THE INTERNATIONAL ASSOCIATION FOR PATTERN RECOGNITION

iapr.org

IAPR Newsletter

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Volume 46, Number 4, Oct 2024

Inside this Issue

IAPR's Assistant Secretariat

A Note from Linda O'Gorman, Executive IAPR Secretariat: The Office of the IAPR Secretariat was established in 1992 under the exceptional management of Susan Duff. I took over in 2004, and as responsibilities grew, it became clear IAPR needed additional support. At the 2022 Governing Board (GB) Meeting, the Executive Committee (ExCo) proposed and the GB approved the creation of an Assistant IAPR Secretariat role. This position will manage daily administration, allowing the Executive Secretariat to focus on providing higher-level support to the ExCo and other committees.

IAPR is thrilled to welcome Rosemary Green as the Assistant IAPR Secretariat (secretariat@iapr.org), and I'm excited to move into my new role as Executive IAPR Secretariat (exec-secretariat@iapr.org).

Thank you for the fabulous introductions, Linda!

"Introductions" is plural here because Linda is not only introducing me to all of you; she also introduced me to this role, and I want to thank her for both. In 2015, I moved into a home across the street from Larry and Linda O'Gorman. Somewhere in those early days of neighborly conversation, Linda mentioned having "the best part time job ever" working for an international organization. While it sounded very interesting to me, I filed this detail under neighborhood info and moved on with daily living without giving it much thought. Fast forward nearly nine years… I opened my email to a note from Linda asking if I knew anyone who might be interested in said part-time job. After reading about IAPR and the role of Secretariat, I thought, "Why yes, I think I would be!" This brings me to here: this introduction to you.

My daily life is that of a mom and a business owner. I graduated from The University of Delaware with a BFA in Fine Arts and a Minor in Psychology. My career began at Saks Fifth Avenue when their website was just becoming a practical way to shop. By the time I left in 2017, I was managing a team of photographers across the Hudson's Bay Company banners (Saks, Hudson's Bay, Lord & Taylor, and Gilt Group). From there, I ventured into entrepreneurship and have been photographing weddings and families since. I have two daughters under the age of 5 and enjoy yoga, running, and reading… and have recently taken up knitting. As you can imagine, I thrive on being organized, and I'm excited to help Linda streamline some of IAPR's administrative tasks to make life easier for members and for the Governing Board. No matter what I'm doing, I love meeting new people and finding common ground, and I look forward to getting to know many of you virtually and, some day, in person.

~ Rosemary Green

The views expressed in this newsletter represent the personal views of the authors and not necessarily those of their host institutions or of the IAPR.

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	2025	Calls and Deadlines (in order from earliest **paper deadline**, other deadlines vary in order)
ROBOVIS 2025 February 23-25, 2025 Porto, Portugal	5th International Conference on Robotics, Computer Vision and Intelligent Systems	**Papers:** Closed Position Papers: Nov.13 Tutorial, Demo, Panel Prop.: Jan 17, 2025
VISAPP 2025 February 23-25, 2025 Porto, Portugal	20th International Conference on Computer Vision Theory and Applications	**Papers:** Closed Position Papers: Nov.13 Tutorial, Demo, Panel Prop.: Jan 17, 2025
ICPRAM 2025 February 23-25, 2025 Porto, Portugal	14th International Conference on Pattern Recognition Applications and Methods	**Papers:** Closed Position Papers: Nov.13 Workshop Papers: Nov 15 Tutorial, Demo, Panel Prop.: Jan 17, 2025
ICDAR 2025 September 17-25, 2025 Hubei, China	19th International Conference on Document Analysis and Recognition	**Papers:** Nov.15, 2024
MCPR 2025 June 25-28, 2025 Guanajuato, Mexico	17th Mexican Conference on Pattern Recognition	**Papers:** Jan. 31, 2025
ICIAP 2025 September 15-19, 2025 Rome, Italy	23rd International Conference on Image Analysis and Processing	**Papers:** 1st round: Feb. 1, 2025 2nd round: Apr. 15, 2025
GbR 2025 June 25-27, 2025 Caen, France	14th IAPR TC15 Workshop on Graph-based Representations in Pattern Recognition	**Papers:** Feb 3, 2025
IbPRIA 2025 June 30-July 3, 2025 Coimbra, Portugal	12th Iberian Conference on Pattern Recognition and Image Analysis	**Papers:** TBD
MVA 2025 (site coming soon) July 26-28, 2025 Kyoto, Japan	19th International Conference on Machine Vision Aplication	**Papers:** TBD
	2026	
ICPR 2026 August 16-20, 2026 Lyon, France	28th International Conference on Pattern Recognition	**Papers:** Dec, 2025 (TBD) Workshop Proposals: Nov, 2025 (TBD)

ABBREVIATED TITLES AND LINKS	WORKSHOP TITLES
A2I	Affective Artificial Intelligence – Methods and Applications
ABCWML2024	International Workshop on Advancing Brain-Computer Interfaces with Machine Learning
AI4D	Enhancing Human Security, Equality & Dignity: 2nd International Workshop on AI for De-escalation
AIHA2024	3rd International Workshop on Artificial Intelligence for Healthcare Applications
AISIA2024	Artificial Intelligence for Surgical Image Analysis
CVAUI 2024	6 th Workshop on Computer Vision for Analysis of Underwater Imagery
FAIRBIO	2nd Workshop on Fairness in Biometric Systems
FBE2024	2nd workshop on Facial and Body Expressions
G2SP-CV 2024	First International Workshop on Graph Learning and Graph Signal Processing Algorithms in Computer Vision
IMTA-IX-2024	Image Mining. Theory and Applications
MADiMa	Multimedia Assisted Dietary Management
MCMI	Multi- and Cross-Modal Information for Enhanced Pattern Recognition
MMVPR	Multi-Modal Visual Pattern Recognition
MPRSS	Multimodal Pattern Recognition for Social Signal Processing in Human-Computer Interaction
PRHA2024	The 3rd International Workshop on Pattern Recognition in Healthcare Analytics
PRRS 2024	13th IAPR Workshop on Pattern Recognition in Remote Sensing
RRPR	Fifth Workshop on Reproducible Research in Pattern Recognition
SPRCV	Sustainable Pattern Recognition and Computer Vision Developments - Balancing Innovation and Environmental Responsibility
VAIB	Visual Observation and Analysis of Vertebrate and Insect Behavior
WCWCE	Workshop on Challenges in Wireless Capsule Endoscopy (CWE)
WICV	Workshop on Infrared Computer Vision
MMFORWILD2024	3rd Workshop on MultiMedia FORensics in the WILD
IMUE2024	First Workshop on Intelligent Mobility in Unstructured Environments
XAIE	3-rd Workshop on Explainable and Ethical AI

ICPR 2024 INDIA

NEWS AND INFORMATION PAGES

BROWSE OUR WORKSHOPS, TUTORIALS, AND COMPETITIONS

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

TUTORIALS

Click on Any Title Button Below to Link Directly to the ICPR 2024 Tutorials Page and Learn More

Tutorial 1
Behavior Sensing from Audio-Visual Cues

Tutorial 2
Active Learning for Pattern Recognition Applications

Tutorial 3
Building Highly Efficient Computer Visions Models:
Development of Deployment with Ease

Tutorial 4
DL-based Generative Models for Sensor Data Synthesis:
Methods, Applications, and Need of Physics Guidance

Tutorial 5
Pattern Recognition and AI in Art

Tutorial 6
Visual Turing Test in Visual Object Tracking:
A New Vision Intelligence Evaluation Technique based on Human-Machine Interaction

Tutorial 7
Handwritten Mathematical Expression Recognition in the Last Decade

ICPR 2024 at Biswa Bangla Convention Centre
Kolkata, India

One of the largest convention centers in South Asia, the Biswa Bangla Convention Centre is situated just 7 kilometres from Kolkata Airport (CCU). With large auditoriums and exhibition halls, executive lounges, gymnasiums, a swimming pool and a 100-room hotel, this venue offers an excellent conference experience.

ICPR 2024 INDIA

NEWS AND INFORMATION PAGES

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COMPETITIONS

Click on Any Title Button Below to Go to the Competition Website for Details and Updates

- Resource-Limited Infrared Small Target Detection Challenge (LimitIRSTD)
- Multiple Sclerosis Lesion Segmentation (MSLesSeg)
- Multi-line Mathematical Expressions Recognition
- Indic Scene Text Recognition
- RIP: Rider Intention Prediction Competition
- Unleashing AI for Marine Ecology Insights (Eco_vision)
- Multilingual Claim-Span Identification
- Domain Adaptation and GEneralization for Character Classification (DAGECC)
- VISual Tracking in Adverse Conditions (VISTAC)
- Unstructured Traffic and Adverse Weather Conditions Segmentation
- Leaf-Inspect
- Segmentation of Pre-Operative and Post-Operative Glioblastoma from MRI (GBMS)
- Moving Object Detection and Tracking in Satellite Videos
- Intracranial Aneurysm Segmentation (CIAS)
- Beyond Visible Spectrum: AI for Agriculture

ICPR 2024 DOCTORAL CONSORTIUM

The ICPR 2024 is pleased to present the inaugural ICPR Doctoral Consortium. This event offers numerous benefits for PhD students including feedback from experts, networking, exposure to cutting-edge research, career development, and personal growth. Click here to learn more about this exciting opportunity for PhD students.

ICPR 2024 INDIA

KEYNOTE SPEAKERS AND REGISTRATION INFORMATION

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

KEYNOTE SPEAKERS

Shuicheng Yan
Skywork AI, Singapore

Super-Agent: Ultimate Form of AGI?

DBLP

Tin Kam Ho
IBM Research, New York, USA

2024 IAPR King-Sun Fu Prize Winner

DBLP

Timothy Hospedales
University of Edinburgh, Edinburgh, UK

On the Importance and Difficulty of Evaluating AI

DBLP

Xiaolong Wang
University of California San Diego, California, USA

2024 IAPR J. K. Aggarwal Prize Winner

DBLP

Venu Govindaraju
University at Buffalo, State University of New York Buffalo, NY, USA

The Evolution of AI in Handwriting Recognition: Insights and Innovations

DBLP

Guoying Zhao
University of Oulu, Finland & Aalto University, Finland

2024 IAPR Maria Petrou Prize Winner

DBLP

Membership Category	Registration Category	Deadline (up to the mentioned date, IST 23:59 hrs)
Regular IAPR Members, Non-members, Senior Members, and Students	Early Bird	~~September 17, 2024 (closed)~~
	Standard	November 01, 2024 (hurry!)
	Late	December 05, 2024
Online Participants Main Conference and without paper registration. click here for details	Early Bird	November 10, 2024 (hurry!)
	Standard	November 25, 2024
Workshops, Tutorials, and Doctoral Consortia	Early Bird	~~October 15, 2024 (closed)~~
	Standard	November 25, 2024
Click on Links:	More Information	Fees / To Register

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. Applications may be submitted at any time before the visit starts.

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 here to learn more or contact: IAPR Secretariat, c/o Linda O'Gorman, exec-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; and 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 38 companies –from Adobe to Zhongan Technology– offering internships, locations (some remote), requirements, etc.

NOTE: As of Jan 25, 2024, 45 opportunities are listed, 30 of them with continuous or flexible application cycles.

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 internships, 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 students and junior students to the latest trends and techniques in a 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-supported summer schools should be submitted by email, ***at least four months in advance of the start of the school***.

Send proposals to IAPR Secretariat Linda O'Gorman (exec-secretariat@iapr.org). A PDF attachment containing all the required information is appreciated.

For detailed guidelines, see the Proposal Requirements described in the ExCo Initiative on Summer Schools.

From the ExCo...

Where do YOU fit in the IAPR's Organizational Framework?

by Arjan Kuijper, IAPR President

The term of the current ExCo will be finalized in December 2024. During ICPR2024 in Kolkata, the Governing Board will appoint a new ExCo for the term 2024-2026. We take the opportunity of this *IAPR Newsletter* to thank the whole IAPR community for your engagement and contributions to the field. We wish you all the best in your professional careers, and we encourage your continued involvement in the growth and development of the IAPR family. We hope to see you all soon in Kolkata.

The 27th International Conference on Pattern Recognition (ICPR 2024) will be held in Kolkata, India, December 1-5, 2024. The organizing committee is working hard arranging the last details. Visit the website to consult the scientific program, workshops. tutorials, and all the details of the event, or click here to browse workshops, tutorials, and competitions without leaving your *IAPR Newsletter*.

The winners of the IAPR Prizes are announced here, in this issue. Congratulations to the award winners and thank you to the Prize Committees for their dedication and hard work.

The IAPR Fellow Committee has selected 21 new IAPR Fellows based on their scientific excellence and contribution to the association. The names of the new Fellows will be published in an upcoming Special ICPR24 Issue of the *IAPR Newsletter*.

ICPR 2024 Student Stipends To encourage increased participation from those with limited resources, 45 IAPR stipends to authors of accepted papers have been granted.

The ExCo is preparing the biennial Governing Board meeting. It will take place on Tuesday, the 3rd of December, 2024, in the ICPR2024 venue. Some of the main points of the agenda will be: President's reports of the Technical Committees' and Standing Committees' activities; ballot of ICPR2028 bids; and election of new officers. The ExCo also wants to open discussions on: the future format of IAPR-related conferences (hybrid mode); a possible IAPR conference in odd years; encouraging leadership; and recruiting new members to national societies, among other topics.

50th Anniversary(ies) of the IAPR: The ad hoc committee is working to organize the first celebratory activities during ICPR2024. Learn more here. If you have ideas about activities to celebrate the anniversary, or memories or photos to share, please let us know by emailing 50th@iapr.org. Be sure to check out our history.

Who's Who at NATO ASI 1983 and 1986? With sincere thanks to Virginio Cantoni, we have two photos from NATO Advanced Study Institute (ASI) meetings in 1983 (Cetraro) and 1986 (Maratea). We need your help identifying the participants. Click on the years to see the photos and fill out the forms.

The full *IAPR Newsletter* archive (1978 - present) is now available through this link on the IAPR website. Thank you to Edward Sobczak for making the older scanned editions available.

"Are you a member of the IAPR?"

That's a question I often ask people at ICPR; or, you may see it on registration forms for IAPR conferences and workshops. If you can answer "yes," you would be entitled to a reduced registration fee.

In fact, you could be a member and not know it.

Individuals are members of IAPR through its 48 Member Societies, ranging from Australia to Vietnam (a country with Z is still missing!). So, if you are a member of one of these societies, you are a member of the IAPR. Besides financial advantages, you'll enjoy the benefits of the IAPR family.

IAPR is currently celebrating its 50th Anniversary(ies). Our founders began organizing in 1972, we were incorporated in 1978, and there are many milestones between those years to celebrate. In fact, this month marks the 50th anniversary of the drafting of IAPR's Constitution.

What's so interesting about the IAPR Constitution? Like any other, it lays out the framework of governance and operations. So what is the IAPR framework? Where do Member Societies fit in? What groups are involved? And, most importantly, readers might wonder, "Where do I fit in?"

The framework of IAPR starts with the Governing Board (GB), which forms the actual leadership group of the IAPR. Each Member Society has one, two, or four seats on the GB according to the number of individual members. Larger societies have more GB seats. You can find your representative(s) here.

While the GB does not make day-to-day operational decisions, they do make the final decisions on many important IAPR matters. Every two years, at ICPR, the GB votes on the new members of the Executive Committee, the group that is charged with the day-to-day operations within IAPR. For situations requiring GB approval (for example, the venue for the International Conference on Pattern Recognition, ICPR; the members of the ExCo; and winners of the

IAPR Prizes, the GB votes based on recommendations from the ExCo or other Standing Committees.

A lot of things happen behind the scenes at the GB and ExCo levels, all with the same aim: serving the Pattern Recognition Community. With so many people from so many countries active in all the committees, we rely on all the volunteers who put time and effort into this important goal.

So with the information above and the organizational chart below, you can now place a pin (or pins) showing where you fit into the framework of the IAPR. Regardless of your pin's position, the fact that you're reading this means you've already begun to fit in. We thank you for your active involvement and invite you to get more involved, if possible, by joining a Technical Committee or putting your name forward for a position on a Standing Committee (send an email to exec-secretariat@iapr.org).

By taking these steps, you'll get to know other researchers, expand your collaborative circle, get CV-relevant expertise and have fun!

~Arjan Kuijper, IAPR President

IAPR Organizational Structure 2024

Governing Board

62 Representatives from 48 National Societies

Executive Committee

President, 1st Vice President, 2nd Vice President, Secretary, Treasurer, Past President

Standing Committees

Advisory Committee
Conferences & Meetings
Consitution & Bylaws
Education Committee
Equality, Diversity & Inclusion
Fellow Committee
ICPR Liaison Committee
Industrial Liaison Committee
JK Aggarwal Prize Committee
King Sun Fu Prize Committee
Maria Petrou Prize Committee
Membership Committee
Nominating Committee
Publications & Publicity

Ad Hoc Committees

Hybric Conferences Committee
IAPR 50th Anniversary Committee

Technical Committees

01 – Statistical Pattern Recognition Techniques
02 – Structural and Syntactical Pattern Recognition
03 – Neural Networks and Computational Intelligence
04 – Biometrics
05 – Computer Vision for Underwater Environmental Monitoring
06 – Computational Forensics
07 – Remote Sensing and Mapping
09 – Pattern Recognition in Human Machine Interaction
10 – Graphics Recognition
11 – Reading Systems
12 – Multimedia and Visual Information Systems
15 – Graph Based Representations
16 – Algebraic and Discrete Mathematical Techniques in Pattern Recognition and Image Analysis
18 – Discrete Geometry and Mathematical Morphology
19 – Computer Vision for Cultural Heritage Applications
20 – Pattern Recognition for Bioinformatics and Digital Health

My, How We've Grown... Organizational Structure

1978

Governing Board

Executive Committee

Chair, Vice Chair, Secretary, Treasurer, Chairs of the 3rd and 4th IJCPR

Publication Committee
Conference Committee
Membership Committee

IAPR is pleased to announce the Winners of the Prestigious

King-Sun Fu Prize, J. K. Aggarwal Prize, and Maria Petrou Prize

To be formally presented at the 27th International Conference on Pattern Recognition

ICPR 2024 India Dec 1-5

Honoring King-Sun Fu, J. K. Aggarwal and Maria Petrou, three pioneers in the field of Pattern Recognition, these awards are presented every two years.

The King-Sun Fu Prize is the highest honor bestowed by IAPR. The award was established to honor the memory of Professor Fu, instrumental in founding IAPR and its first President, who is widely recognized for his extensive and pioneering contributions to the fields of pattern recognition and machine intelligence.

The 2024 King-Sun Fu Prize recipient is
Tin Kam Ho (IBM Research, USA)
For pioneering contributions to multi-classifier systems, random decision forests, and data complexity analysis

The J. K. Aggarwal Prize is given to a young scientist who has brought substantial contributions 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 many contributions to IAPR's activities.

The 2024 J. K. Aggarwal Prize recipient is
Xiaolong Wang (UC San Diego, USA)
For groundbreaking contributions to advancing visual representation learning, utilizing self-supervised and attention-based models to establish fundamental frameworks for creating versatile, general-purpose pattern recognition systems

The Maria Petrou Prize 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 prize is given to a living woman scientist/ engineer who has made substantial contributions to the field of Pattern Recognition and whose activities may be regarded as a model to both established and aspiring researchers.

The 2024 Maria Petrou Prize recipient is
Guoying Zhao (University of Oulu, Finland)
For contributions to video analysis for facial micro-behavior recognition and remote bio-signal reading (RPPG) for heart rate analysis and face anti-spoofing

Chiara Camerota

Editor's note: Chiara Camerota is our 5th IAPR Research Scholar. Her travel –from Florence, Italy to St. Louis, Missouri, USA– is the farthest an IAPR Research Scholar has traveled, and she has stayed the longest (27 weeks). Read more about her impressive research in this article!

~ Heydi Méndez-Vázquez ,

Chiara holds an MSc in Statistics, Actuarial Science, and Financial Science (2019) and a Bachelor's in Statistics (2016) from the University of Florence. After two years in industry, she began a Ph.D. in Information Engineering at the University of Florence's Data Communication Networks System Laboratory (DaCoNetS). Her research integrates data analysis and computer vision with practical applications in electrical engineering, industrial automation, and the Internet of Things (IoT). She is on track to complete her Ph.D. research program in October 2024. She has also participated in several international conferences and summer schools. Chiara's publications have primarily focused on leveraging the potential of images in unconventional fields, such as electrical fault recognition and anomaly detection. With the support of the IAPR Research Scholarship Program, Chiara had the opportunity to serve as a visiting researcher at St. Louis University (SLU) in St. Louis, MO, from January to July, 2024.

How did you get involved in pattern recognition research?

Like many Ph.D. students, my research path was not entirely linear. After completing my MSc in Statistics, Actuarial Science, and Financial Science, I worked as an informatic external consultant for Gucci for one year, and then for another year, I worked as a Solution Specialist for Terranova Software before returning to academia for a research contract. Later, I started my PhD in Information Engineering. Initially, I was apprehensive because engineering was not my primary field. However, my advisor encouraged me to apply pattern recognition to a practical area, specifically traffic analysis. This opportunity allowed me to combine my expertise with my interests. Although the initial phase was challenging, it ultimately strengthened my determination. Over time, I became more confident in the field, and the idea of working with images in non-traditional fields made me curious and eager to move forward. When Prof. Flavio Esposito visited my University in Florence, I talked with him. His Network Lab was an interesting environment where I could explore computer vision techniques and combine them with my statistics background to apply both to problems in the traffic network.

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

During the first period of my Ph.D., I explored the IoT field from different points of view. I focused on the standard protocols and explored harvesting difficulties related to the lack of a standard. Afterward, I noticed that I didn't apply my statistics knowledge, which is my point of strength. Also, I left back my interest in computer vision and generative models. So, I started thinking about how to merge all these interests into a unique topic. These thoughts were concretized during my research visit, where my primary focus was analyzing anomalous network traffic using computer vision techniques to address the challenge of data scarcity through effective data augmentation. The research aimed to evaluate classification performance when data availability is limited. This work resulted in submitting a collaborative paper to the 20th International Conference on Network and Service Management.

The paper introduces a novel tool designed to estimate the minimum training set size necessary for classification tasks. It also explores the use of the Diffusion Model for network traffic data augmentation, an area where Generative Adversarial Networks (GANs) currently represent the state-of-the-art. To demonstrate the pragmatism of our models, I applied them to a case study of malware detection. Existing malware detection strategies often focus on specific aspects, such as efficient data collection, targeting particular types of malware, or managing data scarcity. While these approaches are valuable, they typically need to pay more attention to the potential to reduce the required sample size, often concentrating on data augmentation instead.

The study specifically examined Transmission Control Protocol (TCP) header traffic data, which was transformed into images through flow-splitting techniques for multi-class traffic classification (Figure 1). We introduced a Diffusion Model to generate synthetic traffic images and demonstrated that this method outperforms existing approaches in terms of stability and predictability.

Central to my approach was collecting data over short intervals and classifying traffic across larger temporal windows. This method underscores the importance of determining the optimal sample size when utilizing data augmentation techniques. We developed a new approach for finding the minimum sample size based on the confusion matrix, a tool used to evaluate the performance of a classification model. Also, we considered the train sample composition in the sense that we operated with real images and images created by the generative models cited above.

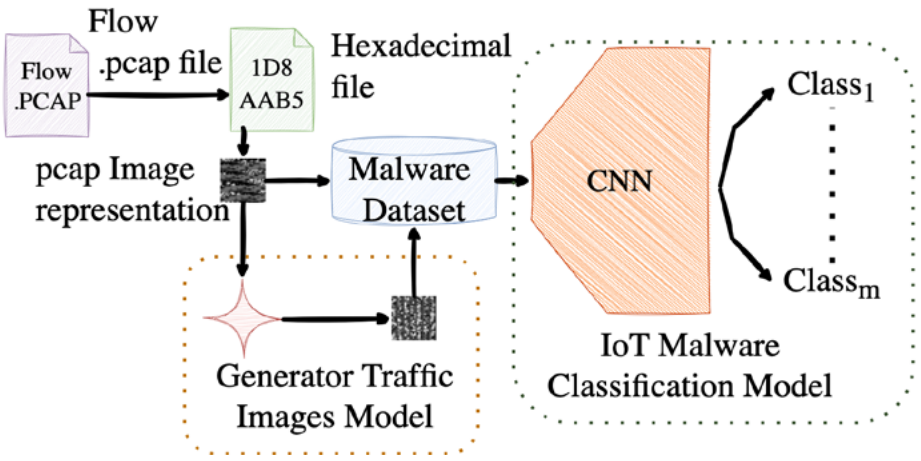


Fig. 1. The data flow starts with creating hexadecimal-based images based on the traffic network dataset. The dataset considered is labeled and multiclass; we also used only the unidirectional flow header of the traffic packets. After training the Generative model image-to-image for each class, the new combined dataset (real and generative data) is input to the CNN classification model to collect classification outcomes for evaluation.

What are your long-term goals, and how has the IAPR Research Scholarship helped you to realize them?

The research experience was incredibly influential, and the IAPR Research Scholarship played a significant role. The experience provided valuable insights into the operations of a US-based laboratory. Also, it allowed me to collaborate with individuals from various universities and cultures and to interact with other professionals and experts working on similar topics, enhancing my knowledge base.

The relationships formed during this time are priceless and have greatly enriched my professional network and personal growth. To conclude, I have always aspired to pursue an academic career, particularly in the US, where it can be challenging to find a starting point— this opportunity allowed me to begin my academic career abroad, fulfilling my long-held dream and providing a great starting point. I am pleased to have the opportunity to continue collaborating with Prof. Flavio Esposito and his laboratory, and hope to return there for a Post Doc.

~ Chiara Comerota

IAPR 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 Equality, 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."***

Empowering Women Leaders for a Balanced IAPR (and beyond)

In recent years, the scientific community has made significant strides toward gender equity, with more women researchers stepping into the spotlight. However, gender disparities in leadership at major scientific conferences and within most scientific organizations, including the IAPR, remain a pressing issue. A review of the past five to six years shows that women have held a minority of leadership positions across flagship IAPR events such as ICDAR, ICPR, and DAS, where male-dominated leadership still prevails.

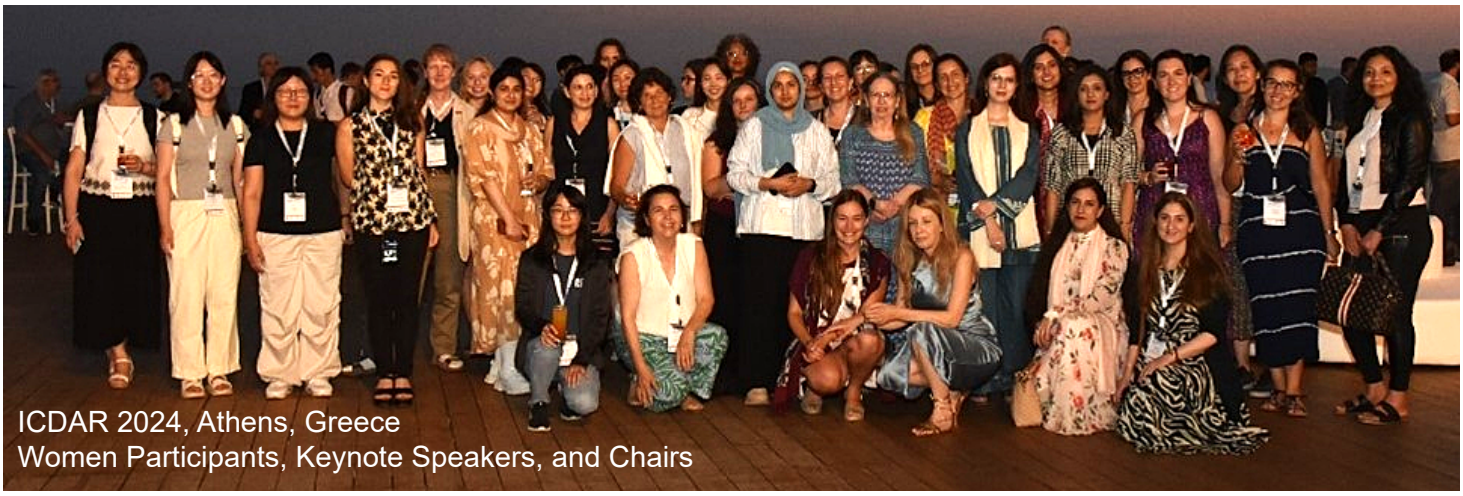
Several factors contribute to the underrepresentation of women in leadership. One common issue is hesitation. Many women experience self-doubt or imposter syndrome, which makes them reluctant to step into leadership positions.

As Foteini Simistira Liwicki, a woman who is an active member of the IAPR community, observes: "Women are often shy, modest, silent, and prefer to stay backstage." Sadly, sometimes women in chair positions hear comments like, "You were added because of the policy." Even when this is delivered with a nudge and a smile to suggest it is a joke, it does point to an underlying problematic attitude.

In an even worse condition, non-binary individuals suffer further disadvantage. As Foteini notes, "Non-binary individuals may feel pressured to conceal their identities to be accepted, or are constrained by outdated systems that require binary classifications (male/female)."

As an extreme consequence, lack of equality, diversity and inclusion may represent an obstacle for novelty in research. Elisa Barney Smith was Chair of the IAPR Conference and Meetings Committee (2021-22). We briefly report here her thoughts:

> *I enjoy seeing so many female PhD students at the conferences I attend. There weren't many when I was a student. Through the years, I have observed the few senior women at conferences, always noting they were small in number, and I expected it to gradually increase with time. Now I am one of them myself. I try to be a good role model and to help encourage others to be the best they can. When looking at the composition of the leadership team of several recent conferences, I*



ICDAR 2024, Athens, Greece
Women Participants, Keynote Speakers, and Chairs

sometimes have doubts that we are making progress. The justification often used for the small number of women appearing on a conference committee is that there are not enough senior level women. This is not valid. I also look at the requirements for promotion into full professor at several universities such as "being nationally leading in his/her subject area and internationally recognized". This is harder to attain if you are not invited into visible leadership positions. Claiming there are no women in leadership positions because they haven't been promoted is a circular argument. At ICDAR 2024 we started to make a list of "younger" female researchers who are eager and willing to serve. Hopefully as future conferences are organized, the leadership will consult this list as well as their network and invite more women to participate in prominent roles. I encourage women (and men) who want to get more involved to reach out to IAPR and conference organizers to get on a list of willing volunteers for the IAPR conference of your choice. There is plenty of work to be done. All should be welcomed.

Looking at the history of the IAPR Executive Committee, women have held between 0 to 33% of the seats. Sometimes 0, sometimes 1; never more than 2. While there has been gradual progress in the gender composition of the scientific community, this gender imbalance is indicative of a persistent gap in leadership roles across multiple scientific organizations. This is often presented as a challenge for our field but it is so much more. Balance across different dimensions, from demographic to cultural, is a tremendous opportunity to create a more dynamic, inclusive future for our community, with the well-documented success born of more diverse collaborations.

Achieving gender balance in leadership roles isn't about meeting quotas; it's about enhancing the quality of our events, broadening the diversity of ideas, and fostering a more inclusive environment.

Research consistently shows that diverse leadership teams perform better and are more likely to solve complex problems effectively. The same holds true for our scientific community. Diverse groups bring fresh perspectives, innovative approaches, and creative solutions.

The IAPR community has begun to take concrete steps toward gender balance. Marcus Liwicki, another leading researcher in the IAPR community, emphasizes the importance of starting early: "A small step could be to just put a reminder for all IAPR conference organizers for their proposal submission: 'How has the gender dimension been integrated into this conference hosting proposal?'" It is worth noting that, while IAPR pushes toward gender balance in conference organizations (see Item 9 in the application instructions for IAPR endorsement), still the guidelines for specific conferences often do not report anything regarding this point (see for example ICDAR guidelines, last updated in 2016, where only geographical balance is explicitly addressed). When diversity in leadership is factored into event planning from the proposal stage, it sets the tone for decision-making, and can have a greater impact.

Structured mentorship programs can also play a crucial role in empowering women and non-binary researchers. Building leadership skills and confidence through mentorship will help bridge the gap, creating opportunities for future leaders to emerge. Role models like Linda Shapiro, Lale Akarun, Ingela Nyström, Sara Brunetti, Laurence Likforman-Sulem, and Elisa Barney Smith have not only made significant contributions to pattern recognition but have also mentored young women researchers, showing them the path to leadership.

Progress is evident: The latest edition of ICDAR 2024, held in Athens, Greece, saw many women in key leadership roles. Foteini Simistira Liwicki (General Chair), Elisa Barney Smith and Liangrui Peng (Program Chairs), Anna Zhu (Workshop Chair), Alicia Fornes (Tutorial Chair), Momina Moetesum (Poster/Demo Chair), and Elena Galifianaki (Publicity Chair) all played crucial roles in the event's success. This stands as a testament to what can be achieved when we prioritize gender balance.

Now is the time for all of us in the IAPR community to take action. Whether you are planning a conference, serving on a committee, or mentoring an emerging researcher, think about how you can contribute to promoting diversity and inclusion. Together, we can ensure that our field becomes more welcoming and representative of all voices.

As Foteini says, "Diversity, equality, and inclusion should be a core value at all IAPR conferences." Marcus adds, "There are so many great women and non-binary individuals in our research field. I would love to reach a state where we do not have to discuss gender balance, because it is already achieved—but until we are there, we need to actively put in the effort. To achieve this, we must not only embrace diversity but also emphasize its significance to the community worldwide."

Let's continue the conversation, support each other, and work toward a future where everyone has the opportunity to lead and succeed. Together, we can build a stronger, more innovative, and inclusive IAPR community.

Add Your Voice! *We would love to hear from you! How can we continue to promote gender equity and diversity within the IAPR? Please share your thoughts, experiences, and suggestions on how we can create more inclusive events and opportunities for leadership. Your input is invaluable in shaping the future of our community. Write an email to the IAPR EDI Committee:* demarsico@di.uniroma1.it

By Momina Moetesum and Maria De Marsico (EDI Commitee) in collaboration with

Elisa Barney Smith, Foteini Liwicki, and Marcus Liwicki

Regarding Special Issues
An Announcement from Pattern Recognition Letters

The Editors-in-Chief received many Special Issue proposals for Jan-Mar 2025; however, none met PRL's standards for acceptance. While we regret that there will be no Special Issue for the corresponding quarter, our primary goal is to ensure that every *PRL Special Issue* meets the standards of professional excellence our readers have come to expect. We enthusiastically welcome and encourage all who would like to submit proposals for future Special Issues. Please consult the information in our Call for Proposals below and on the linked proposal submissions page, and contact the EiC, Maria De Marsico (demarsico@di.uniroma1.it), if you have any questions or concerns or would like guidance.

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.

Selection Criteria

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. 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 be preferred.
5. Rotation of GEs is preferred, in groups and/or individually.

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). We divide each year into four quarters, starting in January, April, July, and October. We collect proposals during the first month of the quarter of the year before (e.g., Oct 2024 for Special Issues in Oct through Dec, 2025). Decisions are made in the second month of the quarter of the year before (e.g., Nov 2024), and prospective GEs are notified in the third month of the quarter of the year before (e.g., Dec 2024). In this way, our decision can be made by comparing all proposals for the same quarter.

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

More details can be found in the documents available here:

After filling the appropriate template, proposals can be submitted via Computer Science Journal Special Issues and Conference Proceedings Proposals

For further inquiries, please contact the
EiC for Special Issues, Prof. Maria De Marsico
at demarsico@di.uniroma1.it

IAPR Research Scholarships help Early Career Researchers engage in international and inter-institutional research.

Scholarships cover round trip travel and basic living expenses for research visits under 12 months.
Applications may be submitted at any time before the visit starts.

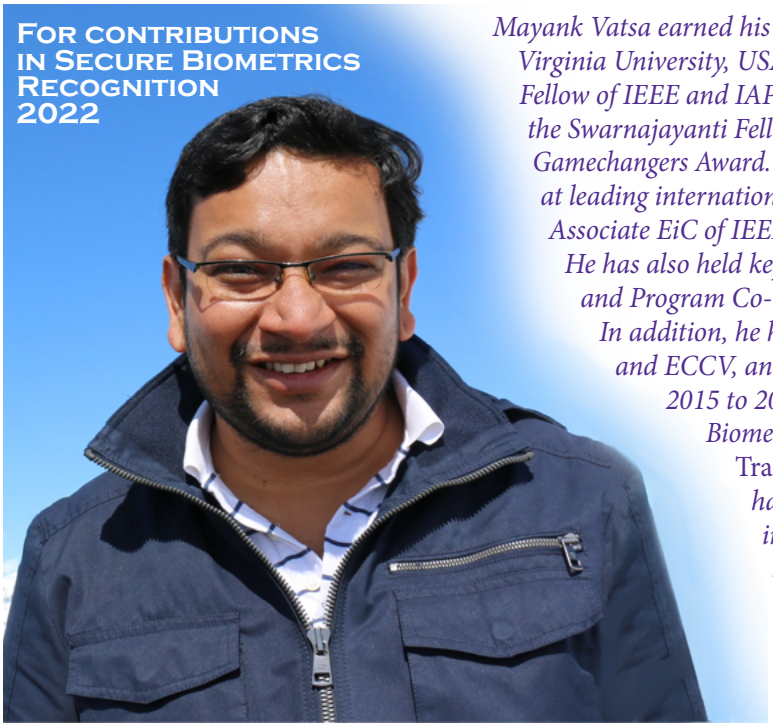
Candidate must be a full-time researcher with between one and eight years experience and must be a member of an IAPR Member Society.
Click here to learn more or contact the IAPR Executive Secretariat Linda O'Gorman at *exec-secretariat@iapr.org*

IAPR Research Scholarships

IAPR FELLOW

Getting to Know...

Mayank Vatsa



Mayank Vatsa earned his MS and PhD degrees in Computer Science from West Virginia University, USA. He is currently a Professor at IIT Jodhpur, India. He is a Fellow of IEEE and IAPR, and a recipient of several prestigious awards, including the Swarnajayanti Fellowship from the Government of India and Nasscom AI Gamechangers Award. He has received numerous Best Paper and Best Poster Awards at leading international conferences. He has served in editorial roles, including Associate EiC of IEEE T-BIOM and Associate Editor for Pattern Recognition. *He has also held key leadership roles, such as General Co-Chair of IJCB 2020 and Program Co-Chair for FG 2021, AVSS 2021, IJCB 2014, and ICB 2013. In addition, he has served as Area Chair for conferences like CVPR, ICCV, and ECCV, and as Senior Area Chair for AAAI from 2021 to 2025. From 2015 to 2018, he was Vice President of Publications for the IEEE Biometrics Council, where he played a leading role in launching* IEEE Transactions on Biometrics, Behavior, and Identity Science. *He has also contributed to several Indian government initiatives, including UIDAI (Aadhaar), the development of biometric standards for e-Gov applications, Responsible AI, DigiYatra, and the establishment of the TIH for Computer Vision and AR/VR at IIT Jodhpur.*. ***Here, Mayank reflects on some interesting problems in AI research. He begins with a visual abstract of his essay.***

Foundation Models and Generative AI: Navigating Deepfakes, Bias, and Negations

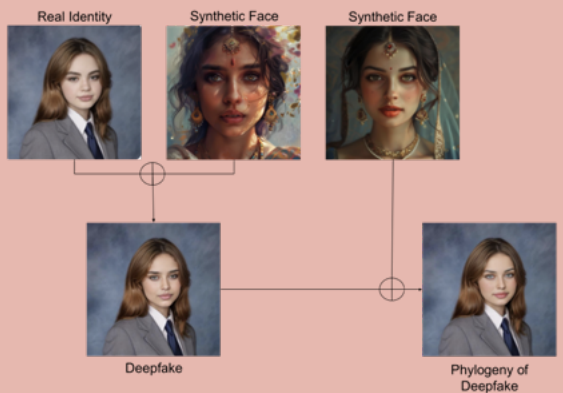
Foundation models and generative AI (GenAI) systems have revolutionized content creation across various industries. These models generate new, unseen outputs based on the data they are trained on, enabling personalized user experiences, boosting productivity, and fostering creative innovation.

However, this powerful technology is not without its challenges, raising concerns about fairness, security, intellectual property (IP) rights, and ethical implications. Among the most discussed aspects of GenAI are deepfakes, bias, and, more

"Create an image of people at railway station"

रेलवे स्टेशनों पर भारतीयों की एक छवि बनाएं
(Translation: create an image of indians at railway stations)

Need for better understanding Indic Languages in GenAI



Phylogeny in DeepFakes is introduced

Prompt: "Car without Tires"

Negation in GenAI is an open problem

recently, the complex issue of handling negations—each with its own set of advantages and challenges.

The Duality of Deepfakes

A key outcome of GenAI is the deepfake, which manipulates images or videos to replace someone's likeness using neural networks. This technology creates realistic alterations that blur the line between reality and fiction. Once focused on entertainment, deepfakes now fuel harmful uses like misinformation, identity theft, and national security threats. Malicious deepfakes spread false propaganda, enable cyberbullying, and facilitate financial fraud, destabilizing societies by creating panic with fabricated content. These manipulations can involve altering video while keeping audio intact or fabricating both in successive iterations (phylogeny), making it difficult to distinguish truth from falsehood.

Our research focuses on detecting low-quality deepfakes in the compressed domain, addressing the challenges posed by social media platforms. The deep learning model is trained to identify subtle, imperceptible artifacts present in compressed images and videos. By using a learned visibility matrix, the model focuses on these unseen artifacts, allowing it to distinguish between real and altered content. Once trained, our model is computationally efficient, enabling it to process large volumes of media quickly and accurately. This makes it suitable for deployment across various applications, including social media monitoring and internal agency use, ensuring reliable detection even in compressed formats. The model is being utilized in different real-world cases, including deepfakes circulated during the Indian General Elections.

Bias in Generative AI

While foundation models have made significant advancements, they are not immune to bias, especially in text-to-image (TTI) generation. TTI models, which convert textual prompts into images, have found applications in fields such as gaming, architecture, and fashion. However, despite their versatility, they face significant challenges in achieving linguistic inclusivity. The datasets these models are trained on are predominantly English-centric, often scraped from the internet or proprietary sources. This reliance on English data can lead to poor performance when models generate content in other languages, particularly from non-Western cultures.

The lack of linguistic diversity in TTI models has sparked interest in developing evaluation benchmarks that account for a wider range of languages. Our proposed benchmark, IndicTTI, aims to address this gap by assessing the performance of TTI models across 30 languages, focusing on Indic languages spoken by over a billion people worldwide. These languages, written in multiple scripts and belonging to various language families, present a rich and diverse testbed for analyzing model biases. By evaluating model performance and representation, we can better understand how these models handle non-English text and cultural contexts.

We introduced two key metrics to measure bias in TTI models: the Cyclic Language-Grounded Correctness (CLGC) metric, which assesses model accuracy across multiple languages, and the Self-Consistency Across Languages (SCAL) metric, which evaluates the consistency of model outputs when generating images from similar prompts in different languages. Through our analysis, we found that open-source models like Stable Diffusion and Alt Diffusion showed significant bias toward specific ethnicities and cultures, often generating stereotypical representations. Meanwhile, API-based models like Midjourney and DALL·E 3 demonstrated higher accuracy in producing culturally relevant images but still fell short in representing linguistic diversity. This analysis highlights the importance of developing inclusive benchmarks that push for fairness and cultural representation in AI models.

Handling Negations in Multimodal Foundation Models

One of the most challenging linguistic phenomena for foundation models, particularly multimodal ones, is understanding negations. Negations, which express the absence or denial of something, are used differently across languages and can pose significant challenges for vision-language models (VLMs). VLMs, which power text-to-image generation, captioning, and image retrieval systems, typically struggle to interpret negations accurately. This is because negations require a deeper level of reasoning that goes beyond simple pattern recognition.

Negations are crucial for commonsense reasoning tasks. For example, if a user prompts a model to generate an image of a car without tires, many models still produce images of a car with tires because they fail to capture the negation. Studies have shown that negations are underrepresented in training datasets, making it difficult for models to learn this concept effectively. This challenge is exacerbated in multilingual contexts, where different languages have unique ways of expressing negation.

To address this, we propose the development of specialized benchmarks that evaluate how well foundation models handle negations in various languages. These benchmarks would expose models to more diverse negation forms during training, helping improve their ability to understand and generate accurate outputs. In addition, we suggest incorporating advanced attention mechanisms and multimodal architectures that explicitly account for the presence of negations in prompts. These improvements could lead to better performance in both text-based and image-based tasks, making generative AI more reliable in handling complex linguistic constructs.

In Conclusion

We should aim to democratize AI by making it not only efficient but also inclusive, accessible, fair, and transparent, helping address global challenges while minimizing risks like bias and misinformation. By fostering responsible AI practices, I believe we can create a future where AI contributes to a more equitable world.

~Mayank Vatsa

Technical Committee News

In this issue
(use buttons for page navigation)

TC 1

IAPR TC1
Statistical Pattern Recognition Techniques

iapr.org/tc1

Chair: Ambra Demontis (University of Cagliari, Italy)
Vice Chair: Konstantinos Sechidis (Novartis, Switzerland)

AIMS: To promote interaction and collaboration among researchers working directly in statistical pattern recognition and machine learning but also among those specialized in other fields using or developing statistical techniques. In this relation it is of particular interest to stimulate links with many mathematical statisticians, theoreticians and practitioners alike who work at present outside the pattern recognition and machine learning communities.

AND

TC 2

IAPR TC2
Structural & Syntactical Pattern Recognition

Twitter iapr.org/tc2

Chair: Andrea Torsello (Ca' Foscari University of Venice, Italy)
Vice Chairs: Bai Xiao (Beihang University, Beijing, China)
Luca Rossi (Hong Kong Polytechnic University, Hong Kong)

AIMS: To promote interaction and collaboration among researchers working on Structural and Syntactical Pattern Recognition (SSPR). Since 1996, the IAPR TC1 and TC2 jointly organize the biennial conference S+SSPR. The event is traditionally colocated with the International Conference on Pattern Recognition (ICPR), attracting participants working in a wide variety of fields that make use of statistical, structural or syntactic pattern recognition techniques.

TC1 and TC2 are proud to announce the successful completion of the IAPR-sponsored event, S+SSPR 24, in Venice Italy, Sept. 9-10, 2024. The jointly organized IAPR International Workshops include Structural and Syntactic Pattern Recognition (SSPR 2024) and Statistical Techniques in Pattern Recognition (SPR 2024). A full report, including the name of the winner of the Pierre Devijver Award and the title of this outstanding researcher's Keynote talk, can be found in the Meeting Reports section of this issue of IAPR Newsletter, via the direct link here.

IN THIS ISSUE
(Use buttons for page navigation)

TC 11

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)

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.

2024 IAPR/ICDAR YOUNG INVESTIGATOR AWARD

The IAPR/ICDAR Young Investigator Award, presented biennially in even years, is an established program designed to recognize individuals under 40 years of age who have made outstanding contributions to the field of Document Analysis and Recognition in one or more of the following areas: Research; Training of Students; Research/Industry Interaction; Service to the Community.

The 2024 recipient is Dr. Vincent Christlein, for outstanding contributions in handwriting recognition applied to forensics and historical documents. Congratulations!

The International Conference on Document Analysis and Recognition (ICDAR) is the flagship conference on document analysis.

Co-organized by the IAPR TC-10 and TC-11, ICDAR is now a yearly event. This year it was held in Athens, Greece from August 30 through September 4, 2024. The event gathered more than 400 researchers from 40 different countries.

A full report is planned for the January issue of the *IAPR Newsletter*. Meanwhile, click on the logo (right) for details.

ICDAR Athens Greece 2024
International Conference on Document Analysis and Recognition

In This Issue
(Use buttons for page navigation)

TC 11 is pleased to share the news that TPDL, an international forum focused on digital libraries and their associated technical, practical, and social issues, has expanded its scope to "prominently include Document Analysis/Recognition and Information Retrieval, acknowledging the vital role of those research areas in the creation (by means of digitization and information extraction from heterogeneous sources), access, discovery, and dissemination of digital content." TPDL 2024 was held in Ljubljana, Slovenia, from Sept. 24 to 27.

TC-11 is Organizing More DAR Events!

Deadlines are as follows

2024

Oct 31 Proposal submission for hosting SSDA 2025
Nov 15 ICDAR-IJDAR Journal track paper submission
Dec 15 Nominations due for the IAPR/ICDAR Outstanding Achievements Award

2025

Jan 31 Proposal submission for hosting ICDAR 2028
Feb 7 ICDAR paper title & abstract submission
Feb 21 ICDAR full paper submission

Have you Heard about our Datasets?

TC 11 Maintains a collection of datasets!

If you have new datasets (e.g., from competitions) that you wish to share with the research community, please use the online upload form or contact (via this email link) the TC11 Dataset Curator

In fact, TC-11 has two official places for datasets. Click links to learn more:

Storage and Listing
and
Zenodo Community

Meeting Reports

Conferences, Workshops, & Summer/Winter Schools

Conference Chair
Joaquim Filipe
Polytechnic Institute of Setubal, INSTICC, Portugal

Program Chair
Juha Röhing
University of Oulu, Finland

The 4th International Conference on Robotics, Computer Vision and Intelligent Systems (ROBOVIS 2024) was held in Rome, Italy, from February 25 to 27, 2024.

The ROBOVIS 2024 conference was sponsored by the Institute for Systems and Technologies of Information, Control and Communication (INSTICC), and endorsed by the International Association for Pattern Recognition (IAPR). For this edition, ROBOVIS was organized in cooperation with the ACM Special Interest Group on Artificial Intelligence.

Robotics is a field that is closely connected to Computer Vision and Intelligent Systems. Research and development of robots require technologies originating from the other two areas; research work in Computer Vision has often been driven by needs in Robotics; Intelligent Systems models and software have often been developed aiming at applications in the areas of physical agents, i.e. robots, or in areas related to scene understanding, video and image processing, and many other aspects of computer vision. ROBOVIS aims to be the venue where these three research communities, often isolated, meet and discuss innovation possibilities driven by the intersection of these highly synergetic fields.

ROBOVIS 2024 received 33 submissions from 17 countries. Out of the accepted papers, 8 were selected for oral presentation as full papers, 15 for oral presentation as short papers, and 8 for poster presentation.

Three invited speakers presented the plenary lectures (see next page).

Invited Keynote Speaker
Vittorio Murino
University of Verona, Italy
Learning with Privileged Information and Distillation for Multimodal Video Classification

Invited Keynote Speaker
Arianna Menciassi
Scuola Superiore
Sant'Anna of Pisa, Italy
There's Plenty of Room at the Bottom: Opportunities and Challenges for Microrobotics.

IAPR Distinguished Speaker
Jean Ponce
Ecole normale supérieure-PSL and New York University, France
Physical Models and Machine Learning for Photography and Astronomy

The conference organization assigned awards to be given during the conference to recognize the value of the best contributions. The winning papers were chosen by the Program/Conference Chairs based on the best combination of review marks (assessed by the Program Committee) and on paper presentation quality (assessed by Session Chairs and Program Chairs during the sessions). For this edition, the winning papers were:

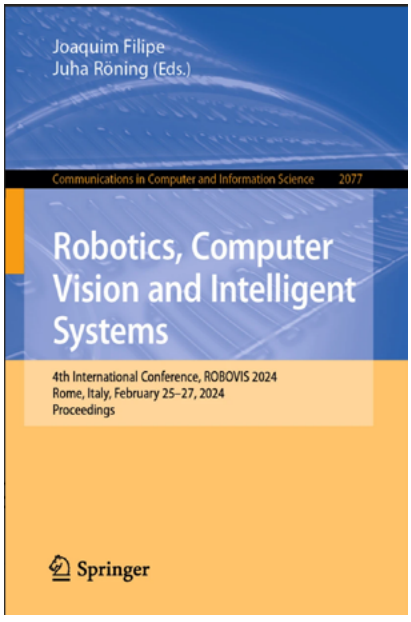
Best Paper Award: *A Meta-MDP Approach for Information Gathering Heterogeneous Multi-Agent Systems*, by Alvin Gandois, Abdel-Illah Mouaddib, Simon Le-Gloannec and Ayman Alfalou

Honorable Mention: *Utilizing Dataset Affinity Prediction in Object Detection to Assess Training Data*, by Stefan Becker, Jens Bayer, Ronny Hug, Wolfgang Hübner and Michael Arens

Best Student Paper Award: *Human Comfort Factors in People Navigation: Literature Review, Taxonomy and Framework*, by Matthias Kalenberg, Christian Hofmann, Sina Martin and Jörg Franke

Honorable Mention: *Fast Point Cloud to Mesh Reconstruction for Deformable Object Tracking*, by Elham Amin Mansour, Hehui Zheng and Robert K. Katzschmann

Best Poster Award: *MDC-Net: Multimodal Detection and Captioning Network for Steel Surface Defect*, by Anthony Ashwin Peter Chazhoor, Shanfeng Hu, Bin Gao and Wai Lok Woo



The authors of ROBOVIS 2024 selected papers were invited to submit a revised and extended version of their work for a book in the Springer CCIS Series. The publication is linked to the Springer cover image (right).

We look forward to meeting you in the next edition, ROBOVIS 2025, in Porto, Portugal, February 25-27, 2025.

Submitted by Joaquim Filipe
Polytechnic Institute of Setubal /INSTICC, Portugal

Juha Röning
University of Oulu, Finland

VISIGRAPP Co-Chairs

A. Augusto Sousa *FEUP/INESC TEC, Portugal*
Kadi Bouatouch *IRISA, University of Rennes 1, France*

VISAPP Program Co-Chairs

Petia Radeva *University of Barcelona, Spain*
Antonino Furnari *University of Catania, Italy*

Click here for a complete list of Associate Chairs and brief biographies of all organizers.

The 19th International Conference on Computer Vision Theory and Applications (VISAPP 2024) was held in Rome, Italy, from February 27 to 29, 2024, as part of VISIGRAPP, the 19th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications.

For this edition, VISIGRAPP 2024 was organized in cooperation with a number of international organizations involved in research related to Motion Tracking and Stereo Vision; Image and Video Understanding, Applications and Services; Mobile and Egocentric Vision for Humans and Robots; and Image and Video Processing and Analysis, including the ACM Special Interest Group on Computer Graphics and Interactive Techniques (SIGGRAPH); Society for Imaging Science and Technology (IS&T); European Association for Computer Graphics; Center for Virtual Reality and Visualization Forschungs-GmbH (VRVis); Grupo Português de Computação Gráfica; and the French Association for Computer Graphics (AFIG).

VISAPP 2024 was sponsored by the Institute for Systems and Technologies of Information, Control and Communication (INSTICC), and endorsed by the International Association for Pattern Recognition (IAPR).

The main goal of VISAPP is to become a major point of contact between researchers, engineers and practitioners in the area of computer vision application systems. During the conference, the attendees had the opportunity to exchange ideas amongst themselves and with invited speakers, regarding their respective scientific achievements and future research plans.

The goal was to spur new and original threads of collaboration to investigate brand new approaches.

VISAPP received 316 submissions from 47 countries. Sixty-four were selected for oral presentation as full papers, 124 for oral presentation as short papers, and 76 for poster presentation.

Invited speakers presented the following plenary lectures:

Virtual Reality in Mental Health: A Self-Counselling Approach
Mel Slater
University of Barcelona, Spain

Multi-Modal Human-Machine Interaction: Joint Optimization of Single Modalities and Automatic Learning of Communication Channel Fusion
Gerhard Rigoll
Technical University of Munich, Germany

Data-centred Deep Learning Models for Food Fine-Grained Recognition
Petia Radeva
University of Barcelona, Spain

The Predictable Side of Unpredictable Humans
Alvitta Ottley (right)
Washington University,
United States

To recognize the value of the best contributions, the conference organization conferred the following awards during the conference: Best Paper Award, Best Student Paper Award, and Best Industrial Paper Award. The winning papers were chosen by the Program/Conference Chairs based on the best combination of review marks, assessed by the Program Committee, and of paper presentation quality, assessed by Session Chairs and Program Chairs during the sessions. For this edition, the winning papers were:

Best Paper Award: *Mediapi-RGB: Enabling Technological Breakthroughs in French Sign Language (LSF) Research Through an Extensive Video-Text Corpus*, by Yanis Ouakrim, Hannah Bull, Michèle Gouiffès, Denis Beautemps, Thomas Hueber and Annelies Braffort

Best Student Paper Award: *StyleHumanCLIP: Text-Guided Garment Manipulation for StyleGAN-Human,* by Takato Yoshikawa, Yuki Endo and Yoshihiro Kanamori

Best Industrial Paper Award (below): *Enabling On-Device Continual Learning with Binary Neural Networks and Latent Replay*, by Lorenzo Vorabbi, Davide Maltoni, Guido Borghi and Stefano Santi

The authors of VISAPP 2024 selected papers were invited to submit a revised and extended version of their work for a book in the Springer CCIS Series.

A short list of best papers will be invited for publication of extended and revised versions in a special issue of the journal *Image and Vision Computing*.

We look forward to meeting you at the next edition of VISAPP in Porto, Portugal, on February 26-28, 2025!

Click on the image below for more information!

Report Submitted by
the VISAPP 2024
Oganizing Committee:

Kadi Bouatouch
A. Augusto Sousa
Antonino Furnari
Petia Radeva

International Conference on Intelligent Systems & Patterns Recognition

https://ispr2024.sciencesconf.org/

ISPR'2024

June 26-28, 2024
Istanbul City, Turkey

General Chairs

Tolga Ensari *Arkansas Tech University, USA*
Şengül Bayrak Hayta, *Istanbul Sabahattin Zaim University, Istanbul , Turkey*
Akram Bennour, *Larbi Tebessi University, Algeria*

Program Chairs

Ahmed Bouridane *University of Sharjah, United Arab Emirates*
Somaya Almaadeed *Qatar University, Qatar*
Eran Edirisinghe *Keele University, United Kingdom*
Akram Bennour *Larbi Tebessi University, Algeria*
Bassem Bouaziz *University of Sfax, Tunisia*

Click here for a complete list of Organizing Committee Members

The Fourth International Conference on Intelligent Systems and Pattern Recognition (ISPR'2024) was organized by the "MIRACL" Laboratory at the Higher Institute of Computer Science and Multimedia-Sfax, Sfax University, Tunisia, in collaboration with the Artificial Intelligence and Knowledge Engineering Research Labs at Ain Shams University and Zaim University, Istanbul, Turkey.

The event aimed to provide an interdisciplinary forum for discussing and sharing the latest advancements in various areas of artificial intelligence and pattern recognition. The conference was endorsed by the International Association of Pattern Recognition (IAPR) and took place in Istanbul, Turkey, from June 26 to 28, 2024.

This year, we received 210 submissions, each thoroughly reviewed by at least three members of the international program committee. Following a rigorous and competitive selection process, 80 papers were accepted for oral presentation. Out of these, 77 papers were registered and presented during the conference, resulting in an acceptance rate of 36.66% of the submitted papers.

Three keynote talks were delivered during the conference:

Imad Reda, Associate Professor at the University of Technologye of Compiegne (UTC), Paris, France) presented *Dictionary Learning for Signal Classification.*

Johan Debayle, Professor at the Ecole Nationale Supérieure des Mines de Saint-Etienne (ENSM-SE), France, presented *Pattern Recognition and Image Analysis of Granular Media.*

The third keynote talk was delivered by Jawad Ahmad (SMIEEE), Assistant Professor at Edinburgh Napier University, United Kingdom, who spoke on *Application of Substitution Boxes in Image Encryption for Enhancing Security in Highly Correlated Data.*

The biographies of the keynote speakers along with the slides of their talks are available here, on the conference website.

Three awards were announced at the conference as “IAPR Best Paper Awards” and were presented to the following papers:

1st IAPR Best Paper Award was given to *An Automated Technique for Detecting Sinkholes from Lidar DEMs in Railway Environments*, by Maryem Bouali, Muhammad Ali Sammuneh, Rani Elmeouche, Fakhreddine Ababsa, Bahar Salavati, and Flavien Vuguier.

2nd IAPR Best Paper Award was given to *BA-GAN: A Boundary-Aware Generative Adversarial Network for Document Restoration, by* Amin Ghasemi Nafchi and Mohamed Cheriet.

3rd IAPR Best Paper Award was given to *Revolutionizing Crop Leaf Disease Detection: A Novel Ensemble Learning Framework Using Customized EfficientNets*, by Nahrin Jannat, S. M. Mahedy Hasan, and Minhaz F. Zibran.

Extended versions of the awarded papers will be recommended for possible publication in the journal *Pattern Recognition Letters* (Elsevier), which has an impact factor of 3.756, and is indexed and listed in more than 11 leading indexes and databases including: Scopus (Elsivier), DBLP, Web of Science, ACM Computing Reviews, Inspect ...etc.

All presented papers during ISPR 2024 will be published with Springer in their series entitled Communications in Computer and Information Science. CCIS is abstracted/indexed in DBLP, Google Scholar, EI-Compendex, Mathematical Reviews, SCImago, and Scopus. CCIS volumes are also submitted for inclusion in ISI Proceedings.

Moreover, selected authors will be invited to elaborate on their research topic with extensions and submit the results for review and potential publication to several international, highly ranked journals. Click here for more information.

Report Submitted by

Akram Bennour

DeLTA 2024

5th International Conference on Deep Learning Theory and Applications

Dijon - France . 10 - 11 July, 2024

Event Co-Chairs
Oleg Gusikhin *(Ford Motor Company, USA)*
Carlo Sansone *(University of Naples Federico II, Italy)*

Program Co-Chairs
Ana Fred *(University of Lisbon, Portugal)*
Allel Hadjali *(LIAS/ENSMA, Poitiers, France)*

The 5th International Conference on Deep Learning Theory and Applications (DeLTA 2024) was held in Dijon, France, from July 10 to 11, 2024.

The DeLTA conference was sponsored by the Institute for Systems and Technologies of Information, Control and Communication (INSTICC), and endorsed by the International Association for Pattern Recognition (IAPR). For this edition, DeLTA 2024 was organized in cooperation with a number of international organizations involved in research related to Machine Learning and Deep Learning: ACM Special Interest Group on Artificial Intelligence, Association for the Advancement of Artificial Intelligence, International Neural Network Society and European Society for Fuzzy Logic and Technology.

Deep Learning and Big Data Analytics are currently major topics of data science. Big Data has become important in practice, as many organizations have been collecting massive amounts of data that can contain useful information for business analysis and decisions, impacting existing and future technology. A key benefit of Deep Learning is the ability to process these data and extract high-level complex abstractions as data representations, making it a valuable tool for Big Data Analytics where raw data is largely unlabeled.

Machine learning and artificial intelligence are pervasive in most real-world application scenarios such as computer vision, information retrieval and summarization from structured and unstructured multimodal data sources, natural language understanding and translation, and many other application domains. Deep learning approaches, leveraging on big data, are outperforming more "classical" supervised and unsupervised approaches, directly learning relevant features and data representations without requiring explicit domain knowledge or human feature engineering. These approaches are currently highly important in IoT applications.

DeLTA2024 received 70 submissions from 31 countries. Sixteen were selected for oral presentation as full papers, 18 for oral presentation as short papers, and 13 for poster presentation.

Three invited speakers presented the following plenary lectures:

Emanuele Maiorana
Roma Tre University, Italy
Deep Learning for Wearable Biometrics

Johan Suykens
KU Leuven, Belgium
New Synergies Between Deep Learning and Kernel Machines

Jürgen Schmidhuber
KAUST AI Initiative, Kingdom of Saudi Arabia,
Swiss AI Lab IDSIA, Switzerland,
and NNAISENSE, Switzerland
Past, Present, Future, and Far Future of AI

The conference organization assigned awards to be given during the conference to testify the value of the best contributions.

Winning papers were chosen by the Program/ Conference Chairs based on the best combination of review marks, assessed by the Program Committee, and paper presentation quality, assessed by Session Chairs and Program Chairs during the sessions. For this edition, the winning papers are listed in the box to the right.

Best Paper Award: *Few-Shot Learning with Novelty Detection* by Kim Bjerge, Paul Bodesheim and Henrik Karstoft

Best Student Paper Award: *Action Conditioned Attention Encoder-Decoder and Discriminator for Human Motion Generation* by Chaitanya Bandi and Ulrike Thomas

Best Poster Award: *Exploring Physiology-Based Classification of Flow During Musical Improvisation in Mixed Reality* by Ruben Schlagowski, Silvan Mertes, Dominik Schiller, Yekta S. Can and Elisabeth André

Honorable Mention: *CNN-N-BEATS: Novel Hybrid Model for Time-Series Forecasting* by Konstandinos Aiwansedo, Jérôme Bosche, Wafa Badreddine, M. H. Kermia and Oussama Djadane

We look forward to meeting you at the next edition: DeLTA2025 in Bilbao, Spain June 13 to 14, 2025

Report Submitted by
Carlo Sansone, Oleg Gusikhin, Allel Hadjali, and Ana Fred

Honorary Chair
Ching Y. Suen *(Concordia U., Canada)*

General Chairs
Mohamed Cheriet *(ETS, Canada)*
Seong-Whan Lee *(Korea U., Korea)*
Klaus-Robert Müller *(TU Berlin, Germany)*

Program Co-Chairs
Cheng-Lin Liu *(Chinese Academy of Sciences, China)*
Arun Ross *(Michigan State U., USA)*
Christian Wallraven *(Korea U., Korea)*

The Fourth International Conference on Pattern Recognition and Artificial Intelligence, ICPRAI 2024, was held from July 3rd to July 6th at the Jeju Conference Center in South Korea. It featured two tutorials and two keynotes by world-renowned expert speakers.

ICPRAI 2024 acknowledges endorsement from the International Association for Pattern Recognition (IAPR); sponsorship from the Korea University Institute for Artificial Intelligence and the Korea Brain Education Society; as well as support from the Korea Tourism Organization, the Jeju Convention and Visitors Bureau, and Korea University.

The conference was attended by 101 participants from all around the world. It received 135 submissions, each reviewed by at least three reviewers from an international, high-quality program committee headed by program co-chairs Cheng Lin Liu, Arun Ross, and Christian Wallraven.

Overall, 28 papers were accepted for oral presentation and 41 papers for poster presentation, resulting in an total acceptance rate of 51.1%. All accepted papers will be published in the LNCS series from Springer. The papers spanned diverse topics such as recommendation systems, computer vision, deep learning optimization, medical artificial intelligence, and robotics applications.

ICPRAI 2024 was organized as an offline conference kicking off with a long poster session, followed by two days with eight different oral sessions and two keynote talks, and ending with a tutorial day. It featured a welcome reception and gala dinner as social events.

Conference participants were able to listen to two excellent keynote talks given by Professor Jun Zhu on *Diffusion Models for High-dimensional Data Generation* and Professor Bastian Leibe on *Mask Transformers for Segmentation and Tracking in 2D, 3D, and 4D*.

The program co-chairs selected three papers out of all submissions for Best Paper awards: Third prize went to the paper entitled *Contrastive Language-Entity Pre-training for Richer Knowledge Graph Embedding*, by Andrea Papaluca, Daniel Krefl, Artem Lensky, and Hanna Suominen; Second prize went to *Prototype-Guided Contrastive Knowledge Graph Representation Learning for Diagnosis Prediction,* by Park Wooyeol, Ahmad Wisnu Mulyadi, Eunsong Kang, and Heung-Il Suk; First prize went to *Adjustable Visual Appearance for Generalizable Novel View Synthesis*, by Josef Bengtson, David Nilsson, Che-Tsung Lin, Marcel Büsching, and Fredrik Kahl.

Report Submitted by
Song Jungmin
Secretariat,
AI Innovation Hub Project

The ICPRAI committee, headed by Professor Suen, selected Concordia University in Montréal, Québec, Canada as the place for ICPRAI 2026.

We hope to see you there!

General Chairs
Andrea Torsello (Ca' Foscari University of Venice, Italy)
Luca Rossi (The Hong Kong Polytechninc University)

Local Chairs
Filippo Bergamasco, *Luca Cosmo, Giorgia Minello, & Mara Pistellato (Ca' Foscari University of Venice)*

SPR Chair: Ambra Demontis, *University of Cagliari*

SSPR Chair: *Xiao Bai, Beihang University*

The joint IAPR International Workshops on Structural and Syntactic Pattern Recognition (SSPR 2024) and Statistical Techniques in Pattern Recognition (SPR 2024).

S+SSPR 2024 was jointly organized by the Technical Committee 1 (Statistical Techniques in Pattern Recognition, chaired by Ambra Demontis) and the Technical Committee 2 (Structural and Syntactical Pattern Recognition, chaired by Andrea Torsello). It was held in Venice, Italy, in the frescoed "Aula Magna Silvio Trentin" in the Venetian nobiliar palace Ca' Dolfin. The event was a rich, two-day format spanning September 9-10, 2024.

For the first time, S+SSPR was not co-located with ICPR. The move has been discussed several times for the previous edition, but what pushed us to take the leap this time was a lack of members in India who could help organize S+SSPR close to ICPR.

The move affected the number of submissions. We received 27 submissions from 15 countries across 5 continents; however,

the submissions were generally of high quality. For the reviewing process, each paper was assigned to at least 2, but normally 3 reviewers, who eventually selected 19 papers for presentation at the workshop.

The accepted papers covered major topics of current interest in pattern recognition, including classification and clustering, deep learning, structural matching and graph-theoretic methods, and multimedia analysis and understanding.

During the conference we had two IAPR keynote speakers. Prof. Emanuele Rodolà from Università la Sapienza, Rome, Italy, spoke on *Unlocking Neural Composition*. And the **2024 IAPR TC1 Pierre Devijver Award** winner, Prof. Thomas G. Dietterich from Oregon State University, Corvallis, OR, USA, spoke on *Integrating Machine Learning into Safety-critical Systems.*

Further information about the workshops and organization can be found on the website.

Report Submitted by
Luca Rossi

IAPR BULLETIN BOARD

FOR ITEMS OF GENERAL INTEREST TO PATTERN RECOGNITION FOLKS

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IAPR Conference Proceedings webpage *OR* Springer IAPR webpage

For a list of the current IAPR member societies, see *iapr.org/aboutus/organizations.php*

Meeting and Education Planner

Month	Days	Meetings, Workshops & Schools	Previous edition & link to Report	Venue	Paper/ Application Deadline
= Sponsored by IAPR = in conjunction with ICPR		**2024**			
Nov	25-27	LATAM SSABT 2024 1st IAPR LATAM Summer School on Advanced Biometrics		Talca **Chile**	closed
	26-29	CIARP 2024 27th Iberoamerican Congress on Pattern Recognition	2023	Talca **Chile**	closed
	27-29	DICTA 2024 International Conference on Digital Image Computing: Techniques and Applications	2021	Perth **W. Australia**	closed
December	1-5	ICPR 2024 27th International Conference on Pattern Recognition	2022	Kolkata **India**	closed
	1	MPRSS 2024 Multimodal Pattern Recognition for Social Signal Processing in Human Computer Interaction	2022	Kolkata **India**	TBD
	1	AI4D 2024 AI for De-escalation: Enhancing Human Security, Equality & Dignity		Kolkata **India**	closed
	1	IMTA 2024 9th International Workshop: Image Mining, Theory and Applications	2022	Kolkata **India**	closed
	1	RRPR 2024 5th Workshop on Reproducible Research in Pattern Recognition	2022	Kolkata **India**	closed
	1	MCMI 2024 Multi- and Cross-Modal Information for Enhanced Pattern Recognition		Kolkata **India**	closed
	1	CWE 2024 Challenges in Wireless Capsule Endoscopy		Kolkata **India**	closed
	1	PRRS 2024 13th International Workshop on Pattern Recognition in Remote Sensing	2022	Kolkata **India**	closed
	1	PRHA 2024 3rd International Workshop on Pattern Recognition in Healthcare Analytics	2022	Kolkata **India**	closed
	1	MMforWILD 2024 3rd Workshop on MultiMedia FORensics in the WILD	2020	Kolkata **India**	closed
	1	AISIA 2024 Artificial Intelligence for Surgical Image Analysis		Kolkata **India**	closed
	1	IMUE 2024 First workshop on Intelligent Mobility in Unstructured Environment		Kolkata **India**	closed
	1	AIHA 2024 Artificial Intelligence for Healthcare Applications	2020	Kolkata **India**	closed
	1	CVAUI 2024 6th Workshop on Computer Vision for Analysis of Underwater Imagery	2022	Kolkata **India**	closed
	1	XAIE 2024 3rd Workshop on Explainable and Ethical AI	2022	Kolkata **India**	closed
	1	MMVPR 2024 Multi-Modal Visual Pattern Recognition		Kolkata **India**	closed
	19-21	CVIP 2024 9th International Conference on Computer Vision and Image Processing	2023	Chennai **India**	closed

Continued on Next Page

= Sponsored by IAPR		2025			
Feb	23-25	ROBOVIS 2025 5th International Conference on Robotics, Computer Vision and Intelligent Systems	2024	Porto **Portugal**	closed
	23-35	VISAPP 2025 20th International Conference on Computer Vision Theory and Applications	2024	Porto **Portugal**	closed
	23-25	ICPRAM 2025 14th International Conference on Pattern Recognition Applications and Methods	2024	Porto **Portugal**	closed
June	25-27	GbR 2025 14th IAPR TC15 Workshop on Graph-based Representations in Pattern Recognition	2023	Caen **France**	Feb 3 2025
	25-28	MCPR 2025 17th Mexican Conference on Pattern Recognition	2024	Guanajuato **Mexico**	Jan 31
June-July	30-3	IbPRIA 2025 12th Iberian Conference on Pattern Recognition and Image Analysis	2024	Coimbra **Portugal**	TBD
July	26-28	MVA 2025 (website coming soon) 19th International Conference on Machine Vision Application	2023	Kyoto **Japan**	TBD
Sept	15-19	ICIAP 2025 23rd International Conference on Image Analysis and Processing	2019	Rome **Italy**	Feb 1 2025
	17-21	ICDAR 2025 19th International Conference on Document Analysis and Recognition	2023	Hubei **China**	Nov 15 2024
		2026			
Aug	16-20	ICPR 2026 - 28th International Conference on Pattern Recognition	2022	Lyon **France**	TBD

We aim to provide a useful, interesting, readable, and visually appealling newsletter, and to publish it on time!
You can help by noting below the **due dates** for each type of content for the January issue.

IAPR NEWSLETTER PRODUCTION SCHEDULE FOR JANUARY 2025

Sunday	Monday	Tues	Wed	Thurs	Friday	Saturday
Dec 29	Dec 30 *Invited Next Generation Essay Due*	Dec 31	Jan 1	Jan 2	Jan 3 *Invited Getting to Know IAPR Fellow Essay Due*	Jan 4
Jan 5	Jan 6 *All Meeting Reports; New ads*	Jan 7	Jan 8	Jan 9	Jan 10 *Standing Committee Columns/News; Technical Committee News; Changes to existing ads*	Jan 11
Jan 12	Jan 13 *From the ExCo Essay and News Points*	Jan 14	Jan 15	Jan 16	Jan 17 *Conference Calls for Papers, Proposals, & Applications*	Jan 18
Jan 19	Jan 20	Jan 21	Jan 22	Jan 23	Jan 24	Jan 25
Final Copy and Review Week						
Jan 26	Jan 27 *Publication Day (Planned)*	Jan 28	Jan 29	Jan 30	Jan 31	Feb 1

Wondering when to send new or unlisted content? Please contact the Layout Editor by Dec 15, 2024

THE INTERNATIONAL ASSOCIATION FOR PATTERN RECOGNITION
IAPR Newsletter

Published quarterly (Jan, Apr, July & Oct) in association with iapr.org
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Please email comments or ideas to EiC or LE! Thank you!