement with PRL, as either authors or reviewers; proposals from such GEs will e preferred.
5. Rotation of GEs is preferred, both in groups or individually.

For candidate GEs’ convenience, a proposal template with all requested information is available.

For further information, please contact the EiC for Special Issues
Prof. Maria De Marsico (*demarsico@di.uniroma1.it*)

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
2022	NOV	CVIP 2022: 7th Intl Conference on Computer Vision & Image Processing	CVIP 2021	**India**
		ICCPR 2022: 11th Intl Conference on Computing and Pattern Recognition		**China**
		ICVNZ 2022: Image and Vision Computing New Zealand 2022		**New Zealand**
		ANNPR 2022: 10th IAPR Workshop on Artificial Neural Networks in PR	ANNPR 2020	**UAE**
	DEC	ICFHR 2022: 18th Intl Conference on Frontiers in Handwriting Recognition	ICFHR 2020	**India**
2023	FEB	ICPRAM 2023: 12th International Conference on Pattern Recognition Applications and Methods	ICPRAM 2022	**Portugal**
		VISAPP 2023: 12th Intl Conference on vision Theory and Applications	VISAPP 2022	**Portugal**
	APR	IWBF 2023: 11th IAPR/IEEE Intl Workshop on Biometrics and Forensics	IWBF 2020	**Spain**
	MAY	ISPR 2023: 3rd Intl Conference on Intelligent Systems & Pattern Recognition	ISPR 2022	**Tunisia**
	JUN	IbPRIA 2023: 11th Iberian Conference on Pattern Recognition and Image Analysis	IbPRIA 2022	**Spain**
	JUL	ICPRS 2023: 13th International Conference on Pattern Recognition Systems	ICPRS 2021	**Ecuador**
		MVA 2023: 18th Intl Conference on Machine Vision Applications	MVA 2021	**Japan**
	AUG	ICDAR 2023: 17th International Conference on Document Analysis and Recognition	ICDAR 2021	**USA**
	SEP	GbR 2023: 13th IAPR TC15 International Workshop on Graph-based Representations in Pattern Recognition	GbR 2019	**Italy**
2024	DEC	ICPR 2024: 27th International Conference on Pattern Recognition	ICPR 2022	**India**

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