



Newsletter



Volume 45, Number 2 April 2023



EiC's Note: I'm happy to introduce to our community our new Layout Editor, Dr. Carolyn Buckley. I'm sure that with her knowledge and experience, she will help us produce more great IAPR Newsletters!
~ Heydi Méndez Vázquez, IAPR Newsletter EiC

From Your New Layout Editor

Hello in nearly 50 different languages! I am thrilled to have this opportunity to work with such a globally diverse community. I've been asked to tell you about myself, and I'd like to also share my goals as your Layout Editor (LE).

Most of my academic and professional work has been related to behavioral science. After earning my PhD in integrative biology (behavioral neuroendocrinology) from Lehigh University (Bethlehem, PA), I taught psychology labs, animal behavior, and behavioral statistics at Lafayette College (Easton, PA). Though I enjoyed teaching lectures and labs, I preferred writing about labs and helping students improve their scientific reports and grant proposals. In 2015, I published a hybrid lab manual and textbook, and in January of 2020, I left teaching to write the [2nd edition \(Sep. 2020\)](#). I had planned to return to academia, but the pandemic pressed a pause button. Thinking back to what I liked most about my academic work, I decided to pursue a writing and science editing career.

In March of 2023, I launched a new business called SayItBetterScience (SIB-Sci), offering editing services to graduate students, other researchers, and non-profit scientific organizations. Because I am familiar with the time constraints of a career in science, the mission of SIB-Sci is to provide a trustworthy, high-quality service for scientists who feel they spend too much of their time editing, re-editing, and formatting their writing.

As your new LE, I will work with Heydi Méndez Vázquez, [your new Editor in Chief](#), to continue the Newsletter's legacy of excellence, collecting and organizing all types of content into a useful, visually appealing, interesting and informative newsletter.

I will also collaborate with IAPR Secretariat Linda O'Gorman and the Publications and Publicity Committee to ensure a smooth transition. While working on layout, my goal is to maximize readability and ease of use. As an editor, I aim for clarity and accuracy.

Communication with readers and writers will be of utmost importance, so please take a moment to add my email address to your contacts so you won't miss invitations to contribute to the *IAPR Newsletter*!

Contact information is linked below. I would be very pleased if you could begin your emails by saying "hello" in your native language! Beyond that, English would be best for me, though I do speak some German (aber noch nicht fließend).

Lastly, I want to thank Linda for her guidance and assistance as I begin this journey, and repeat Heydi's invitation from January: We are happy to hear your ideas, your feedback, and any IAPR news you'd like to share!

Web: sayitbetterscience.com
Email: cab@sayitbetterscience.com
LinkedIn: [linkedin.com/in/carolynbuckleySIBSci](https://www.linkedin.com/in/carolynbuckleySIBSci)



From your New Layout Editor

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Calls For Papers

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



Conferences, Dates, & Locations

2023

Calls and Deadlines

G denotes pending IAPR C&M Committee Conferences and Meetings approval

in order from earliest paper deadline (other deadlines vary in order)

[DeLTA 2023](#)
July 13-14, 2023
Rome, Italy

4th International Conference on Deep Learning Theory and Applications

(Papers: Closed) Abstract Track and Doctoral Consortium: May 12, 2023
Tutorial, Demo, and Panel Proposals: May 31, 2023

[PReMI 2023](#)
Dec 12-15, 2023
Kolkata, India

10th International Conference on Pattern Recognition and Machine Intelligence

Papers (extended): Apr 30, 2023
Tutorial Proposals: May 15, 2023
Doctoral Colloquium: Sep 30, 2023

[CVIP 2023](#)
Nov 3-5, 2023
Jammu, India

8th International Conference on Computer Vision and Image Processing

1st round: May 1, 2023
2nd round: July 1, 2023

G [IJCB 2023](#)
Sept 25-28, 2023
Ljubljana, Slovenia

8th International Joint Conference on Biometrics

Extended to May 8, 2023

G [HIP 2023](#)
Aug 25-26, 2023
San José, CA, United States

7th International Workshop on Historical Document Imaging and Processing

May 12, 2023

[ACPR 2023](#)
Nov 5-8, 2023
Kitakyushu, Japan

7th Asian Conference on Pattern Recognition

Abstract: May 15, 2023
Full Papers: May 22, 2023

[ICCPR 2023](#)
Oct 27-29, 2023
Quigdao, China

12th International Conference on Computing and Pattern Recognition

Papers: May 30, 2023

[CIARP 2023](#)
Nov 27-30, 2023
Coimbra, Portugal

26th Iberoamerican Congress on Pattern Recognition

Tutorial Proposals: May 15, 2023
Papers: July 1, 2023

2024

Continued on next page...

Calls For Papers

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



Conferences, Dates, & Locations

2024

Calls and Deadlines

6 denotes pending IAPR C&M Committee Conferences and Meetings approval

in order from earliest paper deadline (other deadlines vary in order)

[ISPR 2024](#)
Feb 6-8, 2024
Sharejah University, UAE

4th International Conference on Intelligent Systems and

Pattern Recognition Papers: Sep 30, 2023

6 [ICPRAM 2024](#)
Feb 24-26, 2024
Rome, Italy

13th International Conference on Pattern Recognition Applications and Methods

Papers: Oct 9, 2023
Position Papers: Nov 17, 2023
Spec. Sess. Proposals: Oct 20, 2023
Abst. Track & Doctoral Cons: Jan 1, 2024

6 [VISAPP 2024](#)
Feb 27-29, 2024
Rome, Italy

19th International Conference on Computer Vision Theory and Applications

Papers: Oct 9, 2023
Position Papers: Nov 17, 2023
Spec. Sess. Proposals: Oct 20, 2023
Abst. Track & Doctoral Cons: Jan 1, 2024
Tutorials, Demo, or Panel Prop: Jan 12, 2024

[ICPR 2024](#)
Dec 1-5, 2024
Kolkata, India

27th International Conference on Pattern Recognition

Papers: May 1, 2024

OPEN CALL FOR PRIZE NOMINATIONS



KING-SUN FU PRIZE
J. K. AGGARWAL PRIZE
MARIA PETROU PRIZE

Details on [Page 5](#)



OBJETIVOS DESARROLLO SOSTENIBLE software libre TRANSFORMACIÓN DIGITAL
EDUCACIÓN A DISTANCIA CIENCIA E INNOVACIÓN interfaz
Matemática y Computación **inteligencia artificial**
LENGUAJE Y TECNOLOGÍA CIENCIA Interfaz **Computación artificial**
Formación Profesional E INNOVACIÓN informatización

//UCIENCIA/23
CONVENCIÓN CIENTÍFICA INTERNACIONAL

OBJETIVOS DESARROLLO SOSTENIBLE Transformación Digital
Calidad de Software Ciberseguridad UNIVERSIDAD Y SOCIEDAD
ODS INGENIERÍA DE SOFTWARE INFORMATIZACIÓN
CIENCIA Formación Profesional Internacionalización Gestión de
E INNOVACIÓN educación virtual **SOFTWARE LIBRE** Proyectos. COMPUTACIÓN

On behalf of the Universidad de las Ciencias Informáticas Artificial Intelligence and Pattern Recognition Research Group de la Universidad de las Ciencias Informáticas (UCI) and the Cuban Association for Pattern Recognition (ACRP), which is affiliated to the International Association for Pattern Recognition (IAPR), we invite you to submit your contributions to the **8th International Congress on Artificial Intelligence and Pattern Recognition (IWAIPR 2023)**, in the context of the **V International Scientific Conference UCIENCIA 2023**, to be held from September 27 to 29, 2023 in the Varadero Beach Resort, Cuba.

All accepted papers will be included in the proceedings, which will be published by Springer as Lecture Notes in Computer Science, and one conference award will be given: IAPR-IWAIPR Best Paper Award.

Submission deadline has been extended to May 15, 2023

Contact: Yanio Hernández Heredia, PhD
Scientific Committee Chair - Email: yhernandezh@ici.cu

CALLS FROM IAPR COMMITTEES

From the IAPR Education Committee:

[Call for Applications for IAPR Research Scholarships](#)

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.

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

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.

Click on Call (or [here](#)) to learn more or contact: IAPR Secretariat, c/o Linda O'Gorman, secretariat@iapr.org

From the IAPR Industrial Liaison Committee:

[Call for Students Seeking Internship Opportunities](#) [and for](#) [Companies with Internships Available](#) [to contribute to the](#) [Internship Listings on the](#) [IAPR Internship Brokerage Page](#)

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 do this through a web-based internship listing service. Companies can list their internship opportunities; students can browse the listings and contact the company.

For Students

If you are seeking an internship, please click on the underlined call title above (or [here](#)) to find an updated list of 44 companies –from Adobe to Zhongan Technology– offering internships, locations (some remote), requirements, etc.

NOTE: As of April 17, 2023, there were 44 opportunities listed and 20,171 accesses (since November 2017).

For Companies with Internships Available

Click on call title (link) above for examples.

Please email your listings as follows:

To: webmaster@iapr.org

Subject: IAPR internship listing

1. Details:
2. Host:
3. Location:
4. Post Type:
5. Specialty:
6. Funded:
7. Length:
8. Degree & Visa Requirements:
9. Internship start date:
10. Application closing date:
11. Details:
12. Contact::

From the IAPR

Executive Committee (ExCo):

[Call for Proposals for](#) [Summer/Winter Schools](#)

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.

Deadline Schedule

<i>For School Dates In...</i>	<i>Proposal Deadline</i>
Aug, Sept, Oct, or Nov	June 1
Dec, Jan, Feb, or Mar	October 1
April, May, June, or July	February 1

How to Submit: Click the Call title (link) above to learn more. Send proposals for IAPR-funded summer/winter schools 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 CALL FOR PRIZE NOMINATIONS



KING-SUN FU PRIZE
J. K. AGGARWAL PRIZE
MARIA PETROU PRIZE



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

Open Calls for Nominations for Three Prestigious Prizes to be presented at the

27th International Conference on Pattern Recognition
ICPR 2024 ~ Kolkata, India ~ December 1-5, 2024



KING-SUN FU PRIZE

The IAPR's highest honor, this Prize is given to honor 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.

photo: ethw.org/King-Sun_Fu



J.K. AGGARWAL PRIZE

This 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.

photo: en.wikipedia.org/wiki/J._K._Aggarwal



MARIA PETROU PRIZE

This Prize honors the memory of Professor Maria Petrou, a scientist and engineer of the first rank, particularly in her role as a pioneer and role model for women researchers. Widely recognized for her extensive contributions to the fields of image processing and pattern recognition, she also made significant contributions to the growth of IAPR. 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.

photo: iapr.org/members/newsletter/Newsletter13-01/index_files/Page652.htm

CLICK ON PORTRAITS FOR FULL CfNs, RULES AND NOMINATION FORMS
Nomination letters accompanied by the nominee's CV are requested by December 1, 2023.

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

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 and respective Prize Committees are ineligible for these Prizes and may not serve as nominators or endorsers.

Nomination and endorsement forms (linked via portraits above) may be submitted on a preliminary basis to the IAPR Secretariat and modified until the final submission deadline set by each Prize Committee. Only complete applications will be considered for the 2024 Prizes.

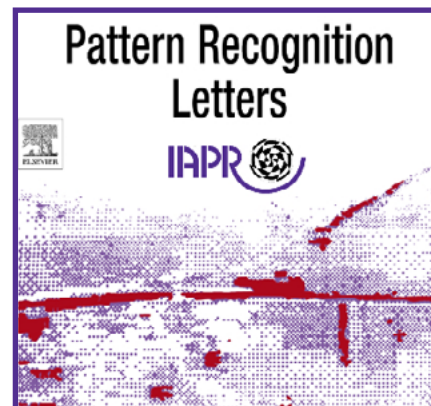
Contact information: IAPR Secretariat, c/o Linda O'Gorman, secretariat@iapr.org

UPCOMING SPECIAL ISSUE PATTERN RECOGNITION LETTERS

Explainable Representation Learning for Multi-view/modal Data (VSI:ERLMD)

Submission period: July 1 2023 - July 20 2023

GUEST EDITORS



Rongyao Hu
University
of Pennsylvania
(USA)



Tong Liu
Massey University
(New Zealand)



Debo Cheng
University of
South Australia
(Australia)



Xiaofeng Zhu
University of Electronic
Science and Technology
of China (China)

For more details and manuscript submission information, click: [PRL Special Issue, Call for Papers](#) (scroll down)

PATTERN RECOGNITION LETTERS ~ 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.

Special Issue proposals are submitted about one year in advance with respect to the requested submission slot (i.e., the period in which paper submissions for the Special Issue will be uploaded). We divide the year into four quarters, starting in January. One year in advance of the paper submission period for a Special Issue, we collect proposals for Special Issue topics (in Jan., Apr., July, or Oct.), make the decision (in Feb., May, Aug., or Nov.), and notify the prospective Guest Editors (GEs) (in Mar., June, Sept., or Dec.). In this way, our decision can be made 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 of interest for the international scientific community, particularly 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 considered.
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. Proposals with multiple GEs with a wide geographic distribution of GEs will be preferred as this promotes a wider submission population.
4. GEs must underline in their CVs their engagement with PRL, as either authors or reviewers; proposals from such GEs will be preferred.
5. Rotation of GEs is preferred, in groups or individually.

For candidate GEs' convenience, a proposal template with all requested information is available. Please contact Prof. Maria De Marsico (demarsico@di.uniroma1.it), the EiC for PRL Special Issues.

Massimo Tistarelli Wins Meritorious Service Award

The IAPR Newsletter is pleased to congratulate IAPR Fellow Massimo Tistarelli on receiving the **IEEE Biometrics Council Meritorious Service Award** at the International Joint Conference on Biometrics (October 2022, Abu Dhabi). The award is given to an individual who demonstrates "outstanding service in the field of biometrics." (source: [ieee-biometrics.org/index.php/news](https://iee-biometrics.org/index.php/news))

Professor Tistarelli (University of Sassari, Italy) has served on the IAPR Executive Committee as First VP (2014-2018) and has chaired several IAPR committees, including the IAPR Fellow Committee (2018-2022).

He received this award in recognition of his "exceptional services to the biometrics community, including organization of summer schools and flagship conferences." ([see IJCB 22 Report.](#))

Since 2003, the [IAPR/IEEE International Summer School for Advanced Studies on Biometrics for Secure Authentication](#) has been a highly regarded, high-intensity training ground for students, researchers and professionals in biometrics. Massimo, who was one of four organizers of the first Summer School 20 years ago, has been the school director since that time and is largely responsible for its overwhelming success.



We asked Professor Tistarelli to reflect on the past 20 years at the International Summer School and its 20th gathering this summer...

Reflections on 20 Years of International Biometrics Summer School

by Massimo Tistarelli

For the past 20 years this international Summer School has provided an active and dynamic forum to closely follow the most recent developments in science and technology, to offer a cutting edge, intensive training course, always up to date with the current state-of-the-art.

The school started in 2003 as a joint initiative from Profs. Josef Bigun (University of Halmstad, Sweden), Enrico Grosso (University of Sassari, Italy), Anil Jain (Michigan State University, USA) and myself, and was established as a residential school in Alghero, Italy. Since then, as school director, with the assistance of the co-directors, we have organized every edition of the school to be focused on a central hot topic in Biometrics research, composing the teaching staff from the main researchers in related fields. In this way, about 20 scientists and experts in machine learning, image understanding, signal analysis, neuroscience, robotics, forensic science, digital forensics and other disciplines, have converged in a truly multidisciplinary effort to build a school program aimed at stimulating the participants to better understand the most advanced biometrics systems from technological, legal and ethical perspectives.

In the past 19 years, the school has contributed to the education and fostered the careers of about 800 highly motivated PhD students, post-docs, researchers and professionals in several fields closely related to biometrics and its applications. Most of them are now leading labs, departments in public offices and private companies, and many are also teaching in major academic institutions. After some years, a few of them have also returned to teach specific subjects in subsequent Summer Schools.

Year after year, the school has benefited from the generous support of the European Union, the IAPR, the IEEE Biometrics Council, EURASIP, the University

of Sassari, the EAB, and several companies engaged in biometrics technologies, such as Motorola, Sagem, and more recently Idemia, which allowed us to provide to students travel grants, scholarships and logistic support for school activities.

During the challenging time of the COVID pandemic, (2020 and 2021) the school was held as a virtual event, recording an outstanding attendance of almost 100 students each year. In 2022 the school returned to the physical presence format, but in hybrid mode, allowing some participants and lecturers to connect remotely. However, the main and best feature of the school is its residential nature, which allows all participants, both students and lecturers, to closely interact beyond the “formal” teaching activities, building scientific relationships and starting new research directions.

Over time, several different teaching and brainstorming methods have been used, from traditional lectures forming the majority of the schedule, to open evening sessions, hands-on on specific tech-

nologies, students’ oral and poster presentations, panels and round tables moderated by leading experts in several fields. However, the main ideas and stimulating discussions are often started during coffee and lunch breaks, at evening cocktails, on the pool side, or along the beach. Some of these discussions produced outstanding research works and facilitated joint collaborations among several institutions.

Some thought provoking questions addressed over time include: What are the most up-to-date core biometric technologies developed in the field? What is the potential impact of biometrics in forensic investigation and crime prevention? What can we learn from human perception? How to deploy current Machine Learning approaches? How to cope with adversarial attacks in biometric recognition? What is the scalability and real potential for biometric systems? How to design privacy-preserving and "ethical" biometric devices?

The 2023 edition of the school will follow the successful track of the International Summer Schools on Biometrics held since 2003. In this

20th edition, the courses will focus on the lessons learned and on new and emerging issues:

What did we learn after 20 years and where are we going now?

What is the impact of AI and advanced learning techniques in Biometrics?

How can we make "Deep Biometric" systems explainable?

What are the advantages of continual learning for biometrics?

How can we use new biometric technologies in forensic and emerging applications?

How can we develop fair, unbiased and ethical biometric systems?

Also this year, the courses will surely provide a clear and in-depth picture on the state-of-the-art in biometric verification/identification technology, from both the theoretical and scientific point of view as well as in diverse application domains, all under the beautiful, sunny and scenic theater of the Alghero coastline in Sardinia island.

~ Massimo Tistarelli

A Complete History of IAPR/IEEE International Summer School Topics

- 2003 – Authentication and Recognition
- 2005 – Multimodality and System Integration
- 2006 – New Sensors and Evaluation
- 2007 – New Technologies and Embedded Systems
- 2008 – New Technologies for Security and Privacy
- 2009 – Multimodal Systems and Identity Management
- 2010 – Forensics, Security and Remote Identification
- 2011 – New Technologies for Forensics and Security
- 2012 – Understanding Man-Machine Interactions in Forensics and Security Applications
- 2013 – How Biometrics Meets Forensics, Security and the E-society Challenges of Tomorrow
- 2014 – Biometrics in Forensics, Security and Beyond
- 2015 – Biometrics in Forensics, Security and Mobile Applications
- 2016 – Biometrics, Forensic Science and the Quest for Identity
- 2017 – Biometrics for Personalization and Forensic Identification
- 2018 – Assuring Trustworthiness of Biometrics
- 2019 – Biometrics and Forensic Science in the Deep Learning Era
- 2020 – Biometrics, Forensics and Identity Science for Human-Centered Applications
- 2021 – Biometrics for AI / AI for Biometrics
- 2022 – Continually Learning Biometrics
- 2023 – 20 YEARS OF BIOMETRICS: REFLECTIONS AND OUTLOOKS



The 20th school (June 5-9, 2023) will be hosted by Hotel Dei Pini (www.hoteldeipini.com) in the Capo Caccia bay, near Alghero, Sardinia, one of the most beautiful resorts in the Mediterranean Sea. The hotel has a recently renovated conference centre, fully equipped for scientific events. This venue and its surroundings have proven to be a perfect environment for the school activities.



- = how they became involved in pattern recognition research
- = their technical background, current and future research interests
- = how IAPR can help young researchers

Enterprise image credit: tab62 - stock.adobe.com

Editor's note: Josselin Lefèvre was awarded the Best Student Paper prize at the International Conference on Discrete Geometry and Mathematical Morphology (DGMM 2022) for his paper titled "[Join, Select, and Insert: Efficient Out-of-core Algorithms for Hierarchical Segmentation Trees.](#)" For more news from DGMM 2022, follow this link to the [TC18 report in January 2023 IAPR Newsletter.](#)

~ Heydi Méndez Vázquez, EiC

Josselin Lefèvre

Josselin completed his master's degree in computer science engineering from ESIEE Paris (France) in 2021, after which he joined the Laboratoire d'Informatique Gaspard Monge (LIGM), a joint unit of Université Gustave Eiffel and Centre National de la Recherche Scientifique (CNRS), in collaboration with Thermo Fisher Scientific for his Ph.D. thesis.

His research primarily focuses on developing scalable algorithms for his hierarchical segmentation of images and data.

How did you get involved in pattern recognition research?

My journey towards pattern recognition started during my computer engineering studies at ESIEE Paris, where I got involved in research-oriented projects related to image processing. While working on a project that involved a method combining learning, hierarchical analysis, and image segmentation, I was excited by the potential of these methods in solving real-world problems. This experience inspired me to pursue research in this field and to explore opportunities for further study.

As a result, I landed an internship at Safran Aircraft Engines, where I collaborated with the Center for Mathematical Morphology on non-destructive testing by detecting regions of interest on tomographies.

This experience further solidified my interest in pattern recognition, and I knew that I wanted to pursue a Ph.D. in this field.



After seeking advice from my master's program professors, I had the opportunity to continue working in mathematical morphology in an industrial context. I began my CIFRE thesis, which involves a collaboration between the LIGM laboratory and Thermo Fisher Scientific.

This specific modality of thesis is particularly valuable for me because of its application and concrete dimension. As a scientist at Thermo Fisher Scientific, I am involved in a workflow that goes from acquisition to image analysis. The algorithm developed during my thesis will be part of the software suites provided to scientists. Thus, while pushing the limits of knowledge in my field, I also assist other fields such as life or material sciences.

What technical work have you done and what are your current and future research interests?

Image segmentation is one of the oldest problems in computer vision. Among the many existing algorithms, the watershed algorithm is a fundamental brick for numerous computer vision workflows. The core idea of this algorithm is to see the image as a topological relief. The regions correspond to catchment basins associated with the local

minima of the image. This method is often used in an interactive way by substituting the minima of the image with user-defined markers. This procedure makes it possible on the one hand to avoid over segmentation and, on the other hand, to introduce semantic information into the output segmentation.

Nowadays, advanced watershed segmentation tools are based on hierarchical representations that describe how relatively unimportant regions are progressively merged to the most significant structures of the relief according to some regional measure of importance such as depth, size, or volume of regions.

However, in recent years, electron microscopy has experienced a dramatic increase in resolution (near atomic) resulting from improvements in multiple fields, but especially better detectors and image processing methods. For example, cryogenic electron microscopy (cryo-EM) allowed for the first visualization of coronavirus and made it possible to observe proteins structures. These acquisition modalities are greatly facilitating the development of drugs. At the same time, this increase in resolution has led to the generation of images ranging in size from gigabytes to terabytes, and processing such large 3D volume data requires suitable computation strategies.

Unfortunately, the watershed algorithm and the structure we

use for hierarchical analysis relies on strictly non-local properties and therefore cannot be applied to these large images that will not fit in memory in one piece. As a result, some images cannot be processed by these useful algorithms and some workflows simply cannot be used anymore.

Therefore, my research focuses on writing new algorithms for hierarchical analysis that take into account the memory constraint. Prior to my thesis, an algebraic framework was proposed based on three operations, which allow the building of a key data-structure for hierarchical analysis, the binary partition tree, in an out-of-core context. This allows loading into memory only part of the image to be processed. Subsequently, my first publication focused on effective algorithms to implement these three algebraic operations.

My current and future work consist in the extension of this out-of-core framework, allowing, for example, the calculation of attributes for connected filtering and the creation of the first out-of-core (hierarchical) watershed algorithm. It would also be interesting to redefine the algorithms, making it possible to obtain the hierarchy of quasi-flat zones or constraint connectivity in this framework.

Overall, my goal is to offer a complete out-of-core workflow in order to be able to process large volumes of data, regardless of their size.

How can the IAPR help young researchers?

I think that promoting the work of young researchers is a fantastic way to get them involved in their community. I believe this can be done mainly through the organization of conferences, workshops, and other events, where we can share our work, get feedback and advice, and learn about new research areas and techniques. Such gatherings provide great opportunities to network with other professionals in the field, including established researchers, educators, and industry professionals. I also think that it is very motivating for a young researcher to feel part of a group organized around a common field, and I think it makes it easier to project oneself into a future research career.

In my own personal case, attending the DGMM conference was a fantastic opportunity to associate faces with some of my references and to be able to chat live with many researchers. This exchange between scientists allowed me to learn about past work that I had missed and about work in progress that I would otherwise have found difficult to learn about.

By connecting young researchers to members of their community, IAPR can help them navigate the complexities of research and build successful careers.

~ Josselin Lefèvre



EQUALITY, DIVERSITY & INCLUSION



Note from your EiC, LE, and EDI Committee Chair: This feature of the IAPR Newsletter is devoted to advertising activities and news from the IAPR standing committee on Equity, Diversity and Inclusion (EDI). The statement of IAPR Policy on EDI can be found [here](#). Our goal in this regular feature is to call attention to EDI initiatives that may be of interest to our readers.

Maria De Marsico, Chair of EDI, invites all readers to share information about any related initiatives in their countries or national organizations. Information can be sent to demarsico@di.uniroma1.it. Please use the subject line: "Relevant Information for IAPR EDI Committee"

In this issue, we introduce the series of article collections by *Frontiers in Artificial Intelligence*, which publishes the *Women in Artificial Intelligence* series. Interested readers can find these papers online by clicking on any title below.

[Women in Natural Language Processing 2022](#)

[Women in Language and Computation 2022](#)

[Women in AI in Business 2022](#)

[Women in AI: Medicine and Public Health 2022](#)

[Women in Machine Learning and Artificial Intelligence 2022](#)

[Women in Pattern Recognition 2022](#)

[Women in Fuzzy Systems 2022](#)

In the next issue of IAPR Newsletter, we hope to host a contribution by a popular researcher who published in this series.

In other EDI news...

The Pakistan Pattern Recognition Society (PPRS), an IAPR member organization, is actively encouraging women's involvement in science. In 2021, they organized an event called "Celebrating Pakistani Women in Artificial Intelligence." IAPR's EDI Committee member, Momina Moetesum, manager of PPRS and editor of the *PPRS Newsletter*, shared a detailed [report](#) on this successful event.

Women-in-IES, a subgroup of the IEEE Industrial Electronics Society, organizes a series of periodic events and activities to promote the visibility of women leaders and to inspire young women. Among these, the "Women-in-IES Committee Panel first online forum in 2023" is scheduled for May 5th, 2023. Attendance is free. Learn more and sign up by clicking [here](#), or contact the Committee Chair, Ya-Jun Pan (panieswie@gmail.com), if you have questions that are not answered on the website.

Several IEEE Societies are starting similar initiatives. ACM (Association for Computing Machinery) hosts

[ACM-W Connections Newsletter](#) and [ACM-W Europe Newsletter](#), with the goal of "Supporting, Celebrating and Advocating for Women in Computing." These initiatives testify to the growing enthusiasm from international scientific organizations to close the gender gap in scientific fields.

At present, an increasing number of conferences devote special events to women. As an example, HOST (IEEE International Symposium on Hardware Oriented Security and Trust) has a WISE workshop for women in hardware security. Click [here](#) to learn more about WISE.

In addition, those who have attended ICPR, the flagship IAPR conference, in previous years may be aware that an increasingly structured space is devoted to the [W4PR](#) (Women for Pattern Recognition) workshop and initiatives.

Of course, this list is not complete. We invite all IAPR readers to share your experiences. Looking forward to receiving news!

~ Maria De Marsico
Chair of IAPR EDI Committee



FROM THE EXCO...

IAPR RESEARCH SCHOLARSHIPS: AN OPPORTUNITY FOR YOUNG SCIENTISTS

by Josep Lladós Canet, ExCo Secretary



News from the IAPR Executive Committee

The IAPR is developing a new web site, with renewed layout, links to IAPR on social media, more complete content and resources. Stay connected at iapr.org. We're also on [LinkedIn](#), [Twitter](#), and [YouTube](#).

The ExCo welcomes the new Newsletter Layout Editor, Dr. Carolyn Buckley. A big "thank you" from the ExCo to Linda O'Gorman for her rigorous and efficient work as Layout Editor for so many years.

50th Anniversary(ies) of the IAPR: The IAPR Ad Hoc 50th Anniversary Committee is discussing a range of possible activities to help us celebrate. Some of these will take place at upcoming ICPR conferences in 2024 and beyond, while others will be virtual. If you would like to share your ideas, memories, or photos, please [let us know](#).

IAPR-endorsed Conferences. Many Conferences and Workshops under the umbrella of the IAPR will be held next summer around the world. Visit the Call for Papers and Meeting Planner sections of this issue and the "[Conferences](#)" section on the IAPR website for further details about dates, deadlines, and places.

ICPR2022 Proceedings. The 26th International Conference on Pattern Recognition (ICPR 2022) was held in Montreal, Canada between 21-25 August 2022. [The Proceedings](#) are now available through IEEE Xplore.

It is with great sadness that we learned that Professor Roumen Kountchev, President of the Bulgarian Association for Pattern Recognition (BAPR), passed away unexpectedly on April 9, 2023. The ExCo expresses our deepest condolences to his family, friends, and colleagues on behalf of the entire IAPR community.

The IAPR Research Scholarships program (IAPR-RS), launched in 2016 and managed by the Education Committee (IAPR-EC), seeks to improve mobility across institutions and international boundaries for Early Career Researchers working in fields within the scope of the IAPR's interests. Through this program, the IAPR sees an opportunity to make a significant contribution to the development of Early Career Researchers as well as the wider Pattern Recognition community.

One impactful, valuable experience for young researchers in their training career is to spend some time in research stays in internationally renowned laboratories. This not only fosters talent development, but establishes fruitful ties between groups in different countries and opens opportunities for future collaborative projects. The IAPR-RS is principally aimed at providing support to ease financial burdens and boost these early-stage collaborative opportunities.

The design of the IAPR-RS program draws loosely upon the Short Term Scientific Mission (STSM) Program operated by COST (European Cooperation in Science and Technology) Actions. However, the IAPR-RS is generally less restrictive than STSM, and it is aimed specifically at Early Career Researchers.

An applicant to the IAPR-RS must be a full-time researcher and a member of an IAPR member society, either a PhD research student who has completed at least one year's study at this level or someone already in employment as a full-time researcher who has been active in the field for fewer than 8 years and is working at an equivalent level. PhD students are prioritized.

The Scholarship will fund a visit to an appropriate research institution by the candidate (return travel costs and basic living) for a period of up to 12 months. The Scholarship may not necessarily cover all the expenses incurred but would at least represent a substantial contribution. In order to diversify the opportunities, short visits between 3 and 6 months are preferred, and complementary funding is welcome.

The host institution should be (a) (self-evidently) an institution other than that at which the candidate normally studies or works and (b) should also be in a different country from the home institution. A successful applicant will be permitted to adopt the title "IAPR International Scholar" for the period of the grant, to indicate its prestigious nature. Once the research stay is finished, the research scholar must present a brief report on the activities undertaken during the stay, an extract of which will be in the IAPR Newsletter.

To date, the IAPR has granted three Research Scholarships, including one recently completed in February 2023 (see reports in the IAPR Newsletter [39:3] and [41:3]). Pandemic restrictions interrupted the program for two years. The IAPR-EC is now actively seeking new applicants. We strongly encourage eligible researchers, especially young scientists, to submit their applications. For further details, see the guidelines at the [Education Committee section of the IAPR web site](#).

~ Josep Lladós Canet

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. Chaudhuri, 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. Mukhopadhyaya, 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

iapr.org/icpr2024

icpr2024@gmail.com

icpr2024@isical.ac.in



ORGANIZING / TECHNICAL PARTNERS



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IAPR TC3 NEURAL NETWORKS & COMPUTATIONAL INTELLIGENCE

iapr.org/tc3

Chair: Hazem Abbas (Ain Shams University, Egypt)
Vice Chair: Mirco Ravanelli (Université de Montréal, Canada)

IAPR TC3 serves as a platform for promoting research in the areas of artificial neural networks, computational intelligence, and machine learning techniques for pattern recognition. The committee is interested in a wide range of topics, including deep learning, adaptive modeling of sequences and structures (such as graphs), probabilistic graphical models, kernel methods, fuzzy systems, evolutionary computing/genetic algorithms, and statistics relevant to these fields.

We are thrilled with the success of [ANNPR 2022](#), which took place on November 24-26, 2022, at the Dubai Campus of Heriot-Watt University in Dubai (UAE). We will soon be issuing a call for bids for ANNPR 2024. Please keep an eye out for updates regarding ANNPR 2024 on the [TC3 website](#). The conference proceedings are linked in the report, which is included on [page 23](#) of this issue of the *IAPR Newsletter*.



IAPR TC4 BIOMETRICS

iapr.org/tc4

Chair: Julian Fierrez (Universidad Autónoma de Madrid, Spain)
Vice Chair: Shiqi Yu (Southern University of Science and Technology, China)

With an increasing demand on enhanced security and more reliable personal authentication, biometrics has become a very active research topic in pattern recognition and is set to remain so for many years to come. IAPR TC4 is the leading force in the international biometrics community. Our [website](#) serves as the information hub on biometrics-related conferences or workshops, publications, standardization, databases, evaluations, research groups, and other biometrics news.

From January 8 to 12 of 2023, the 7th IAPR/IEEE Winter School on Biometrics was held in Shenzhen, China, with students attending both in person and remotely. All participants enjoyed the programs of the winter school and the support from lectures, organizers, and friends. Read the full report with more pictures and two student essays, in the Meeting Reports section of this issue of *IAPR Newsletter* ([page 25](#)).



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IAPR TC4

BIOMETRICS

NEWS CONTINUED...

iapr.org/tc4

The 20th International Summer School for Advanced Studies on Biometrics for Secure Authentication: 20 Years of Biometrics: Reflections and Outlooks (linked [here](#)) will be held in Alghero, Italy from June 5 to 9, 2023. This school follows the successful track of the International Summer Schools on Biometrics held since 2003. Courses will focus on the lessons learned and on new and emerging issues. For more information, visit the website and/or read the article by Prof. Massimo Tistarelli in this issue of the IAPR Newsletter ([page 7](#)).

20th International Summer School
for Advanced Studies on Biometrics for Secure Authentication:
**20 YEARS OF BIOMETRICS:
Reflections and Outlooks**



IEEE International Joint Conference on Biometrics (IJCB 2023)

25-28 September 2023, Ljubljana, Slovenia



The International Joint Conference on Biometrics (IJCB) is the premier international forum for research in biometrics and related technologies. It combines two major biometrics conferences, the IEEE Biometrics Theory, Applications, and Systems (BTAS) conference and the International Conference on Biometrics (ICB), and is made possible through a special agreement between the IAPR TC-4 and the IEEE Biometrics

Council. IJCB 2023 is the 7th iteration of this major joint event and will be held in Europe, in Ljubljana, Slovenia, September 25-28, 2023. The conference is financially sponsored by the IEEE Biometrics Council and technically co-sponsored by IAPR. IJCB 2023 will be held as an in-person event. The [website](#) provides more details. The deadline for paper submission has been extended to May 8, 2023.

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IAPR TC6 COMPUTATIONAL FORENSICS

iapr.org/tc6

Chair: Victor Sanchez (University of Warwick, UK)
Vice Chair: Nicolas Sidère (University of La Rochelle, France)

IAPR TC6 aims to further promote research, development, and education in Computational Forensics (CF) and to provide a platform for cooperation and exchange of researchers, practitioners, and teachers from the various disciplines of computational and forensic sciences. CF involves modeling, computer simulation, computer-based analysis, and recognition in studying and solving forensic problems.

The IAPR TC6 leadership team has recently changed. In addition to the Chair and Vice Chair named above, our leadership team comprises:

Newsletter Editor:

Petra Gomez (Université de La Rochelle, France)

Speech Organiser:

Irene Amerini (Sapienza Università di Roma, Italy)

Information Officer and Web Master:

Bosheng Yan, (Deakin University, Australia).

The committee will resume our seminar series in early May 2023 with an inaugural talk by Dr. Benedetta Tondi from the Visual Information Processing and Protection Group at Università di Siena, Italy. All seminars will be held either virtually or in a hybrid format.

If you are interested in the activities of IAPR TC6, please visit our [website](#) or feel free to email Victor Sanchez: V.F.Sanchez-Silva@warwick.ac.uk



IAPR TC7 REMOTE SENSING AND MAPPING

[Twitter](#) [LinkedIn](#) iapr.org/tc7

Chair: Ribana Roscher (University of Bonn, Germany)
Vice Chair: Charlotte Pelletier (Université Bretagne Sud, France)
Vice Chair: Sylvain Lobry (Paris Descartes University, France)
Vice Chair: Marc Russwurm (École Polytechnique Fédérale de Lausanne, Switzerland)

IAPR TC7 promotes the development and application of pattern recognition methods for analyzing remote sensing data collected from space, air, and ground, and fosters academic collaboration and networking among related communities. Everyone is welcome to [subscribe](#) to the IAPR 7 Newsletter for information about current events and conferences on remote sensing and pattern recognition.

In March, TC7 launched a Remote Sensing and Mapping Twitter Space. The recording of the last chat about Mapping Sand Mining with M.Smigaj and D.Walker can be found on [TC7's website](#). Future Twitter Space that you can join and participate in during the live recording will be announced on our Twitter account. Join us the next time! Stay up to date by becoming a follower.



RS & Mapping

Mapping Sand Mining in Vietnam and southern Africa

@IAPR_TC7
twitter space
March 30th
17:00 CET

Drs. Magdalena Smigaj & David Walker

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IAPR TC 11
**READING
SYSTEMS**

iapr.org/tc11

Chair: Andreas Fischer (HES-SO and University of Fribourg, Switzerland)
Vice Chair: Mickaël Coustaty (University of La Rochelle, France)

IAPR TC11 is concerned with the theory and applications of Reading Systems. We seek to study and develop systems that recognize character content and structure in handwritten and typeset documents, images, and video.

The 18th International Conference on Frontiers in Handwriting Recognition ([ICFHR 22](#)) was a great success. The conference was held from December 4-7 in Hyderabad, India, and was attended by over 100 participants. A total of 37 high-quality conference papers and 10 journal-track articles were accepted for oral presentation at the conference. Conference proceedings are linked to the image on your right.



A special session was organized by the TC11 chair to decide on the future of ICFHR with respect to the annual ICDAR. An online vote was held, accessible to all TC11 members, with the following options:

- 1) Keep ICFHR as an independent biannual event; either in odd or in even years.
- 2) Join forces with annual ICDAR; either as a workshop or as a conference track.

Over 100 votes were cast and a clear majority was in favor of joining forces with the annual ICDAR (71.6%), in the form of a dedicated conference track (62.8%).

Therefore, starting in 2023, the annual ICDAR conference will include a scientific track on "Frontiers in Handwriting Recognition," highlighting the importance of the topic within document analysis research. This will allow the TC11 community to present and discuss the latest research in handwriting recognition at a single conference, instead of two separate ones.



The 17th International Conference on Document Analysis and Recognition: [ICDAR 2023](#) will be held in San Jose, California, USA, from August 21 - 26, 2023. Conference paper submission is now closed, but it is still possible to submit papers to the satellite workshops. More details are linked to the image above (<https://iapr.org/icdar2023>).

ICDAR Athens Greece
2024
International Conference on Document Analysis and Recognition

SAVE THE DATE
30 August -
4 September 2024



Mark your calendars for the 18th International Conference on Document Analysis and Recognition: [ICDAR 2024](#) will be held in Athens, Greece, from August 30 - September 4, 2024. More information will be available soon at the website linked to the image above (<https://iapr.org/icdar2024>).

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IAPR TC 11

iapr.org/tc11

READING SYSTEMS NEWS CONTINUED...

IN COOPERATION WITH **TC 10, GRAPHICS RECOGNITION**



The 5th TC10/TC11 Summer School on Document Analysis Fribourg and Moléson-sur-Gruyère (Switzerland) July 3-7, 2023

<http://iapr.org/tc10>

<http://iapr.org/tc11>



The 5th TC10/TC11 Summer School on Document Analysis (SSDA 2023) will take place in Fribourg, Switzerland, from July 3-7, 2023. The event will take place from Monday evening to Friday morning in a beautiful chalet in the mountains. Registration opened on April 21. More information will be available soon at the [TC11 webpage](#). For a general description of SSDA goals and links to previous SSDA editions, visit the [TC10 webpage](#).

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IAPR TC 12

MULTIMEDIA AND VISUAL INFORMATION SYSTEMS

[Twitter](#)

[LinkedIn](#)

iapr.org/tc12

Chair: Hugo Jair Escalante (INAOE & CINVESTAV, Mexico)

Vice Chair: Sergio Esclara (University of Barcelona, Spain)

Vice Chair: Henning Müller (HES-SO, Sierre, Switzerland)

Information Officer: Albert Ali Salah (Utrecht University, Utrecht, Netherlands)

IAPR TC12 promotes interaction among researchers working in modeling, design, and development of systems for the analysis, processing, description, and retrieval of multimedia and visual information as well as the applications of these systems in challenging domains.



image credit: imageclef.org

[ImageCLEF 2023](#) was accepted as a lab in the Conference and Labs of the Evaluation Forum (CLEF 2023). The conference will take place in Thessaloniki

(Greece) in September 2023. A new task is introduced this year (#ImageCLEFmedGANs), focused on examining the existing hypothesis that GANs are generating medical images that contain the "fingerprints" of the real images used for generative network training. ImageCLEF also includes the 7th edition of the #ImageCLEFmedicalCaption task. The task addresses the need for automatic methods that can approximate the mapping from visual information to condensed textual descriptions for radiology scans.

[GAN Task webpage](#)

[Captioning Task webpage](#)



image credit: fg2024.ieee-biometrics.org

18th IEEE Conference on Automatic Face and Gesture Recognition (FG 2024)

will take place in Istanbul (Turkey) May 27-31, 2024.

FG is the premier international forum for research in image and video-based face, gesture, and body movement recognition. Its broad scope includes advances in fundamental computer vision, pattern recognition, and computer graphics; machine learning techniques relevant to face, gesture, and body motion; interdisciplinary research on behavioral analysis; new algorithms and applications. Please check out the call for competitions at the conference website:

FG2024.ieee-biometrics.org.



image credit: codalab.lisn.upsaclay.fr/competitions/10080

Chalearn Looking at People series - 4th Face Anti-Spoofing Workshop and Challenge@ CVPR2023

will focus on general surveillance scenarios and alleviating the performance degradation of technology in the case of low face resolution,

occlusion interference, non-frontal perspective, and other natural person behaviors. Fully considering the above difficulties and challenges, awww large-scale High Fidelity Mask dataset based on Surveillance Scenes, namely SuHiFiMask, is released for this fourth edition for algorithm design and competition promotion.

[Challenge Website](#)

[Workshop](#)

[SuHiFiMask paper](#)



image credit: mwell.tbm.tudelft.nl

International Workshop on Affective Computing for Mental Wellbeing: Challenges, Opportunities, and Promising Synergies (mWELL@ACII2023)

brings together researchers in Affective Computing (AC), clinicians

in the emerging area of digital mental health and digital psychiatry, developers from industry, and policymakers to discuss what aspects of digital mental health apps and tools can most benefit from AC technologies and wexisting technologies already incorporating AC, such as embodied conversational agents and affective virtual agents, and affect-adaptive human-machine interaction. Submission deadline was at the end of April (check for updates).

[Affective Computing for Mental Wellbeing](#)

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IAPR TC 19

**COMPUTER VISION FOR
CULTURAL HERITAGE
APPLICATIONS**[Twitter](#) iapr.org/tc19*Chair:* Olga Regina Pereira Bellon
(Universidade Federal do Parana, Brazil)*Vice Chair:* Ilan Shimshoni (University of Haifa, Israel)

IAPR TC19 brings together the combined expertise and resources of technologists, heritage administrators, heritage professionals and communication experts concerned with the effective and sustainable application of computer vision technology to Cultural Heritage research and presentation at museums, monuments, and historic sites, as well as the promotion of integration of research efforts in still incompletely coordinated sub-fields like Field Recording and Data Capture; Data Organization, Provenance and Standards; Visualization and Virtual Reconstructions; and Planning for sustainability of heritage projects.

ICCV Workshop on E-Heritage 2023

IAPR TC19 is organizing the [4th ICCV Workshop on E-Heritage](#), to be held on October 2nd or 3rd (TBD), 2023, in conjunction with ICCV 2023, in Paris, France.

Confirmed invited speakers Dr. Livio De Luca (CNRS) and Prof. El Mustapha Mouaddib (UPJV) will present a large set of computer vision work aimed toward restoration of the Notre-Dame of Paris cathedral after the burn of its roof in April 2019.

We invite paper submissions to the workshop. Papers must be at most 8 pages and follow [ICCV 2023 guidelines](#). Use this [Submission Menu](#) to submit papers by July, 27, 2023. Accepted papers will be published in the ICCV workshop's proceedings.

SCOPE:

The focus of the workshop is e-Heritage (Electronic Cultural Heritage) involving Computer Vision techniques. Interdisciplinary contributions are strongly encouraged to keep a wide scope in this research field.

IMPORTANT DATES:

Paper submission: Jul. 27th, 2023
Acceptance notification: Aug. 31st, 2023
Camera ready (tentative): Sep. 14th, 2023
Workshop date (tentative): Oct. 3rd, 2023



MEETING REPORTS

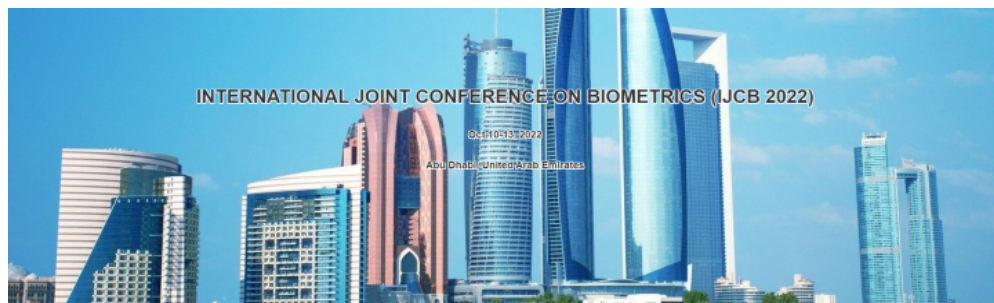
CONFERENCES, WORKSHOPS, & SUMMER/WINTER SCHOOLS

General Chairs

Rama Chellappa,
Josef Kittler & Nasir Memon

Program Chairs

Shengcai Liao, Xiaoming Liu,
& Massimo Tistarelli



The 2022 International Joint Conference on Biometrics ([IJCB 2022](#)) was held at the Yas Island Rotana Hotel in Abu Dhabi, United Arab Emirates, from October 10 to October 13, 2022, and was the first biometrics conference of its kind held in the Middle East. IJCB 2022 combined two major biometrics conferences, the IEEE Biometrics Theory, Applications, and Systems (BTAS) conference and the International Conference on Biometrics (ICB). IJCB 2022 was technically co-sponsored by both IAPR TC4 (Technical Committee on Biometrics) and the IEEE Biometrics Council.

IJCB 2022 Proceedings are available through ieeexplore.IEEE.org ([direct link here](#)).

Held in hybrid mode, IJCB 2022 was attended by 130 participants, including 75 in-person and 55 online attendees. This was the first hybrid biometric conference allowing in-person interactions after the COVID-19 pandemic, and attendees enjoyed time together during the conference.

There were 203 papers submitted to the conference, and 77 were accepted from all tracks. The review process was managed by three Program Chairs, with the assistance of 25 area chairs and 189 reviewers. Among 58 papers accepted for the main track, 21 were selected for oral presentations and 37 for poster presentations.

Papers covered a wide range of topics including face recognition, iris, fingerprints, palmprints, periocular, gait, gesture, mobile-

based biometrics, anti-spoofing, attack detection, data security, privacy protection, etc. The papers will be made available in IEEE Xplore.

The program included three keynote speakers, Prof. Christoph Busch, Prof. Els J. Kindt, and H.E. Dr. Mohamed Al-Kuwaiti. In his keynote entitled "Face Image Morphing," Prof. Dr. Christoph Busch discussed the morphing attack problem with solutions to detect such morphed facial images. Methodology to assess the detection accuracy of morphing attack detection algorithms was also discussed. Prof. Els J. Kindt's keynote, "Biometric data: A recap of regulatory approaches and some hints for the future," provided an overview of regulatory approaches for biometric data collection and use from mainly a European law perspective. She also discussed some recently selected proposals of the new European Digital Agenda (2020-2030) with attention to the use of the special category of data in research for training and development. The third



keynote, given by H.E. Dr. Mohamed Al-Kuwaiti, on AI and cybersecurity practice and future in UAE, was about big data and AI practice and their applications for cybersecurity, smart cities, autonomous driving, etc. He highlighted that UAE has established a lot of AI applications, including biometrics, and is expecting more AI-empowered use for government and industry applications.

The first day of the conference offered three tutorials, including “Biometric Template Protection for Face Recognition Systems: A behind-the-scenes look at the Motivation, Methods, and Metrics,” “Person Re-Identification: Synthetic Data and Model Generalization,” and “Human-Machine Pairing to Improve Biometric Recognition and Presentation Attack Detection.” The tutorials attracted many participants and received very good feedback.

The conference also offered a competition session with five competitions. The winners shared their methods and experiences with the conference attendees. Two special sessions (“Recent Advances in Detecting Manipulation Attacks on Biometric Systems (ADMA-2022)” and “Synthetic Data in Biometrics”) and a journal presentation session were also offered. It is worth mentioning that after the pandemic, we finally had in-person oral and poster sessions and coffee break sessions, and attendees were actively involved in these sessions in person for communications and discussions.

At the awards ceremony, Prof. Mark Nixon, the Awards Chair,



announced the winners of the best papers: The IIAI Best Paper Award was given to Philipp Terhörst, Florian Bierbaum, Marco Huber, Naser Damer, Florian Kirchbuchner, Kiran Raja, and Arjan Kuijper for their paper “On the (Limited) Generalization of MasterFace Attacks and Its Relation to the Capacity of Face Representations.” The Best Paper Runner Up Award was given to Cuicui Kang for her paper, “Is Synthetic Dataset Reliable for Benchmarking Generalizable Person Re-Identification?” The NYUAD Best Student Paper Award was given to Luke Sperling, Nalini Ratha, Arun Ross, and Vishnu Boddeti for their paper “HEFT: Homomorphically Encrypted Fusion of Biometric Templates.” Dr. Shengcai Liao announced the Best Reviewer Awards, given to Manuel Günther, Nisha Srinivas, and Rajeesh Ranjan for their expertise, dedication, high quality and timely review reports. The QualComm Audience Choice Award was given to Fadi Boutros, Marco Huber, Patrick Siebke, Tim Rieber, and Naser Damer for their paper, “SFace: Privacy-friendly and Accurate Face Recognition using Synthetic Data.”

IEEE Biometrics Council President Prof. Ajay Kumar announced the Best Doctoral Dissertation Award, given to Dr. Maneet Singh for “advancing face recognition technology with machine learning algorithms tailored towards low-resolution recognition problems and data with disguise variations,” and the IEEE Biometrics Council Meritorious Service Award, to Prof. Massimo Tistarelli for his “Exceptional services to the biometrics community and organization of summer schools and flagship conferences.” Several IEEE T-BIOM Best Paper Awards were also announced.

The conference organizers would like to thank our sponsors, including Diamond Sponsor, Inception Institute of Artificial Intelligence (IIAI), Platinum Sponsor, New York University Abu Dhabi (NYUAD), and Gold Sponsor, QualComm, for their *great support. Best wishes for [IJCB 2023 in Ljubljana, Slovenia!](#)*

~ Rama Chellappa, Josef Kittler, Nasir Memon, Shengcai Liao, Xiaoming Liu, and Massimo Tistarelli (IJCB 2022 General Co-Chairs and Program Co-Chairs), On behalf of the IJCB 2022 Organizing Committee

The 10th IAPR TC3 Workshop on Artificial Neural Networks in Pattern Recognition

November 24 - 26, 2022
Dubai, UAE



Conference Chairs

Neamat El Gayar
*Heriot-Watt University
Dubai Campus, Dubai, UAE*

Edmondo Trentin
*Universita' di Siena,
Siena, Italy*

Mirco Ravanelli
*Concordia University,
Montreal, Canada*

Hazem Abbas
*Ain Shams University,
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24 AND 26 NOVEMBER 2022

THE 10TH IAPR TC3 WORKSHOP ON ARTIFICIAL NEURAL NETWORKS IN PATTERN RECOGNITION

INVITED SPEAKERS


Michael S. Lew
Professor, Deep Learning
Computer Science Department (UACS)
London University, Netherlands


Michael Lones
Associate Professor
School of Mathematical and Computer Sciences,
Heriot-Watt University, Edinburgh

SCAN THE QR CODE TO VIEW THE PROGRAM



Springer IAPR Lecture Notes in Artificial Intelligence

On November 24-26, 2022, the 10th IAPR TC3 Workshop on Artificial Neural Networks in Pattern Recognition was successfully held at Heriot-Watt University Dubai Campus at Knowledge Park, Dubai, UAE. The ANNPR series of workshops acts as a major forum for international researchers and practitioners working in all areas of neural-network-based and machine-learning-based pattern recognition to present and discuss the latest research, results, and ideas in these areas. ANNPR is also the biennial meeting of the Technical Committee 3 (TC3) on Neural Networks & Computational Intelligence of the International Association for Pattern Recognition (IAPR).

[ANNPR 2022](#) followed the success of [ANNPR 2020](#) (Winterthur, Switzerland), [ANNPR 2018](#) (Tuscany, Italy), ANNPR 2016 (Ulm, Germany), ANNPR 2014 (Montreal, Canada), ANNPR 2012 (Trento, Italy), ANNPR 2010 (Cairo, Egypt), and ANNPR 2008 (Paris, France) to name a few. These events have always been sponsored by IAPR. ANNPR 2022 solicited papers

that presented original work in the aforementioned areas, focusing on their algorithmic, theoretical, and applied aspects. Topics of interest included both methodological issues (e.g., supervised, partially supervised, and unsupervised learning; modular architectures and hybrid systems; multiple classifier systems and ensemble methods, etc.) and applications to pattern recognition (e.g., image processing, sensor-fusion, clustering, speech recognition, bioinformatics, etc.).

Neamat El Gayar
Edmondo Trentin
Mirco Ravanelli
Hazem Abbas (Eds.)

LNAI 13739

Artificial Neural Networks in Pattern Recognition

10th IAPR TC3 Workshop, ANNPR 2022
Dubai, United Arab Emirates, November 24-26, 2022
Proceedings

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We encouraged submissions fitting the TC3 Manifesto and research directions, which quotes sociologist Rodney Stark: "Mainstream science is about publishing what everyone else is publishing with very small changes. You'd better at least start off that way if you want to get tenure," and John Bohannon, who added: "...big ideas don't come to those who avoid risk." Mainstream topics, originally stemming from exciting breakthroughs (the "big ideas") gradually become trends and end up being mostly over-beaten publishing tracks in the scientific literature of this research field, like others. Based on this premise, ANNPR 2022 promoted novel research in the areas of neural networks and learning machines that (1) were rooted in (or aimed at) pattern recognition, and that, above all, (2) did not follow in the footsteps of established trends.

The reaction of the Community was positive: 25 manuscripts were submitted to the workshop, 19 of which were selected for oral presentation. The review process was managed by the Chairs with help from the international Program Committee, which included researchers from 5 continents. ANNPR 2022 was attended by 24 local and international scientists and students, both remote and in-person. **The Proceedings of ANNPR 2022 were published by Springer International and are linked to the cover image on page 23 (or [click here](#)).**

The [ANNPR 2022 program](#) offered two invited talks and five oral sessions. The invited talks were 60 minutes long and were given by distinguished fellow scientists, active in the areas of neural networks and pattern recognition: Michael S. Lew (Leiden University, Netherlands) spoke on *Advances and Paradigms in Deep Learning*, and Michael Lones (Heriot-Watt University, UK) presented



Evolutionary Algorithms and Neural Networks: A Match Made in Heaven? (IAPR Invited Speaker). In the five oral sessions, authors of accepted papers were given 30 minutes to present and discuss their papers.

The opening session for ANNPR (top right image, page 24) was held at the top floor of the beautiful Heriot-Watt Dubai Campus, which overlooks some of Dubai's major landmarks, including Burj al Arab and the Palm Jumeirah Island. Following the welcome reception, Prof Heather McGregor, Provost and Vice Principal of Heriot-Watt Dubai, addressed the attendees with a brief speech, followed by another welcome note from

Stephen Gill, Academic Head of the School of Mathematical and Computer Science at the Dubai Campus. Dr Neamat El Gayar presented a speech on behalf of ANNPR 22 Chairs and was joined by Edmondo Trentin to outline the history of the ANNPR series and the activities conducted by IAPR TC3. After the reception, the first invited speaker, Prof Michel Lew, delivered the first talk of the conference.

The conference dinner (middle image, page 24) was held at the iconic Palm Jumeirah Island in an Arabic restaurant overlooking the Palm Fountain. The participants enjoyed an entertaining evening, and some ventured back to their

hotels while experiencing a journey with the Palm Monorail, which offers stunning views of Dubai landmarks.

Regarding the future edition of the workshop, a call for bids to host ANNPR 2024 will be issued via the TC3 mailing list. Proposals will be evaluated by the Officeholders and the Leadership Board of the TC3 during July of 2023, making sure that another successful event is soon on its way.

*Report by
Hazem Abbas,
Chair of IAPR TC3 and
Neamat El Gayar,
Co-Chair of ANNPR 2022*

Organizers:  Department of
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IAPR/IEEE WINTER SCHOOL ON BIOMETRICS 2023

8 - 12 January 2023 Shenzhen, China



The [7th IAPR/IEEE Winter School on Biometrics](#), a training course to promote research in biometrics and related fields, was held January 8 - 12, 2023, in a mixed mode in Shenzhen, China. It was jointly organized by the Department of Computer Science at Hong Kong Baptist University, the Institute of Automation at the Chinese Academy of Sciences, and the Department of Computer Science and Engineering at Southern University of Science and Technology. It was co-sponsored by the IAPR and IEEE.

There were 67 participants, including 27 on-site, 31 online, and 9 volunteer students. Seven participants (10%) were

from outside of China (Japan, Bangladesh and Pakistan). IAPR grants were given to 16 online participants who were selected by the winter school directors.

Fifteen lectures were given by renowned academic and industry experts from all over the world: Prof. Raffaele Cappelli, Prof. Rama Chellappa, Prof. Anil Jain, Prof. Josef Kittler, Prof. Ajay Kumar, Prof. Xiaoming Liu, Prof. Brain Lovell, Prof. Chen Change Loy, Prof. Mark Nixon, Prof. Vishal M. Patel, Dr. Norman Poh, Prof. Arun Ross, Prof. Zhenan Sun, Prof. Tieniu Tan, Prof. Massimo Tistarelli, and Prof. Pong C. Yuen. The lectures were given online due to the international

traveling restrictions. Topics covered biometric identification with face, fingerprint, finger knuckle, gait, iris, privacy in biometrics, trustworthy biometrics, multimodal biometrics, etc. The speakers presented the most up-to-date views in biometrics and shared their experiences with young students and researchers.

Industry was deeply involved in the winter school. Dr Norman Poh, Chief Science Officer at Trust Stamp and AiiD Global, presented a hands-on session organized by the OpenCV China Team. Ms. Jia Wu, Mr. Yuantao Feng and Mr. Zihao Mu gave lectures on how to develop a real-time face recognition and human



interaction system. Most participants completed a project on face recognition and submitted reports. Three teams were awarded for their excellent works.

To encourage sharing and communication, the social program included a cruise. Prof. Shiqi Yu, Prof. Jianguo Zhang and Prof. Zihui Lai, joined the program and talked with students. The students enjoyed the trip and the communications with friends and professors.

Organizing the on-site winter school was challenging. The local organizing committee adjusted plans as needed to make the winter school a success. The Chinese government has removed international travelling restrictions as of January 2023, and the next winter school is expected to have more on-site participants and on-site lecturers.

~ Reported by Prof. Shiqi YU

See TC4 News ([page 14](#)) for our group photo



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 Norman Poh, Trust Stamp and AiiD Global

School Director

P C Yuen, Hong Kong Baptist University, Hong Kong



STUDENT REPORT



Student Report on Participation in the IAPR/IEEE Winter School on Biometrics 2023

I am writing to report on my experience at the IAPR/IEEE Winter School on Biometrics 2023. As a recipient of the IAPR Grant, I had the opportunity to attend the winter school online and gain valuable insights into the field of biometric recognition technology. The grant provided me with the resources and support necessary to engage with industry leaders and learn about the latest advancements in biometric recognition technology, which was extremely important to me.

I learned about the winter school through my professor, Prof. Yuchun Fang, who is also my instructor for the "Pattern Recognition" course. She recommended the winter school to me due to my interest in pattern recognition and a desire to explore unknown topics.

The winter school was incredibly helpful to me in gaining a more comprehensive and profound understanding of the field of biometric recognition. The lectures covered a wide range of topics, including facial recognition, iris recognition, gait recognition, and privacy and security issues in biometric recognition.

One of the lectures that impressed me the most was given by Professor Tieniu Tan of the Chinese Academy of Sciences. He provided a detailed overview of iris recognition, including the acquisition and preprocessing of iris images, as well as the latest research progress in the field. During the lecture, I was able to ask Professor Tan several questions related to iris recognition and he was kind enough to provide me with thorough answers.

In addition to Professor Tan's lecture, I was also impressed by the discussion on the topic of privacy and security issues in biometric recognition given by Professor Arun Ross. He shared his insights and research findings on how to protect personal information and prevent potential security breaches. This is a crucial aspect of biometric recognition technology and I found the discussion to be very informative and thought-provoking.

Another lecture that stood out to me was on the topic of Face Presentation Attack Detection given by Professor P C Yuen. He discussed the latest research on how to detect and prevent these types of attacks, which is becoming increasingly important as the use of biometric recognition technology becomes more widespread.

Overall, my experience at the IAPR/IEEE Winter School on Biometrics 2023 was extremely rewarding. I am grateful for the opportunity to learn from industry leaders and gain a deeper understanding of the field. I look forward to applying what I have learned to my research and future endeavors in the field of biometric recognition technology.

Sincerely,
Xueji Fang,
School of Computer Engineering and Science,
Shanghai University, Shanghai, China 200444
E-mail: jaggar.fang@hotmail.com

STUDENT REPORT



Report from Kamrul Hasan
Student at the IAPR/IEEE Winter School on Biometrics 2023

I am an undergrad student in the Computer Science & Engineering department of Begum Rokeya University, Rangpur. My interest is in computer vision and biometrics, and my target is to enrich my knowledge of biometrics. My plan is to pursue MSc and Ph.D. degrees in biometrics.

Recently, I attended the IAPR/IEEE Winter School on Biometrics 2023 online from 8 to 12 January. As a student, managing the registration fees and joining the Biometric School was challenging for me. I got the IAPR Grant to join the biometric school online, and it was beneficial to me. As a student, I learned and understood various fields and applications of biometrics. As a final-year student, I chose "Biometrics-based person recognition" as the project, and the project is ongoing. Dr. Md. Zashim Uddin, Ph.D., is my undergrad supervisor. He informed me about the biometric school, and I was very interested in the school's program. With my supervisor's instruction, I applied to the school.

The journey of winter school was incredible. I enjoyed and learned a lot from the biometric school. Prof. Anil K. Jain took the introductory class, and he clearly explained the basic understanding of biometrics. Prof. Ajay Kumar introduced the topic "Finger Knuckle Identification in the Wild," which seems pretty interesting. Prof. Zhenan Sun explained biometrics and the various uses of biometrics, and his lecture was very informative. Again, Prof. Arun A. Ross discussed the integrity and privacy of biometrics data and explained the "Phylogeny Tree." It seems interesting to me. The lecture "Federated Learning for Biometrics" impressed me the most as it was a new topic for me. Overall, the lecture of every Prof. was beneficial.

The most exciting part of the biometric school was the Q&A session after every lecture. And I got clarification when I asked questions. Several on-site/online students were asked many questions about the lecture's topic, which was informative as most of the questions were about core biometrics.

In the assignment session, the assigned task was to complete a face recognition system using OpenCV. When completing the task, I learned about several functions of python; that was interesting too. On 12 January, the "Final prize presentation" was held, and I got two certificates, one for the "Certificate of Participation." Another was for the "Outstanding Participation Award," which was inspiring. I am happy to have attended the biometric school program. Prof. Shiqi Yu was very helpful during the whole program, and I am grateful to him.

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Conference dates and venues may change due to COVID-19 concerns. Some may be held online.
 Visit IAPR.org/conferences or specific conference websites for the most up-to-date information.

Conferences and Dates

2023

Links to Previous Reports, plus
Venues & Paper/Application Deadlines

Month	Dates	Meeting (shaded = IAPR application for support pending)	Previous Report	Venue	Deadline
May	11-13	ISPR 2023 3rd International Conference on Intelligent Systems and Pattern Recognition	2022	Hammemet Tunisia	Closed
June	5-9	SSB 2023 20th International Summer School for Advanced Studies on Biometrics for Secure Authentication: Reflections and Outlooks	2022	Alghero Italy	Closed
	21-24	MCPR 2023 15th Mexican Conference on Pattern Recognition	2022	Nayarit México	Closed
	27-30	IbPRIA 2023 11th Iberian Conference on Pattern Recognition and Image Analysis	2022	Alicante Spain	Closed
July	4-7	ICPRS 2023 13th International Conference on Pattern Recognition Systems	2022	Guayaquil Ecuador	Closed
	13-14	DeLTA 2023 4th International Conference on Deep Learning Theory and Applications	2022	Rome Italy	Closed
	23-25	MVA 2023 18th International Conference on Machine Vision Applications	2021	Hamamatsu Japan	Closed
Aug.	21-26	ICDAR 2023 17th International Conference on Document Analysis and Recognition	2021	San Jose, CA USA	Closed
Sept.	6-8	GbR 2023 13th IAPR TC15 International Workshop on Graph-Based Representations in Pattern Recognition	2019	Vietri sul Mare Italy	Closed
	25-28	IJCB 2023 IEEE International Joint Conference on Biometrics	2022	Ljubljana Slovenia	May 8 (extended)
Oct.	27-29	ICCP 2023 12th International Conference on Computing and Pattern Recognition	2022	Qingdao China	May 30
Nov	3-5	CVIP 2023 8th International Conference on Computer Vision and Image Processing	2022	Jammu, JK India	May 1
	5-8	ACPR 2023 7th Asian Conference on Pattern Recognition	2021	Kitakyushu Japan	May 15
	27-30	CIARP 2023 26th Iberoamerican Congress on Pattern Recognition	2021	Coimbra Portugal	July 1
Dec	12-15	PReMI 2023 10th International Conference on Pattern Recognition and Machine Intelligence	2021	Kolkata India	Closed

2024

Feb	6-8	ISPR 2024 4th International Conference on Intelligent Systems and Pattern Recognition	(2nd) 2022	Sharjah UAE	Sept 30 2023
Dec	1-5	ICPR 2024 27th International Conference on Pattern Recognition	2022	Kolkata India	May 1 2024



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 Editor in Chief (EiC): Heydi Méndez Vázquez hmendez@cenatav.co.cu
 Layout Editor (LE): Carolyn Buckley cab@sayitbetterscience.com
 Secretariat: Linda O'Gorman secretariat@iapr.org

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