

IAPR

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# Newsletter

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## From the Editor's Desk: Call for articles related to "Pattern Recognition for Humanitarian Purposes"

by Jing Dong, EiC  
[jdong@nlpr.ia.ac.cn](mailto:jdong@nlpr.ia.ac.cn)

*"I would like to call on all of you to contribute to this column, PR for Humanitarian Purposes, and invite all colleagues who are interested in humanitarian technology to pay attention to and support it with practical actions."*

It has been more than two years since the global spread of COVID-19 hit the world in a flash. People everywhere have been greatly impacted in terms of safety, lifestyle, communication, commerce, and economy. These changes have significantly raised our understanding and awareness of building community with a shared future for humanity as our common destiny.

In the past two years, many international academic organizations, universities, research centers and industries have been actively organizing discussions and frequently exchanging their expertise to explore new challenges and opportunities under/after the pandemic. There are already many opportunities to make a contribution—big or small—to improving the human condition worldwide, and individuals can become involved at any stage of engagement through contributions of time, talent, and funds. And, the application of artificial intelligence technology will certainly accelerate the vision of technology benefiting humanity.



# CALLS for PAPERS

For the most up-to-date information on IAPR-supported conferences, workshops and summer schools, please visit the IAPR web site: [www.iapr.org/conferences/](http://www.iapr.org/conferences/)  
+ denotes pending IAPR Conferences & Meetings Approval +

## 2022

### [CVIP 2022](#)

7th International Conference on  
Computer Vision & Image Processing  
Nagpur, Maharashtra, India  
Deadline: Jul. 31 2022  
Dates: Nov. 4-6, 2022

## 2023

### [ICDAR 2023](#)

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

### [IWFBI 2023](#)

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

### [GbR 2023](#)

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

### [ICPRAM 2023](#)

12th International Conference on  
Pattern Recognition Applications and Methods  
Lisbon, Portugal  
Deadline: Oct. 10, 2022  
Dates: Feb. 16-18, 2023

### [VISAPP 2023](#)

12th International Conference on  
Computer Vision Theory and Applications  
Lisbon, Portugal  
Deadline: Oct. 10, 2022  
Dates: Feb. 19-21, 2023

From 2019-2022, I served as the IEEE Region 10 Humanitarian Technology Activities Committee (HAC) Chair. In 2021, IEEE HTAC called for proposals aiming to engage the members in meaningful humanitarian technology and sustainable development activities, foster the development of IEEE relationships with communities and stakeholders at the grassroots level, and incubate a geographically diverse selection of innovative prototypes that could potentially be scaled up in the future—all with safety as the highest priority—and most of the submitted proposals were designed based on pattern recognition and machine learning.

Hence I believe IAPR could also stand up and provide possible resources that inspire or enable its members around the world to carry out and/or support impactful humanitarian activities at their local level, providing training for engagement in humanitarian activities, supporting and evaluating humanitarian projects or events, and cultivating relationships and leveraging opportunities so that the whole technical society/association can lead the global innovation.

I would like to call on all of you to contribute to this column, PR for Humanitarian Purposes, and invite all colleagues who are interested

in humanitarian technology to pay attention to and support it with practical actions.

I look forward to your contributions or articles, opinions and suggestions on this subject. Here are some thoughts to get you going. You could write about: introducing new software, organizing technical reviews/tutorials, taking training courses, opening new datasets or sharing best practices.

Write and inspire others to think about Pattern Recognition for Humanitarian Purposes.

Wishing you enjoyable reading of this issue!

# Calls from IAPR Committees

From the IAPR Education Committee:

## Call for Applications for IAPR Research Scholarships

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

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

**Description:** IAPR Research Scholarships seek to make possible mobility across institutions and international boundaries for Early Career Researchers working in fields within the scope of the IAPR's interests. The scholarship covers round trip travel & basic living expenses for a visit of less than 12 months.

**Requirements:** The candidate must be a full-time researcher with between one and eight years experience. The candidate must also be a member of an IAPR member society.

**Contact information:** IAPR Secretariat, c/o Linda O'Gorman, [secretariat@iapr.org](mailto:secretariat@iapr.org)

From the IAPR Industrial Liaison Committee:

## Call for Internship Listings for the IAPR Internship Brokerage Page for Companies with Internships Available

and for

### Students seeking internship opportunities

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

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

#### For companies with internships to list:

(see examples at the URL above)

Please email your listings as follows:

To: Bob Fisher - [rbf@inf.ed.ac.uk](mailto:rbf@inf.ed.ac.uk)

Subject: IAPR internship listing

Details:

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

#### For students:

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

**NOTE:** At the time of publication, there were 42 opportunities listed and more than 14,000 accesses since November 2017.

**Contact Information:**  
Bob Fisher, [rbf@inf.ed.ac.uk](mailto:rbf@inf.ed.ac.uk)

From the IAPR  
Executive Committee (ExCo):

## Call for Proposals for Summer/Winter Schools

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

### Deadline schedule:

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

Summer/winter schools are training activities that expose participants to the latest trends and techniques in the particular pattern recognition field.

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

**How to Submit:** Proposals for IAPR funded summer/winter schools should be submitted to IAPR Secretariat Linda O'Gorman by email ([secretariat@iapr.org](mailto: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](#).

## My adventure with statistical pattern recognition

by Adam Krzyżak, IAPR Fellow



*Adam Krzyżak (Life Fellow, IEEE, Fellow IAPR) received the M.Sc. and Ph.D. degrees in computer engineering from the Wrocław University of Science and Technology, Poland, in 1977 and 1980, respectively, and the D.Sc. degree (Habilitation) in computer engineering from the Warsaw University of Technology, Poland, in 1998.*

*Since 1983, he has been with the Department of Computer Science and Software Engineering, Concordia University, Montreal, Canada, where he is a Full Professor and co-director of CENPARMI.*

*He is the coauthor of the book *A Distribution-Free Theory of Nonparametric Regression* (New York: Springer, 2002). In 1983, he held an International Scientific Exchange Award in the School of Computer Science, McGill University, Montreal, in 1991; the Vineberg Memorial Fellowship at the Technion—Israel Institute of Technology; and the Humboldt Research Fellowship at the University of Erlangen-Nürnberg, Germany, in 1992. He received the Title of Professor from the President of Poland in 2003.*

*He has co-chaired and served on program committees for international conferences. He been an Associate Editor of *IEEE Transactions on Neural Networks and Learning Systems* and *IEEE Transactions on Information Theory* and is currently an Associate Editor-in-Chief of *Pattern Recognition* journal.*

*His current research interests include nonparametric statistics, deep learning theory and applications, and classification techniques and their applications in biometrics and medicine.*

*Adam Krzyżak, IAPR Fellow  
ICPR 2020, Milan  
For contributions to statistical  
pattern recognition and machine  
learning, and for service to the  
IAPR.*

My adventure with statistical pattern recognition began during my Ph.D. studies at the Technical University of Wrocław, Poland, where my PhD supervisor Prof. Włodzimierz Greblicki introduced me in 1977 to his research on nonparametric classification rules. In 1982, I got an NSERC Scientific Exchange Award from Canadian Government for collaboration with Prof. Luc Devroye at McGill University in Montreal on asymptotic properties of variable

kernel and nearest neighbor classification rules.

Subsequently, I joined Concordia University, Montreal, Canada, where I am currently a Full Professor and Co-director of the Center of Pattern Recognition and Machine Learning (CENPARMI) together with Prof. Ching Y. Suen.

In 1992, Prof. Lei Xu visited our lab and it was the beginning of very fruitful collaboration which resulted in important contributions to the theory of classifier fusion by means of belief functions and Dempster-Shafer formalism with applications to handwriting recognition. We also made interesting contributions to the theory and applications of radial basis function networks (RBF) by noticing their close

relationship to the kernel regression estimation. It was one of the first attempts to analyze theoretically RBF networks. More general analysis was completed with my postdoc Dominik Schafer in 1995 and Tamas Linder in 1998 by using the ideas and tools from machine learning theory such as Vapnik-Chervonenkis dimension and covering numbers.

During my sabbatical year 1993-1994 I spent 6 months collaborating with Prof. Henrich Niemann at the University of Erlangen-Nürnberg in Germany under a Humboldt Fellowship and 4 months at Technion, Israel, collaborating with Prof. Freddy Bruckstein. My sabbatical work resulted in further contributions to RBF research.



In the early 2000's we studied with my PhD student and Prof. Linder from Queens University principal curves technique in the context of representation of clouds of points and character skeletonization. We introduced a new class of principal curves and analyzed their convergence properties. We also developed a practical piecewise linear skeletonization algorithm for approximating principal curves and principal graphs and applied it to recover sparse topology of handwritten characters.

In 2005 I developed together with my PhD student Jianxiong Dong and Prof. Ching Suen the generalized support vector machine training algorithms by introducing parallelism to it, and we obtained very significant improvement of the speed allowing solving multidimensional classification problems with thousands of classes. The system was tested on the database of Chinese handwritten characters with several thousand classes.

In the last 20 years, I have had extensive and fruitful collaboration with my German colleagues: Profs. Michael Kohler, TU Darmstadt and Harro Walk from Stuttgart University. We established faster than previously known rates of convergence of the plug-in kernel, partitioning, and nearest neighbor classification rules under margin condition, and we applied neural network estimates in financial mathematics to pricing American options.

Since 2017 we focused our attention on analysis of deep learning in regression estimation, classification and dimensionality reduction. In our latest paper we studied convergence of deep convolutional neural networks in image processing and image classification. I also made some contributions to biometrics

including face recognition and to medical applications of pattern recognition and, in particular, to automatic grading of breast cancer biopsy images.

Where is statistical pattern recognition heading today? Statistical pattern recognition has played a fundamental role in pattern recognition from the inception of the latter. Within the field the most important pattern recognition algorithms have been developed since 1960s. They include perceptron, linear classifiers, least squares methods, nearest neighbors, support vector machines, multilayer perceptron, tree classifiers and finally deep networks. The properties of classical recognition techniques were established over several decades. Today most resources in statistical pattern recognition are devoted to studying deep learning and deep classifiers such as deep convolutional networks.

New algorithms and neural nets architecture have been proposed almost daily, but with that new challenges surfaced.

The first challenge is large numbers of parameters going sometimes into many millions needed to be learned from data,

thus requiring large numbers of training samples, which in many applications—e.g., in medical field—are not readily available. Disparity between the number of parameters and samples may lead to overfitting.

The second challenge involves the algorithms for parameter learning. The most common one is backpropagation, which is a gradient based algorithm with a tendency to find local rather than global extrema.

These problems can be overcome by heuristic approaches, but there is a strong desire to develop theory providing clues and suggestions of how to choose deep net architectures and some hyperparameters such as numbers of hidden neurons in deep layers to assure convergence and to obtain fast rates of convergence.

We and many other researchers are trying to find answers to these questions and will continue to do so in the near future. So I am convinced that statistical pattern, and in particular machine learning have bright future in the pattern recognition field.



**A WEBCOMIC OF ROMANCE,  
SARCASM, MATH, AND LANGUAGE.**

<https://xkcd.com>



# IAPR...The Next Generation

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

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

*~Jing Dong, Editor -in-Chief*

## Diego Rodriguez

*Editor's note: Diego Rodriguez received the Best Poster Award at VISAPP 2022. Please see the [report on this conference](#) in this issue.*

*~ Jing Dong, EiC*

by Diego Rodriguez, Robotics Engineer at [Dexterity](#)

### ***Briefly: How did you get involved in pattern recognition?***

Through introductory courses during my bachelor studies, I began to learn about pattern recognition; classical classification and regression problems applied to computer vision tasks were my entry point in the field.

A deeper and more formal analysis of pattern recognition approaches were provided during my master studies. I was confronted with more realistic problem settings in a wider variety of applications including text processing, sequential data, among others, where outliers, noise, distortions, incomplete data etc. need to be properly modeled. Learning new techniques and more importantly applying these techniques in different problems allowed me to develop the necessary skills to assess where pattern recognition methods can be applied and evaluate benefits and

disadvantages of those methods in particular applications.

At the same time, during my master studies, I was exposed to several fundamental robotics approaches in the fields of control, planning, state estimation, perception and localization. Evidencing the limitations of typical approaches in these fields and being in contact simultaneously

with pattern recognition methods helped me to create connections between robotics and pattern recognition. Gradually, I developed intuition of when and what kind of robotics problems can be addressed with the help of pattern recognition techniques. More importantly, I developed a fascination with the application of learning approaches in robotics.

*Diego Rodriguez received his bachelor degree in Mechatronics Engineering from the National University of Colombia in 2013 and his master's degree in Robotics, Cognition and Intelligence from the Technical University of Munich, Germany in 2016. Since then, he conducted his doctoral studies at the Autonomous Intelligent Systems Institute of the University of Bonn, Germany, getting his doctoral degree in 2021.*

*Diego actively contributed to international projects such as the CENTAURO project (<https://www.centauro-project.eu/>).*



*He has won several robotics competitions including the MBZIRC challenge (2017) and the Humanoid League of RoboCup (2017, 2018 and 2019).*

*Diego Rodriguez is the author of over 20 technical publications. His research interests include learning, grasping, manipulation and locomotion, applied to the field of humanoid and mobile robotics.*



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

To contribute to solving the question, "how can humanoid robots learn to move in human-made scenarios?" was the emphasis of my doctoral studies. I tackled this question in three main skills a humanoid robot needs to demonstrate: grasping, walking and navigation.

I addressed the grasping problem based on a simple observation of how humans transfer grasping knowledge between instances: a human is able to grasp and to manipulate a novel presented object by transferring knowledge of previous grasping experiences. More formally, I formulated a latent (shape) space of geometrical variations of an object category. In this manner, a geometrical description of a novel object can be defined by a point in this latent space. This descriptor serves as a shape reconstructor and it is found by searching in the latent space for a point that minimizes the distance between the observed and the inferred (optimized) instance. Furthermore, grasping knowledge expressed as a sequence of grasping poses that is attached to a known category can be then transferred to novel instances based on the object shape, or, in other words, based on how dissimilar the presented instance is with respect to the known instance. This is especially relevant for robotics applications where observed objects are normally occluded. This latent space is able to reconstruct the object shape and to transfer the grasping information.

This shape space is formulated as a learning problem. As such, a training instance set is defined for each object category. A canonical

model is selected and then all the other training instances are registered non-rigidly towards the canonical one. This registration is based on the Coherent Point Drift (CPD) method that modeled a registered instance as a set of deformable points which are ultimately modeled by means of Gaussian Mixture Models (GMMs). Finally, the latent space is the span of the Principal Components of the deformation fields calculated by CPD. This is a very good example on how pattern recognition techniques can leverage robotics applications.

This shape space is a powerful tool that allows us to describe shapes. It can be used also to infer joint configurations of multi-fingered robotics hands that inherently exhibit a high-dimensionality which can be handled by synergies (typical joint configurations latent space). The association between shape and synergy descriptors can be modeled by pattern recognition techniques such as Gaussian Processes (GPs).

I continue exploring the capabilities of the shape space and apply it to solve the non-rigid registration problem of objects with transparent and shiny surfaces by performing the registration on RGB images that do not have the issues of traditional depth sensors. For tackling this problem, I used another set of tools of pattern recognition, namely, deep learning. A network is trained to predict deformation fields for each visible pixel, which then are later interpolated to deform 3D vectors of the presented instance.

As mentioned before, I was also interested in solving problems related to bipedal gaits of humanoid robots. Initially, I used Gaussian Processes to characterize the dissimilarity between a physics-based

simulator and a real humanoid robot. By establishing this difference, simulation can leverage experimentation that is prohibitively expensive with real robots. In this manner, optimal parameters of the bipedal gait can be learned by combining experiences in simulation and with the real robot.

Recently, I have been exploring Deep Reinforcement Learning (DRL) methods on locomotion controllers. The advantages in physics-based simulators and Monte Carlo methods provides a relatively cheap framework to collect a vast number of rollout experiences. These are ultimately used to learn policies, expressed as neural networks that finally define robot commands. Similarly, I employed DRL approaches to address the mapless navigation problem, in which the locomotion actions (velocity commands) of a humanoid robot are taken online based on the knowledge encoded in learned world models. Planning happens by generating open-loop trajectories in a learned latent space that captures the dynamics of the environment.

***How can the IAPR help young researchers?***

Young researchers benefit a lot from exchange with their peers. I had the opportunity to attend international conferences in which I have got in touch with other researchers. These venues allowed me not only to update my knowledge of the state of the art approaches, but also to exchange ideas and to see the problems from other perspectives. The International Association for Pattern Recognition (IAPR) can play an important role here to make visible and accessible these academic events for young researchers.

In this same manner, other events such as summer camps

or international competitions should be promoted between young researchers. Competitive environments help to advance the state of the art, give practical experience to researchers and allow to compare approaches from other research groups.

One of the most difficult hurdles for some young researchers starting in the field is to find a research topic. Part of the difficulty is to get an overview of the state of the art. Every year, hundreds of papers are published which makes the problem even harder.

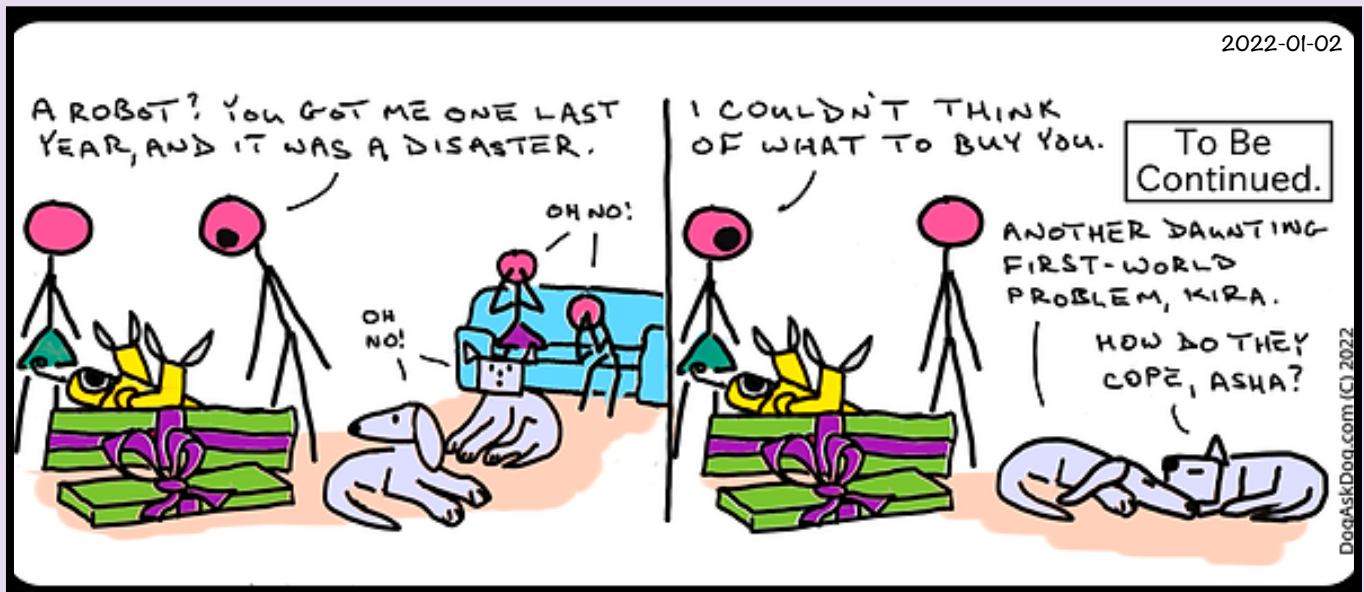
The IAPR might help young researchers by effectively making visible and accessible key approaches and surveys that illustrate and give an overview of the state of the art in the subfields of pattern recognition.

## DOG ASK DOG

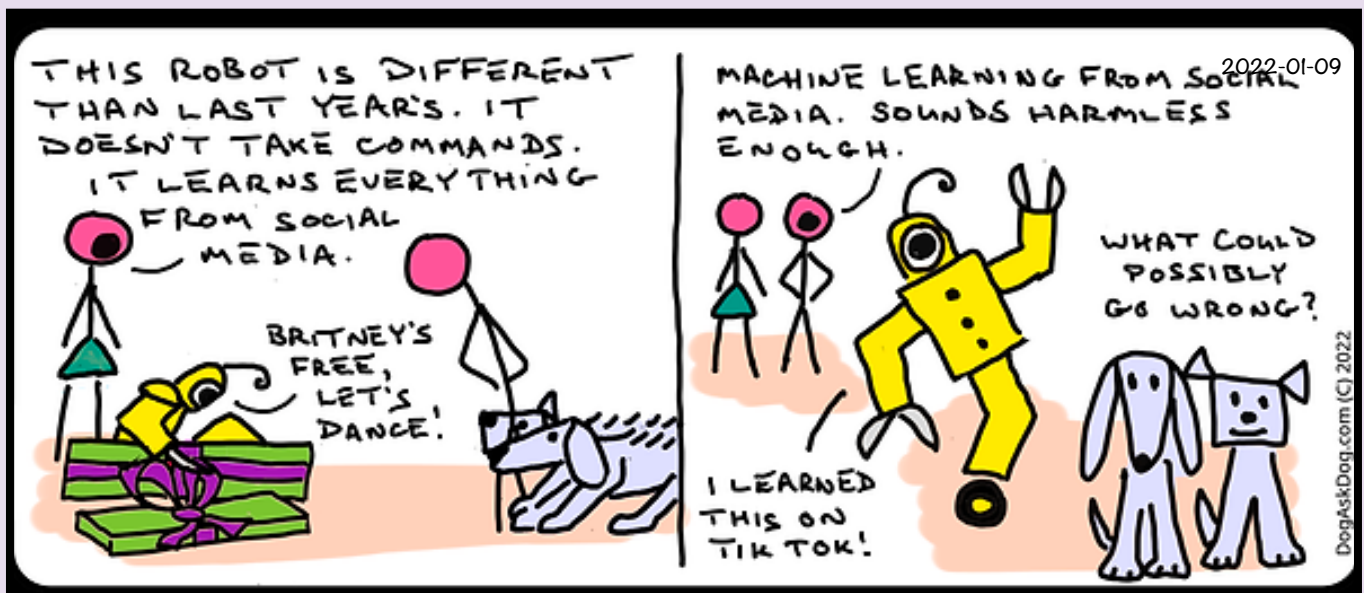
*Two dogs perspectives on the follies of humankind.*



2022-01-02



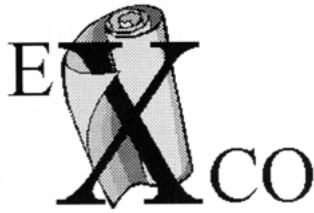
2022-01-09



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From the



## The IAPR ExCo on... Reforming Technical Committee 20



by Lale Akarun (Turkey)  
IAPR 1st Vice President  
[akarun@boun.edu.tr](mailto:akarun@boun.edu.tr)

### News from the IAPR Executive Committee

- The ExCo is preparing for its first hybrid Governing Board Meeting on Tuesday, August 23, 2022 during ICPR 2022.
- The biennial meeting of the Governing Board (GB) is an opportunity to review the activity of the past two years and define strategies for the next term and beyond.
- The ExCo sends a big "Thank you!" to the leadership of the Standing and Technical Committees for all of the volunteer work involved in running these committees and preparing the biennial reports to the GB.
- 25 people received ICPR 2022 Travel Stipends after a joint effort of the ICPR 2022 organizers and the ExCo. We're looking forward to seeing their presentations in Montreal!
- The ExCo congratulates the winners of the King-Sun Fu (Prof. Tieniu Tan), J. K. Aggarwal (Prof. Jiliang Tang) and Maria Petrou (Prof. Yunhong Wang) Prizes. Check the [ICPR 2022 Program](#) for the dates and times of these exciting keynotes.

I have been on the Executive Committee (ExCo) of IAPR for two terms. In my first term, as 2nd Vice President, I was the liaison to the Prize and Fellow committees. As 1st Vice President, in my second term, I am the liaison to the IAPR's [Technical Committees](#).

According to IAPR Bylaws, Technical Committees "provide leadership in designated technical specialties and to further the objective of IAPR". Since areas of application of Pattern Recognition change over time, as interest dwindles, some Technical Committees are dissolved, and new ones are established in line with rising research interest.

However, some Technical Committees become inactive due to other reasons, despite rising interest. One such example was TC20, Bioinformatics, which was inactive for three terms. Knowing that there is still interest in this area, I took on the responsibility of reviving TC20 and enlarging its scope.

Bioinformatics applies the tools of pattern recognition to biological data, and is of extreme interest to the PR community. However, there is a large community within IAPR involved in biomedical informatics and healthcare pattern recognition as well. The PR community has been working on problems such as risk prediction, deciphering disease progression, patient subtyping, and medical text classification. These areas are often termed "digital health analytics".

Therefore, I set out not only to contact researchers who would provide leadership in bioinformatics but also in health analytics. The proposed leadership team of TC20 spans this diverse set of areas: The proposed chair, Bert Arnrich, is the head of the Chair Digital Health - Connected Healthcare at the joint Digital-Engineering Faculty of Hasso Plattner Institute (HPI) and the University of Potsdam, Germany. The proposed vice-chair, Arzucan Ozgur of Bogazici University, has recently been shortlisted for an ERC grant in bioinformatics. The communications officer, Inci Baytas of Bogazici University, collaborates with neurologists on analyzing the transition from mild cognitive impairment to Alzheimer's disease. The advisory board consists of Jianying Hu, Director of the Center for Computational Health at IBM Research, and Ayse Bener of Ryerson University, an associated scientist with Toronto St. Michael Hospital, Canada. The new team is organizing the [International Workshop on Pattern Recognition in Healthcare Analytics \(PRHA2022\)](#) at ICPR2022.

The Executive Committee has approved the change in scope for TC20 and will recommend it to the Governing Board during the biennial meeting in Montreal.

We hope that with the new name "PR for Bioinformatics and Digital Health", TC20 will attract researchers from different domains and start the two-way transfer of knowledge between pattern recognition and health domains.



Palais des congrès  
de Montréal



The 26th International  
Conference on  
Pattern Recognition  
Montréal, Québec, Canada  
August 21-25, 2022  
<https://iapr.org/icpr2022>

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

Check out the full program here: <https://www.icpr2022.com/programme/>.

## Program Overview

Sun., Aug. 21	Mon., Aug. 22	Tue., Aug. 23	Wed., Aug. 24	Thu., Aug. 25
<p><a href="#">Workshops and Tutorials</a></p>	<p><a href="#">Keynotes, Sessions, Exhibits, Posters, and Welcome Reception</a></p> <p>Keynotes:  <b>King-Sun Fu Prize Lecture by Prof. Tieniu Tan</b> (Institute of Automation, Chinese Academy of Science)            and            Keynote #1</p>	<p><a href="#">Keynotes, Sessions, Exhibits and Posters</a></p> <p>Keynotes:  <b>Maria Petrou Prize Lecture by Prof. Yunhong Wang</b> (Beihang University)            and            Keynote #2</p>	<p><a href="#">Keynotes, Sessions, Exhibits, Posters, Women in PR Panel, and Banquet</a></p> <p>Keynotes:  <b>J. K. Aggarwal Prize Lecture by Jiliang Tang</b> (Michigan State University)            and            Keynote #3            plus  <b>Women in PR Panel and Get-together</b></p>	<p><a href="#">Keynotes, Sessions, Posters and Closing Ceremony/Awards</a></p>

Registration Information:

<https://www.icpr2022.com/registration/>

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[TC15 Graph-Based Representation](#)

## A Guide to ICPR2022 Workshops associated with IAPR Technical Committees

26TH International Conference  
on Pattern Recognition



These workshops are held in conjunction with or co-located with ICPR 2022 in Montreal, Quebec, Canada.

Each of them is associated with an IAPR Technical Committee.

Technical Committee involved in the Workshop	Workshop and Dates	Link
TC1 Statistical Pattern Recognition Techniques and TC2 Structural and Syntactic Pattern Recognition Techniques	S+SSPR2022 co-located in Montreal to follow ICPR2022 on August 26-27, 2022	<a href="https://iapr.org/ssspr2022">https://iapr.org/ssspr2022</a>
TC5 Computer Vision for Underwater Environmental Monitoring	CVAUI 2022 @ ICPR2022 on August 21, 2022	<a href="https://iapr.org/cvauui2022">https://iapr.org/cvauui2022</a>
TC7 Remote Sensing and Mapping	PRRS @ ICPR2022 on August 21, 2022	<a href="https://iapr.org/prrs2022">https://iapr.org/prrs2022</a>
TC9 Pattern Recognition in Human Machine Interaction	MPRSS @ ICPR2022 on August 21, 2022	<a href="https://iapr.org/mprss2022">https://iapr.org/mprss2022</a>
TC16 Algebraic and Discrete Mathematical Techniques in Pattern Recognition	IMTA2022 @ ICPR2022 on August 21, 2022	<a href="https://iapr.org/imta2022">https://iapr.org/imta2022</a>
TC18 Discrete Geometry and Mathematical Morphology	RRPR2022 @ ICPR2022 on August 21, 2022	<a href="https://iapr.org/rrpr2022">https://iapr.org/rrpr2022</a>
TC19 Computer Vision for Cultural Heritage Applications	PatRECH @ ICPR2022 on August 21, 2022	<a href="https://aida.unicas.it/patrech2022/">https://aida.unicas.it/patrech2022/</a>
TC20 is being reformed and has an associated workshop	PRHA2022 @ ICPR2022 on August 21, 2022	<a href="https://iapr.org/prha2022">https://iapr.org/prha2022</a>



# More IAPR Technical Committee News

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## IAPR TC1 Statistical Pattern Recognition Techniques

<https://iapr.org/tc1>

Simone Scardapane (Sapienza University of Rome, Italy), Chair

Ambra Demontis (University of Cagliari, Italy), Vice Chair

Every second year, the Technical Committee on Statistical Pattern Recognition Techniques (TC1) assigns the Pierre Devijver Award, a prize to highlight scientists who have contributed significantly to the field of statistical pattern recognition. The award is named in memory of Pierre Devijver, one of the founders of statistical pattern recognition, who left us in 1996.

This year's call for nominations received more than 14 nominations thanks to a strong campaign across our members and social media pages.



It is our pleasure to announce that Dr. Yoshua Bengio (Deep learning expert and Turing Prize Winner) will receive the 2022 Pierre Devijver Award. The list of past recipients can be found [here](#).

[Dr. Yoshua Bengio](#) will be in-person to accept the Pierre Devijver Award and will give a Prize reception talk on deep learning during the S+SSPR 2022 Workshop (co-located after the main [ICPR 2022](#) conference in Montréal).

The list of past recipients can be found [here](#).



And

# More IAPR Technical Committee News

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## IAPR TC3 Neural Networks & Computational Intelligence

<https://iapr.org/tc3>

Hazem Abbas (Ain Shams University, Egypt), Chair

Mirco Ravanelli (Université de Montréal, Canada), Vice Chair

IAPR TC3 is working on its forthcoming biennial meeting, The 10th IAPR TC3 Workshop on Artificial Neural Networks in Pattern Recognition, ANNPR 2022, which will be held November 24–26, 2022, at the Dubai Campus of Heriot-Watt University, Dubai, UAE. <https://iapr.org/annpr2022>

ANNPR 2022 will act as a major forum for international researchers and practitioners working in all areas of neural networks and machine learning-based pattern recognition to present and discuss the latest research, results and ideas in these areas.

Dubai is one of the most sophisticated, futuristic and cosmopolitan cities in the world. Its residents come from more than 180 different countries. Dubai is ranked the world's 2nd safest city and number one globally for foreign direct investment (FDI) and technology transfer in the AI and robotics sectors. Dubai has grown into a major regional hub for technology and innovation.

ANNPR 2022 will be hosted at the Dubai campus of Heriot Watt University. Heriot Watt is an international University with five global campuses, partners in 150 countries and 30,000 students studying worldwide. It has a world-class reputation for teaching and leading-edge research combined with its strong links to business and industry. The Dubai Campus has established itself as a pioneer in the higher education market in the UAE.

Among the previous editions of the workshop were ANNPR 2020 (Winterthur, Switzerland), ANNPR 2018 (Siena, Italy), ANNPR 2016 (Ulm, Germany), ANNPR 2014 (Montreal, Canada), ANNPR 2012 (Trento, Italy), ANNPR 2010 (Cairo, Egypt), ANNPR 2008 (Paris, France) and ANNPR 2006 (Ulm, Germany).



ANNPR 2022

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

The 10th IAPR TC3 Workshop on Artificial Neural Networks in Pattern Recognition, ANNPR 2022, will be held on November 24 through 26th, 2022, at the Dubai Campus of Heriot-Watt University, Dubai, UAE.

📍 Heriot-Watt Dubai Campus (In-person and Online)

📅 November 24, 2022 - November 26, 2022

<https://iapr.org/annpr2022>

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**IAPR TC4 Biometrics**

<https://iapr.org/tc4>

Zhenan Sun (National Laboratory of Pattern Recognition, China), Chair  
Julian Fierrez (Universidad Autónoma de Madrid, Spain), Vice Chair  
Shiqi Yu (Southern University of Science and Technology, China), Secretary

## Call for Sponsorships of IJCB 2022

The 2022 International Joint Conference on Biometrics (<https://iapr.org/ijcb2022>) will be held in Abu Dhabi, United Arab Emirates from October 24 to October 27, 2022.

This will be the first biometrics conference to be held in the Middle East. Abu Dhabi is the picturesque capital of UAE, an hour's drive away from Dubai.

IJCB 2022 is calling for sponsorships.

Becoming a sponsor can increase your visibility and your organization's profile.

Please visit <http://ijcb2022.org/> for detailed information.





And still  
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# More IAPR Technical Committee News

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## IAPR TC7 Remote Sensing and Mapping

<https://iapr.org/tc7>

Ribana Roscher (University of Bonn, Germany), Chair  
Charlotte Pelletier (Université Bretagne Sud, France), Vice Chair  
Sylvain Lobry (Paris Descartes University, France) Vice Chair

 <https://www.linkedin.com/groups/9029609>

 @IAPR\_TC7, [https://twitter.com/IAPR\\_TC7](https://twitter.com/IAPR_TC7)

TC7 promotes the development and application of pattern recognition methods for the analysis of remote sensing data collected from space, air, and ground, and fosters academic collaboration and networking among related communities.

We are happy to announce that the International Workshop on Pattern Recognition in Remote Sensing (PRRS 2022) will be held in conjunction with the International Conference on Pattern Recognition (ICPR 2022) (<https://iapr.org/prrs2022>) in Montreal, Canada, on August 21, 2022. The workshop is organized by Ribana Roscher, Charlotte Pelletier, and Sylvain Lobry, and co-sponsored by the European Space Agency (ESA). It will include two great keynotes:

- Elif Sertel, Professor at Geomatics Engineering Department of Istanbul Technical University on "Earth Observation Data for Geospatial Artificial Intelligence"
- Claudia Paris, Ass. Professor at University of Twente on "The Big Earth Observation Data Labeling Challenge".

TC7 informs about current events and conferences on remote sensing and pattern recognition in our newsletter. You are welcome to subscribe to it: <http://iapr-tc7.ipb.uni-bonn.de/newsletter/>.

Information in the TC7 Newsletter and recent TC7 developments are also shared on LinkedIn (<https://www.linkedin.com/groups/9029609>) and Twitter ([@IAPR\\_TC7](https://twitter.com/IAPR_TC7)). Stay up to date by becoming a follower.



PRRS 2022 <https://iapr.org/prrs2022>

# Workshop on Pattern Recognition in Remote Sensing

as part of ICPR 2022

August 21, 2022  
Montreal, Canada

## IN THIS ISSUE:

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## IAPR TC11 Reading Systems

<https://iapr.org/tc11>

Faisal Shafait (National University of Sciences and Technology NUST, Pakistan), Chair  
Jihad El-Sana (Ben-Gurion University of the Negev, Israel), Vice Chair

**DAS 2022 Highlights**

15th International Workshop on Document Analysis Systems (DAS) was successfully conducted in La Rochelle, France from May 22-25, 2022. The workshop was attended by over 100 on-site participants and over 50 online participants. A total of 52 high quality papers were accepted in the workshop.

A session to discuss Future of DAS in the face of the annual ICDAR was also organized by TC10 and TC11 chairs. Multiple options were placed before the audience which are mentioned below:

- 1- No change to DAS (hold DAS 2024 independent of ICDAR 2024)
- 2- Hold DAS as a satellite workshop of ICDAR
- 3- Merge DAS as a Dedicated Track in ICDAR

The majority of the participants opted to hold DAS as a satellite workshop of ICDAR. The first chapter of DAS as a satellite workshop will be held along with ICDAR 2024.

The workshop proceedings can be found at the DAS official website mentioned below: <https://iapr.org/das2022>

**ICFHR 2022**

The 18th edition of the International Conference on Frontiers in Handwriting Recognition (ICFHR) 2022 is being hosted in International Institute of Information Technology (IIIT), Hyderabad, India from December 04-07. More details can be found at: <https://iapr.org/icfhr2022>.

**ICDAR 2023**

The 17th International Conference on Document Analysis and Recognition (ICDAR) 2023 will be organized in San Jose, California, USA, from August 21-26, 2023. Paper submission deadline is expected to be in the first week of January 2023. More details can be found at: <https://iapr.org/icdar2023>

**ICDAR 2024**

The 18th International Conference on Document Analysis and Recognition (ICDAR) 2024 is planned to be organized in Athens, Greece, tentatively in September 2024. The important dates will be shared soon via TC10/11 newsletters.

Wow!

# More IAPR Technical Committee News

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## IAPR TC15 Graph-Based Representations

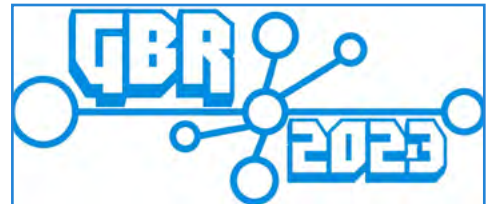
<https://iapr.org/tc15>

Donatello Conte (Université de Tours, France), Chair  
Vincenzo Carletti (University of Salerno, Italy), Vice Chair

The chairs of the TC15 hope this newsletter finds you in good health.

We are pleased to announce two important news items:

1. TC15 has a new website at <https://iapr-tc15.org>. We tried to revamp the old site with new graphics. Content porting is in progress. We also plan to add new features throughout the year: an announcements page, an archive of the most significant datasets for our community, a page with member publications, etc. Visit it often!
2. Our next GbR workshop will be held in Vietri sul Mare, Italy, on September 6 - 8, 2023. Save the date and spread the news everywhere. After missing last year's edition in the series, TC15 is pleased to be able to again offer a nice opportunity for meeting, networking, and research exchanges. You will find the CfP in this newsletter and all the detail at <https://iapr.org/gbr2023>



GBR 2023

## 13th IAPR-TC15 International Workshop on Graph-Based Representations in Pattern Recognition

Vietri sul Mare – Lloyd's Baia Hotel, September 6 – 8, 2023

<https://iapr.org/gbr2023>





# Meeting Reports

Conferences, Workshops & Summer/Winter Schools

## ICPRAM 2022

11<sup>th</sup> International Conference on Pattern Recognition Applications and Methods

Online Streaming

<https://icpram.scitevents.org/?y=2022>

3 - 5 February, 2022

### Conference Chair:

Ana Fred (Instituto de Telecomunicações and University of Lisbon, Portugal)

### Program Co-Chairs:

Maria De Marisco (Sapienza Università di Roma, Italy)

Gabriella Sanniti di Baja (Italian National Research Council CNR, Italy)

### Local Chair:

Walter Kropatsch (Vienna University of Technology, Austria)

by the Conference and Program Chairs

ICPRAM2022 was supposed to be held in Vienna, Austria, February 3-5, 2022. Unfortunately, the persisting COVID-19 pandemic, with the related need for precautions and traveling constraints, forced us to hold it as an online streaming conference. Also this year, ICPRAM2022 was organized in cooperation with the ACM Special Interest Group on Artificial Intelligence (ACM SIGAI), the International Neural Network Society (INNS), the Association for the Advancement of Artificial Intelligence (AAAI), the Italian Association for Artificial Intelligence (AI\*IA), and the Associação Portuguesa de Reconhecimento de Padrões (APRP). As usual, the Institute for Systems and Technologies of Information, Control and

Communication (INSTICC) sponsored the conference, the IEEE Computational Intelligence Society technically co-sponsored it, and the International Association for Pattern Recognition (IAPR) endorsed it.

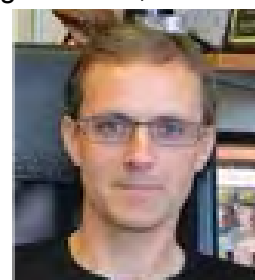
ICPRAM has always aimed at providing a shared forum for researchers involved in the manifold branches of pattern recognition, along theoretical lines and/or design and implementation of applications. Notwithstanding the difficulties of an online meeting, ICPRAM2022 maintained this goal and the overall organizing team spent their best effort in providing an engaging event.

ICPRAM2022 received 107 submissions—on a noticeable variety of topics from 33 countries—which were peer reviewed by at least two highly qualified reviewers. As a result

of the reviewing process, 26 submissions were selected for oral presentation as full papers, 35 submissions for oral presentation as short papers, and 27 submissions for poster presentation.

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

- “Everything has been done, it is our job to do it one better in image matching and localisation” by Krystian Mikolajczyk, Imperial College London, UK



- “Machine learning for medicine and healthcare” by Mihaela van der Schaar, University of Cambridge, UK



- “Image and video generation: a deep learning approach” by Nicu Sebe, University of Trento, Italy.



- “Keep on learning” by Tinne Tuytelaars, KU Leuven, Belgium.



Also for this edition, the value of the best contributions presented at ICPRAM2022 was recognized by four awards: the Best Scientific Paper Award, the Best Student Paper Award, the Best Industrial Paper Award and the Best Poster Presentation Award. The works nominated for the first three awards were selected by the

Program/Conference Chairs from the ICPRAM2022 full papers taking into account both the best combined review marks assessed by the Program Committee and the paper presentation quality, assessed by Session Chairs at the conference venue. The Best Poster Presentation Award is usually given to the most appealing poster. For this editions two posters were selected as being equally deserving. :

**Best Paper Award**  
***On the Statistical Independence of Parametric Representations in Biometric Cryptosystems: Evaluation and Improvement***

by Riccardo Musto, Emanuele Maiorana, Ridvan Salih Kuzu, Gabriel Emile Hine and Patrizio Campisi

**Best Student Paper Award**  
***Neural Network-based Human Motion Smoother***

by: Mathias Bastholm, Stella Graßhof and Sami S. Brandt

**Best Industrial Paper Award**  
***iRNN: Integer-only Recurrent Neural Network***

by: Eyyüb Sari, Vanessa Courville and Vahid Partovi Nia

**Best Poster Presentation Awards:**  
**(a) *A Step Towards the Explainability of Microarray Data for Cancer Diagnosis with Machine Learning Techniques***

by: Adara R. Nogueira, Artur J.

Ferreira and Mário T. Figueiredo  
**(b) *A New Neural Network Model for Prediction Next Stage of Alzheimer’s Disease*** by: Nour Zawawi, Heba G. Saber, Mohamed Hashem and Tarek F. Gharib

All accepted papers that were presented at the conference by their Authors will be included in the conference proceedings published by SciTePress, which will be submitted for indexation by well-known abstract and citation databases of peer-reviewed literature, e.g., SCOPUS.

Besides the conference proceedings, we will also publish a volume in the Springer series Lecture Notes in Computer Science including the extended versions of selected papers, as well as, for the second time, a special issue of the Springer Nature Computer Science journal with e`xtended versions of the best conference papers.

We thank the Authors, the Local Chair, all the members of the international Program Committee and the additional reviewers, the invited speakers and all members of the INSTICC team whose collaboration has been fundamental for the success of this conference.

We look forward to meet you at ICPRAM2023 in (hopefully) Lisbon, Portugal, February 16-18, 2023 (<https://icpram.scitevents.org/>).

**ICPRAM 2023**  
12<sup>th</sup> International Conference on Pattern Recognition Applications and Methods  
<https://icpram.scitevents.org/>  
Lisbon, Portugal

16 - 18 February, 2023



**Conference Chair:**

Kadi Bouatouch, IRISA, University of Rennes 1, France

**Program Co-Chairs:**

Giovanni Maria Farinella (Università di Catania, Italy)

Petia Radeva (Universitat de Barcelona, Spain)

by the Conference and Program Chairs

VISAPP2022) was exceptionally held as an online event. VISAPP is part of VISIGRAPP, the 17th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications.

The VISAPP conference was sponsored by the “Institute for Systems and Technologies of Information, Control and Communication (INSTICC)”, and endorsed by IAPR.

For this edition, VISAPP2022 was organized “in cooperation” with a number of international organizations involved in research related to Image and Video Formation, Preprocessing and Analysis, Image and Video Understanding, Motion Tracking and Stereo Vision, Mobile and Egocentric Vision for Humans and Robots, and Applications and Services, namely: the Society for Imaging Science and Technology (IS&T), the VRVis Center for Virtual Reality and Visualization

Forschungs-GmbH, the European Association for Computer Graphics (EUROGRAPHICS), and the French Association for Computer Graphics (AFIG).

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 possibility to exchange ideas—among themselves and also with the invited speakers—regarding their respective scientific achievements and future research plans. The aim was to spur new and original threads of collaboration to investigate brand new approaches.

VISAPP received 275 submissions from 45 countries. Out of the accepted papers, 63 were selected for oral presentation as full papers, 97 for oral presentation as short papers, and 48 for poster presentation.

In addition, the invited speakers also presented the following plenary lectures:

- Roope Raisamo, Tampere University, Finland: *Wearable Human Augmentation*



- Fotis Liarokapis, CYENS - Centre of Excellence and Cyprus University of Technology, Cyprus: *Brain Computer Interfaces for*



*Extended Reality*

- Sara Irina Fabrikant, University of Zurich, Switzerland: *The Risky Business of Visualizing Known Unknowns for Decision Making*





with Maps

- Andreas Geiger, Autonomous Vision Group (AVG), University of Tübingen, Germany: *Neural Implicit Representations for 3D*



*Vision and Beyond*

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

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

Program Committee and of paper presentation quality assessed by Session Chairs and Program Chairs.

**Best Paper Award**  
***Leveraging Local Domains for Image-to-Image Translation*** by Anthony Dell'Eva, Fabio Pizzati, Massimo Bertozzi and Raoul de Charette

**Best Student Paper Award**  
***SparseDet: Towards End-to-End 3D Object Detection*** by Jianhong Han, Zhaoyi Wan, Zhe Liu, Jie

*Editor's note: The winner of the VISAPP2022 Best Poster Award, Diego Rodriguez, is the author of the [IAPR...the Next Generation](#) essay in this issue of the Newsletter.*  
~ Jing Dong, EiC

Diego Rodriguez, Florian Huber and Sven Behnke•

**Best Industrial Paper Award**  
***The MVTEC 3D-AD Dataset for Unsupervised 3D Anomaly Detection and Localization*** by Paul Bergmann, Xin Jin, David Sattlegger and Carsten Steger

Furthermore, the Authors of VISAPP2022 selected papers will be invited to submit a revised and extended version of their work for a book in the Springer CCIS Series. A short list of best papers will also be invited for a post-conference special issue of the Springer Nature Computer Science Journal.

We look forward to meet you at the 18th edition of VISAPP in Lisbon, Portugal, February 19-21, 2023 (<http://visapp.visigrapp.org/>).

**Category-level Part-based 3D Object Non-rigid Registration** by

VISAPP 2023 will be in Lisbon, Portugal: put it in your agenda!





## ICPRAI 2022 - 3rd International Conference on Pattern Recognition and Artificial Intelligence

June 1- 3, 2022

Doctoral consortium: May 31, 2022

Paris (France)

<https://icprai2022.sciencesconf.org/>

### Honorary Chair:

Ching Y. Suen (Concordia University, Canada)

### General Co-Chairs

Nicole Vincent (Université Paris Cité, France)

Edwin Hancock (University of York, UK)

Yuan Y. Tang (University of Macau, China)

by [Nicole Vincent](#), General Chair

ICPRAI2022 is the 3rd edition of the International Conference on Pattern Recognition and Artificial Intelligence in Paris, following the successful 2018 edition located in Montréal, Canada and the 2020 (virtual) edition held in Zhongshan City, China. Paris welcomed 167 participants coming from 31 different countries.

The conference was conducted in hybrid mode with one third of the participants attending remotely. Due to this, we made the choice to replace the traditional poster sessions with oral short presentations, enabling everyone to have a discussion and giving every participant the same opportunity. This led to 2 parallel sessions in two thirds of the 16 sessions distributed on three days.

For the first time, ICPRAI proposed a Doctoral Consortium (DC) as a satellite event to the main conference. It was chaired by Véronique Eglin and Daniel Lopresti and offered the

opportunity to 13 PhD students to present their work and meet senior researchers in their field of interest.

The conference offered the opportunity to organize special sessions. 3 of the 5 proposals led to special sessions on

- Medical Applications of Pattern Recognition and AI
- Graphs for Pattern Recognition: Representations, Theory and Applications, and
- Time series analysis.

The program of the conference included 3 keynotes given by three internationally renowned researchers: **Robert B. Fisher** on The TrimBot2020 outdoor gardening robot; **Walter G. Kropatsch** on Controlling Topology-Preserving Graph-Pyramid; and **Bidyut B. Chaudhuri** on Bengali Handwriting Recognition with transformative Generative Adversarial Net (TGAN).

Several social events were organized such as a concert 'music meets science', a cruise on the

river Seine and a Gala dinner.

A total of 153 papers including special sessions were submitted by authors from 43 countries, of which 38 were accepted with oral long presentations and 39 were accepted with oral short presentation in the main track of the conference (119 submissions). This means a 32% acceptance rate for oral long presentation.

ICPRAI2022 was endorsed by the IAPR and the proceedings were published in Springer's Lecture Notes in Computer Science, Volumes 13363 and 13364.

Click on the images below  
to go to the  
publisher's web page  
for these volumes





Three best papers awards were given by a committee.

The First prize went to the paper “*A Hierarchical Prototypical Network for Few-Shot Remote Sensing Scene Classification*” by Manal Hamzaoui, Laetitia Chapel, Minh-Tan Pham, and Sebastien Lefevre.

Second prize went to the paper “*An Oculomotor Digital Parkinson Biomarker: From a Deep Riemannian Representation*” by Juan Olmos, Antoine Manzanera, and Fabio Martinez.

Third prize went to the paper “*Robust detection of conversational groups using a voting scheme and a memory process*” by Victor Fortier, Isabelle Bloch, and Catherine Pelachaud.

The 3 winning papers were invited to extend their work and to submit an article in a Special Section of the Pattern Recognition Letters (Elsevier) journal.

Two post-conference special issues of international journals are planned. One in the International Journal of Pattern Recognition and Artificial Intelligence (IJPRAI), published by World Scientific and the second in a special issue of SN Computer Science (Springer). As in previous editions of the conference, papers of general interest will be considered for a new book in the Book Series of Language Processing, Pattern Recognition, and Intelligent Systems in world scientific editor.

The 2022 edition was a success and we hope many people will participate by paper submission or attendance to the 4th ICPRAI2024 at Jeju Island in South Korea.





# IGS 2021: The 20th Conference of the International Graphonomics Society

“Intertwining Graphonomics with Human Movements”

June 7-9, 2022 (On-site), Museo Elder, Las Palmas de Gran Canaria, Spain

## Local Committee President:

Miguel A. Ferrer (Universidad de Las Palmas de Gran Canaria, Spain)

## General Chairs:

Cristina Carmona (Universidad de Las Palmas de Gran Canaria, Spain)

Moises Diaz (Universidad de Las Palmas de Gran Canaria, Spain)

by Moises Diaz

The 20th edition of the International Graphonomics Conference (IGS 2021) of the International Graphonomics Society was held in Las Palmas de Gran Canaria from June 7-9, 2022. The Associate professors from Universidad de Las Palmas de Gran Canaria (ULPGC), Dr. Cristina Carmona, and Dr. Moises Diaz were the general chairs. They worked with Professor Dr. Miguel A. Ferrer, local committee president, to organize this event. IGS2021 took place in an incredible science museum in the center of Las Palmas de Gran Canaria, Spain. Unfortunately, similar to many other conferences, the global pandemic situation forced its celebration to be postponed for a year to enjoy an on-site scientific meeting.

The overall objective of IGS2021 was to provide a single-track space of discussion about the graphonomic impact trends in other skilled human movements and vice versa. To this aim, IGS2021 was intended to be a stimulating

conference to encourage research and discussion from an interdisciplinary point of view.

More than 40 submissions were received, and a selection of 36 works were exhibited at IGS2021. Note that colleagues from Canada, Italy, Portugal, Switzerland, Germany, Spain, or Israel, among others, attended this international event physically.

After a welcome reception on Monday, June 6, the conference started with the opening ceremony on Tuesday. Dr. Lluís Serra, the rector of the ULPGC, chaired the ceremony. The multidisciplinary character of the International Society of Graphonomics was seen in the conference's program.

Tuesday's sessions started with an overview of a unified framework of the kinematic theory of rapid movements. Next, multiple applications of such framework in diverse domains like handwriting, voice, or aquaculture were presented. Then, some featured topics revolving around graphonomics were discussed,

such as the latest advances in historical document analysis or forensic science along with an excellent poster session. Finally, a review of continuous forensic contributions to all 20 editions of IGS closed the day.

On Wednesday, IGS2021 started with a keynote about the use of robotic arms to generate and analyze handwriting. Furthermore, we had fascinating sessions about computational methods on motor control of movements and learning as well as graphonomics developments. The day ended in a relaxed atmosphere with a gala dinner in a sea view restaurant on the largest beach in the city—a special note to the enjoyable cocktail before the dinner. The participants learned traditional



dances with enthusiasm while a live Canarian band played isas, folias, polkas, and other ancestral songs.

On Thursday, a clinical veterinarian discussed the kinetic and kinematic possibilities for lameness detection in quadruped animals, like horses or dogs.

Finally, IGS2021 was closed with three special sessions with relevant works in neurodegenerative diseases supported by handwriting as a biomarker .

Thanks to the support of the International Association for Pattern Recognition (IAPR), IGS2021 presented an award for the best paper written and presented by a student. Motivated by this type of prize,

the International Graphonomics Society encouraged the participation of Ph.D. students. In this edition, the governing board of IGS highlighted the relevant work authorized by students and the question & answer time run by them.

Another addition was the two types of proceedings. On the one hand, short papers were published in a virtual conference proceeding in accedaCRIS of the ULPGC. On the other hand, a volume of the Lecture Notes in Computer Science, published by Springer Verlag, included full accepted articles

On behalf of the local conference committee, we are very thankful to the reviewers, the governing board of IGS, and all attendees for their

excellent contributions to IGS2021. We also thank the Universidad de Las Palmas de Gran Canaria and the institute IdeTIC for supporting this event as well as other institutions, like the museum and local companies.

Special thanks to my colleagues, Cristina Carmona, and Miguel A. Ferrer, for their continuous support these months. We wish the best of success to the organizers of the next IGS edition, which will be a promising opportunity to meet again.

We look forward to meeting you at the 21st edition of IGS in Évora, Portugal, in June 2023!



### **BEST STUDENT PAPER**

*Spectral Analysis of Handwriting Kinetic Tremor in Elderly Parkinsonian Patients*  
by Serena Starita, Katerina Iskra, Monica Guerra, Lorenzo Pascazio  
and Agostino Accardo



## IbPRIA 2022

### 10th Iberian Conference on Pattern Recognition and Image Analysis

May 4-6, 2022, Aveiro, Portugal

<http://www.ibpria.org/2022/>

#### General Chairs

Luís F. Teixeira (University of Porto, Portugal)

Joan Andreu Sánchez (Polytechnic University of Valencia, Spain)

#### Local Chair

Armando J. Pinho (University of Aveiro, Portugal)

#### Program Chairs

Petia Georgieva (University of Aveiro, Portugal)

Catarina Silva (University of Coimbra, Portugal)

Hélder Oliveira (INESC TEC, University of Porto, Portugal)

Manuel J. Marín (Universidad de Córdoba, Spain)

by Petia Georgieva

IbPRIA is an international conference co-organized by the Portuguese APRP (Associação Portuguesa de Reconhecimento de Padrões) and Spanish AERFAI (Asociación Española de Reconocimiento de Formas y Análisis de Imágenes) chapters of the IAPR (International Association for Pattern Recognition).

IbPRIA is a single track conference consisting of high quality, previously unpublished papers, presented either orally or as a poster, intended to act as a forum for research groups, engineers and practitioners, to present recent results, algorithmic improvements and promising future directions in pattern recognition and image analysis.

The previous editions of IbPRIA were held in Andraxt (2003), Estoril (2005), Girona (2007), Póvoa de Varzim (2009), Las Palmas de Gran Canaria (2011), Madeira (2013), Santiago de Compostela (2015), Faro (2017),

and Madrid (2019). IbPRIA2022 was held in the beautiful city of Aveiro (known as the Portuguese Venice, due to the channels that run through the town). The venue of the conference was the University of Aveiro (UA), a very dynamic and innovative young university, since 1973. The UA campus is an architectural masterpiece, designed by some of the most important Portuguese contemporary architects.

We received 72 full paper submissions, from authors in 15 countries. After critical reviews (on average, each paper received three reviews), 26 papers were selected as orals and 28 as posters. IbPRIA2022 was endorsed by the IAPR and all accepted papers were published in the Springer Lecture Notes in Computer Science Series. A post-conference Special Issue of the Springer journal Pattern Analysis and Applications (PAA) is planned to publish extended versions of selected conference papers.

The technical program of the

conference included three plenary talks, two tutorial presentations, six oral sessions, two poster sessions and one panel discussion on Ethics in AI. The plenary talks and the tutorials were given by distinguished researchers active in Pattern Recognition and Image Analysis:

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## Plenary Talks:

- Plenary talk 1 - Prof. Robert Fisher (SI, University of Edinburgh, UK), The vision subsystems in the TrimBot2020 gardening robot;
- Plenary talk 2 - Prof. Isabel Trancoso, (IST, University of Lisbon, Portugal), Speech as personal identifiable information;
- Plenary talk 3 - Prof. Battista Biggio, (DEEE; University of Cagliari, Italy) Machine Learning Security: Attacks and Defenses;

## Tutorials:

- Tutorial 1 – Prof. Hermann Ney (RWTH Aachen University, Germany), Speech recognition and machine translation: From Bayes decision theory to machine learning and deep neural;

- Tutorial 2 – Prof. Gregory Rogez (NAVER LABS Europe, Grenoble, France), Human 3D sensing from monocular visual data using classification techniques.

The oral sessions were related to the following topics: Pattern Recognition and Machine Learning, Document Analysis, Biometrics, Medical Applications, Computer Vision, and Medical Image processing.

IbPRIA 2022 had two categories of paper awards:

- The Best Student Paper Award went to “Deep Aesthetic Assessment and Retrieval of Breast Cancer Treatment Outcomes” by Wilson Silva, Maria Carvalho, Carlos Mavioso, Maria J. Cardoso and Jaime S. Cardoso.

- The Best Paper Award went to “The CleanSea Set: A Benchmark Corpus for Underwater Debris Detection and Recognition” by Alejandro Sánchez-Ferrer, Antonio Javier Gallego, Jose J. Valero-Mas and Jorge Calvo-Zaragoza.

The awarded papers were invited to prepare extended versions to be considered for publication in Pattern Recognition Letters.

We are thankful to the reviewers and all the members of the local organizing committee, for their excellent work to make IbPRIA 2022 a very successful event.





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



## Pattern Recognition Letters

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

### Upcoming Special Issue

#### **Deep Active Learning: a Perfect Combination of Performance and Labeling Cost (VSI:DAL)**

Guest Editors: Zhihui Li (MGE), Qilu University of Technology, China - Xiaodan Liang, Sun Yat-sen University, China - Alex Hauptmann, Carnegie Mellon University, USA

**Submission period: November 1 - November 20 2022**

**More information at:** <https://journals.elsevier.com/pattern-recognition-letters/forthcoming-special-issues/special-issue-on-deep-active-learning-a-perfect-combination-of-performance-and-labeling-cost>

#### **Computer vision solutions for part-based image analysis and classification (VSI:CVPARTIAL)**

Guest Editors: Fabio Narducci (MGE), University of Salerno, Italy - Piercarlo Dondi, University of Pavia, Italy - David Freire Obregón, University of Las Palmas de Gran Canaria - Florin Pop, National Institute for Research and Development in Informatics – ICI Bucharest, Romania

**Submission period: December 1 - December 20 2022**

**More information at:** <https://journals.elsevier.com/pattern-recognition-letters/forthcoming-special-issues/special-issue-on-computer-vision-solutions-for-part-based-image-analysis-and-classification>

### Call for Special Issues

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

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

Selection criteria include the following:

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

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

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

# Meeting and Education Planner

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

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

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

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

	Meeting	Report on previous edition	Venue
	<a href="#">ICPR 2022 Workshops</a> : workshops that have been accepted as part of the ICPR 2022 Program	<a href="#">ICPR 2020</a>	Canada
	<a href="#">ICPR 2022</a> : 26th International Conference on Pattern Recognition	<a href="#">ICPR 2020</a>	Canada
	<a href="#">S+SSPR 2022</a> : 2022 Joint Intl Wksp on Statistical Techniques in PR (SPR) and Structural and Syntactic PR (SSPR)		Canada
	<a href="#">IJCB 2022</a> : 2022 IAPR/IEEE International Joint Conferenct on Biometrics	<a href="#">IJCB 2021</a>	UAE
	<a href="#">ICCP 2022</a> : 11th Intl. Conference on Computing and Pattern Recognition		China
	<a href="#">DGMM 2022</a> : 2nd Intl. Conference on Discrete Geometry and Mathematical Morphology	<a href="#">DGMM 2021</a>	France
	<a href="#">CVIP 2022</a> : 7th Intl Conference on Computer Vision & Image Processing	<a href="#">CVIP 2021</a>	India
	<a href="#">ANNPR 2022</a> : 10th IAPR Workshop on Artificial Neural Networks in PR	<a href="#">ANNPR 2020</a>	UAE
	<a href="#">ICPRAM 2023</a> : 12th International Conference on Pattern Recognition Applications and Methods	<a href="#">ICPRAM 2022</a>	Portugal
	<a href="#">VISAPP 2023</a> : 12th Intl Conference on vision Theory and Applications	<a href="#">VISAPP 2022</a>	Portugal
	<a href="#">IWFBI 2023</a> : 11th IAPR/IEEE International Workshop on Biometrics and Forensics	<a href="#">IWFBI 2020</a>	Spain
	<a href="#">ICDAR 2023</a> : 17th International Conference on Document Analysis and Recognition	<a href="#">ICDAR 2021</a>	USA
2023	<a href="#">GbR 2023</a> : 13th IAPR TC15 International Workshop on Graph-based Representations in Pattern Recognition	<a href="#">GbR 2019</a>	Italy
2024	<a href="#">ICPR 2024</a> : 27th International Conference on Pattern Recognition		India

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**Deadline for the next issue:**  
September 6, 2022



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