



DETAILED CONFERENCE PROGRAM

Find all details from scientific and social program in this document

MONDAY 8

12:00-13:20 Registration

14:40-16:00 Registration

16:00-17:00 Opening Ceremony

Il.lustríssima Sra. Montserrat Mindan, *Alcaldessa de Roses i Presidenta del Consell Comarcal*

Sr. David Ferrer, *Secretari de Telecomunicacions, Ciberseguretat i Societat Digital, Generalitat de Catalunya*

Il.lustre Sr. Eduard Martín Lineros, *Dean of the Official Chamber of Informatics Engineering of Catalonia*

Sr. Josep Puyol, *President of the ACIA*

Sr. Enric Plaza, *CCIA2018 General Chair*

Sra. Zoe Falomir, *Chair of CCIA2018 Scientific Committee*

Sra. Karina Gibert, *Chair of CCIA2018 Local Organizing Committee*

17:00-18:00 Keynote: *Challenges of {BIG, small, Right} Data*

Ricardo BAEZA-YATES

NTENT & Northeastern University, USA, and UPF, Catalonia

Chair: *Karina Gibert*

Abstract. Big data is trendy, but there are any possible interpretations of its real impact, as well as the opportunities, risks and technological challenges. We will start with two key questions: can a company use big data? If so, should it? The opportunities are clear, while the challenges are many, including scalability, bias, and privacy on the problem side, as well as transparency, explainability, and ethics on the machine learning side. So we perform an analysis that includes all the data pipeline process. At the end we will conclude that what is important is the right data, not big data. In fact, the real challenge today, is machine learning for small data.

18:00-19:20 Session 1: Data science, recommender Systems and CBR

Use list of presentations from your conference bag to vote best presentation (One single vote for all the sessions)

Chair: *Núria Agell*

18:00-18:20 A method to integrate semantic criteria into a recommender system based on ELECTRE outranking relations.

Sílvia Buira and Aida Valls

18:20-18:40 Web pattern navigation profiling for online marketing campaigns design support under a data science approach.

Arturo Palomino and Karina Gibert

18:40-19:00 Feature-Tree Labeling for Case Base Maintenance.

Nariman Nakhjiri, Maria Salamó and Miquel Sànchez-Marré.

19:00-19:20 On the analysis of utility and risk for masked data in big data: a small data analysis.

Vicenç Torra

19:20-24:00 ACIA 25 years Special Event : Dinner at Sant Pere de Rodes

19:20 Buses Meeting point: frontdoor of Hotel Marian.

Bring your ACIA special Event ticket (the blue one) with you.

19:30 Departure.



The *Monestir de Sant Pere de Rodes* is a master piece of the catalan romanesque, part of our most appreciated cultural heritage, dated in the Xth century and offering one of the most suggestive views of the Cap de Creus Natural Park.

20:15 Arrival at the Monastery parking

Enjoy time making some pictures while walking through the pedestrian pathway towards the main entrance of the Monastery

21:00 Diner at the restaurant of the Monastery

Enjoy local food from Cap de Creus
Celebration of the 25th years of ACIA foundation

23:45 Leave the Monastery and walk back to the buses

24:00 Departure back to Conference venue

TUESDAY 9

9:00-10:40 Session 2: Logic, Satisfiability, Fuzzy Sets

Chair: Vicenç Torra

9:00-9:20 Clause Branching in MaxSAT and MinSAT.

Josep Argelich, Chu-Min Li, Felip Manyà and Joan Ramon Soler

9:20-9:40 DeciMaxSum: Using Decimation to Improve Max-Sum on Cyclic DCOPs.

Jesus Cerquides, Rémi Emonet, Gauthier Picard and Juan A. Rodríguez-Aguilar

9:40-10:00 Style painting classifier based on Horn clauses and Explanations (SHE).

Vicent Costa, Pilar Dellunde and Zoe Falomir

10:00-10:20 A lattice structure for the set of interval-valued fuzzy-qualitative labels.

Francesc Prats, Mónica Sánchez and Núria Agell

10:40-11:00 Coffee Break

11:00-12:00 Posters Session 1

11:00-11:20 PechaKucha poster presentations.

Chair: Lledó Museros

11:20-12:00 Come to visit posters. The CCIA best poster Award 2018 is selected by CCIA attendees. Find 3 RED stickers in the conference badge and mark your 3 preferred posters with RED stickers

Thematic Block Cognitive Systems and Agent

53. What is the Physics of Intelligence?.

Xerxes D. Arsiwalla, Camilo M. Signorelli, Jordi-Ysard Puigbò, Ismael T. Freire and Paul Verschure

11. Using wearable sensors to detect workload on driving simulated scenarios.

Víctor Corcoba, Zoe Falomir and Nourelhoda Mohamed

44. Limits of Multi-Agent Predictive Models in the Formation of Social Conventions.

Ismael T. Freire, Xerxes D. Arsiwalla, Jordi-Ysard Puigbò and Paul F. M. J. Verschure

17. Cognitive Architecture: the key to AI-Based Digital Transformation in Organizations.

Karla Olmos-Sánchez and Jorge Rodas-Osollo

45. Loss aversion fosters coordination in independent reinforcement learners.

Marco Jerome Gasparrini, Martí Sánchez-Fibla

Thematic Block Data Science, Recommender Systems and Case-based Reasoning

27. Big Data Analytics for Obesity Prediction.

Ahsan Bilal, Alfredo Vellido and Vicent Ribas



- 38. A Study on Contextual Influences on Automatic Playlist Continuation.
Anna Gatzoura, Miquel Sànchez-Marrè and Alípio Mário Jorge
- 29. eXiT*CBR: a tool supporting RRI.
Beatriz López and Carles Pous
- 56. Including Hard Restrictions into Diet4You Menu Planner.
Beatriz Sevilla-Villanueva, Karina Gibert and Miquel Sànchez-Marrè
- 49. On Boolean algebras of conditionals and probabilities of conditionals.
Tommaso Flaminio, Lluís Godó and Hykel Hosni

Thematic Block Natural Language and Sound Processing

- 15. Do Positive Twitter Messages Have Impact on Stock Liquidity?.
Aliasghar Abdirahmani and Cecilio Angulo
- 52. A new algorithm for speech enhancement based on multivariate empirical mode decomposition.
Pere Martí-Puig, Esteve Gallego-Jutglà, Gerard Masferrer and Jordi Solé-Casals
- 25. Classifying and Generalizing Successful Parameter Combinations for Sound Design.
Iván Paz, Ángela Nebot, Francisco Múgica and Enrique Romero
- 3. A Visual Distance for WordNet.
Raquel Pérez-Arnal, Armand Vilalta, Dario Garcia-Gasulla, Ulises Cortés, Eduard Ayguadé and Jesus Labarta

Note: Poster authors are responsible to remove their posters before the end of the day (be sure Dr. Miquel Sànchez-Marrè register the votes of your poster before removing).

12:00-13:00 Keynote: Mild abstraction in spatial problem solving

Christian FREKSA

University of Bremen

Chair : *Zoe Falomir*

Abstract. Everyday spatial problems such as tying shoelaces, untangling cables, locating objects, opening doors, matching shapes, finding routes, solving puzzles, ... are embedded in 3-dimensional physical space and their solutions need to be manifested in physical space. Such problems can be solved either directly in space by means of perception and manipulation or they can be transformed into abstract representations in order to be solved by reasoning or computation and subsequently transformed back into physical space. In my contribution I will compare the two approaches and I will discuss how they can be combined. I will introduce the notion of *mild abstraction* as a way of combining the best features of both

worlds, present a variety of forms of mild abstraction, demonstrate their uses for spatial problem solving, and propose that mild abstraction can be exploited for non-spatial domains, as well.

13:00-14:40 Lunch (*find your ticket inside the badge. A LOC member will get it at the restaurant entrance*)

14:40-16:00 Session 3: Natural Language and Sound processing

Chair: *Horacio Rodríguez*

14:40-15:00 An Argumentation Approach for Agreement Analysis in Reddit Debates.

Teresa Alsinet, Josep Argelich, Ramón Béjar and Santi Martínez

15:00-15:20 Tweet sentiment visualization and classification using manifold dimensionality reduction.

Francisco Grimaldo, Emilia López-Iñesta, Juan José Garcés-Iniesta, Juan Gómez-Sanchis, Daniel García-Costa, Eusebio Marqués-Benítez and Emilio Soria-Olivas

15:20-15:40 N-Channel Convolutional Neural Networks for Irony Detection in Twitter.

Mohammed Jabreel, Najlaa Maarooof, Ammar Acran and Antonio Moreno

15:40-16:00 Enhancing Text Spotting with a Language Model and Visual Context Information.

Ahmed Sabir, Francesc Moreno-Noguer and Lluís Padró.



21st Conference of the Catalan Association for Artificial Intelligence (CCIA²⁰¹⁸)

Roses, October 8-10, 2018

16:00-17:20 Inspirational talk and Round Table

16:00-16:40 **Inspirational talk: *What needs to be done to ensure the ethical use of AI?***

Luc STEELS

ICREA / Institut de Biologia Evolutiva (UPF-CSIC)

Chair: Ulises Cortés

Abstract. It is now clear to even the greatest doubters that AI is a powerful technology with considerable practical usage. But it has also become clear that this usage can be both positive and negative. AI can improve healthcare, aid environmental monitoring, support community formation, make culture more widely accessible, and do many other good things - always in combination of course with other digital technologies. But AI can also play a role in deceit and manipulation of public opinion, stoking societal divisions, enforcing senseless bureaucracy, cyberattacks, autonomous weapons, job loss, etc. Moreover the application and promises of AI appear to be premature in the face of autonomous cars going through red traffic lights, unacceptable decisions on granting parole, perpetuation of racial and gender bias in recruitment, etc. This discussion paper provides some ideas to foster positive uses of AI and guard us against negative ones, building further on the 'Barcelona Declaration for the Proper Development and Use of AI in Europe', which you can read and sign here: <http://www.iiia.csic.es/barcelonadeclaration/>.

16:40-17:35 **Round Table : Ethics in AI**

Chair: Luc Steels

Discussants:

Ulises Cortés, *High Performance AI group, BSC*

Maite López Sánchez, *Universitat de Barcelona, Catalonia*

Ramon López de Mántaras, *Institut d'Investigació en Intel·ligència Artificial-CSIC*

17:20-24:00 Excursion and gala dinner: Visit to *Castell de Peralada*

17:20 *Buses Meeting point: Front door of Hotel Marian*

Bring your EXCURSION ticket (the yellow one) with you.

Bring your IDENTITY CARD or PASSPORT. Access into the Castle requires a previous registration.

17:30 *Departure to Castell de Peralada (acknowledged as cultural national heritage site), current see of the viscounts of Rocabertí, from the dynasty of Empúries counts.*

18:00-19:30 *Arrival at the Castle and visit to Museistic Area.*

Join a group in Catalan or in English for the visit, according to your preferences

At the entry of the visit, the staff of the Castle will collect your identity documents to perform the registration process for accessing the inner Castle spaces for ACIA General Assembly and Gala Dinner.

The Castle Museum boasts the art collection Suqué-Mateu, including:

- The XIVth century Church del Carme and Cloister, home to a stone sculpture collection mainly from Sant Pere de Rodes and Santa Maria de Besalú.
- The collection of antique glass, with over 2,500 objects from the Egypt of the Pharaohs.
- The collection of ceramics, with 1,000 Spanish pieces, from XIVth to XIXth centuries. As well as paintings, decorative elements and furniture from the XVIth to XVIIIth.
- The library archive with 100,000 books (200 incunabula, 800 directives from the nobility, 1,000 Quixote texts and documentation from the IX the century).
- The Wine Museum, situated in the mediaeval cellars with 800 oenological objects.

At the exit of the museums the staff of the Castle will deliver the identity documents back to you.

The Castle will offer a ***final cava glass*** to end the visit in the Grill del Cellar, just in front of the Castle



21st Conference of the Catalan Association for Artificial Intelligence (CCIA²⁰¹⁸)

Roses, October 8-10, 2018

19:30-20:30 **ACIA general assembly** for ACIA members

The non-ACIA members have free time to visit part of the Castle gardens or a walk on the village

20:45 Entrance for the Gala Dinner and view of the ancient tapestries

Meeting point: In front of the Towers (see map at the end of this document)

The groundfloor of the Castle contains the Casino with magnificent tapestry from XVIIth century covering the walls. We will be allowed to admiring these handicrafts in our path through the space where the gala dinner will take place.

21:00 **Gala dinner in *The Pati de les Hores***, the honour courtyard of the castle

23:30 First bus. Same meeting point that arrival

24:00 Second bus. Same meeting point that arrival

CCIA Local Organizing Committee wishes you enjoy the event

WEDNESDAY 9

9:00-10:20 Session 4: Computer Vision, Cognitive agents

Chair: José de Gea Fernández

9:00-9:20 CuisineNet: Food Attributes Classification using Multi-scale Convolution Network. *Md. Mostafa Kamal Sarker, Mohammed Jabreel, Hatem A. Rashwan, Syeda Furruka Banu, Vivek Kumar Singh, Antonio Moreno, Petia Radeva and Domènec Puig*

9:20-9:40 DeciMaxSum Retinal Optic Disc Segmentation using Conditional Generative Adversarial Network. *Vivek Kumar Singh, Hatem A. Rashwan, Farhan Akram, Nidhi Pandey, Md. Mostafa Kamal Sarker, Adel Saleh, Saddam Abdulwahab, Najlaa Maarooof, Jordina Torrents Barrena, Santiago Romani and Domènec Puig*

9:40-10:00 An approach to Gait Analysis from Human-Rollator Interaction: The i-Walker. *Atia Cortés, Maribel Ojeda, Javier Béjar and Antonio B. Martínez*

10:00-10:20 Sentient Embodied Conversational Agents: Architecture and Evaluation. *Dolça Tellols, Maite Lopez-Sanchez, Inmaculada Rodriguez and Pablo Almajano*

10:20-11:20 Special Enterprise Session Round table: *Transferring AI to Real Companies*

Chair: Ulises Cortés

Representative from the companies IRIS, STRANDS, Kernel Analytics, AIS, Accenture will discuss about the current penetration of AI in industrial sector (see details in the conference website)

11:20-11:40 Coffee Break

11:40-12:40 Poster Session 2

11:40-12:00 PechaKucha poster presentations.

Chair: Vicent Costa

12:00-12:40 Come to visit posters. The CCIA best poster Award 2018 is selected by attendees. Find 3 GREEN stickers in the conference badge and mark your 3 preferred posters with GREEN stickers.

Thematic Block Classifiers, Networks and Machine Learning

1. Towards Detecting Structures in Computational Astrophysics Plasma Simulations: using Machine Learning for Shock Front Classification.

Carmen Aloy Torás, Petar Mimica and Marcelino Martínez Sober



18. Complex Network Multiresolution for Optimal Sensor Placement in Big Urban Infrastructures.
Manuel Herrera, Robert Wright, Carlo Giudicianni, Armando di Nardo and Joaquín Izquierdo
10. Go with the Flow: Recurrent Networks for Wind Time Series Multi-Step Forecasting.
Jaume Manero, Javier Béjar and Ulises Cortés
24. Sorting Hams using Bagged Decision Trees in a commercial pig slaughterhouse.
Gerard Masferrer, Ricard Carreras, Pere Marti-Puig and Moises Serra
36. A Fuzzy Learning Method to Segment Visitors of a Tourist Attraction.
Jennifer Nguyen, Albert Armisen, German Sánchez-Hernández, Núria Agell and Cecilio Angulo
2. Measuring distances between medical entities. *Step 1: DrugBank*.
Alberto Olivares-Alarcos, Iva Stankovic, Humberto González and Horacio Rodríguez
51. Unsupervised Systems-Level Learning Mechanism Based on Bayesian-Inference.
Jordi-Ysard Puigbò, Xerxes D. Arsiwalla and Paul Verschure

Thematic Block Computer Vision and Robotics

23. Brain MR Image Segmentation Using Multiphase Active Contours Based on Local and Global Fitted Images.
Farhan Akram, Vivek Kumar Singh, Md. Mostafa Kamal Sarker, Miguel Angel Garcia and Domènec Puig
48. Hybr-iT Project: Initial Steps Towards Contextual Robotic Manipulation for Human Robot Teams in Industrial Environments.
José de Gea Fernández, Nils Niemann, Sebastian Stock, Martin Günther, Dennis Mronga, Hendrik Wiese, Elsa Kirchner, Stefan Stiene
32. Considering the Anchoring Problem in Robotic Intelligent Bin Picking.
Diego Escudero-Rodrigo and René Alquézar
31. Vehicle Pose Estimation using G-Net: Multi-Class Localization and Depth Estimation.
Javier García López, Antonio Agudo and Francesc Moreno-Noguer
7. Foreground detection in a multi-target fish tracking from video-recordings using U-net based architecture.
Ramon Reig-Bolano, Moises Serra i Serra and Pere Marti-Puig
40. On Improving Breast Density Segmentation using Conditional Generative Adversarial Networks.
Nasibeh Saffari, Hatem A. Rashwan, Blas Herrera and, Santiago Romani, Meritxell Arenas and Domènec Puig

12:40-13:40 Keynote: *Blockchain and Artificial Intelligence: challenges and opportunities*

Carlos MÉRIDA

Accenture - Financial Services, Barcelona, Catalonia, Spain

Chair: Javier Vázquez Salceda

Abstract. Blockchain is a technology to manage data and processes in a decentralized and secured manner. Its characteristics make it an interesting choice for developing disintermediated systems of assets transfers or data sharing. In the last four years, this technology has experienced a big impulse, with thousands of startups being created, open source frameworks developed and significant investments made by big companies.

All the blockchain developments are happening at the same time that artificial intelligence is becoming mainstream in the industry. Despite Blockchain is at a different point in the adoption path than some artificial intelligence applications, it is possible to see confluence points between them from two main perspectives: blockchain can be seen as a multi-agent system in itself and from a different perspective, it can be the necessary infrastructure for other autonomous systems to be audited.

Is Blockchain a hype? Or is it mature? What are the industry expectations about this technology? How AI relates to it? These questions will be addressed in the talk where several real use cases and industry feedback will be shared



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13:40-15:20 Lunch (*find your ticket inside the badge. A LOC member will get it at the restaurant entrance*)

15:20-16:40 Session 5: Classifiers, Networks and Machine Learning

Chair: Miquel Sánchez-Marré

15:20-15:40 The Effect of Space-Time Representation Learning in Predicting People's Next Location.

Abdulrahman Al-Molegi and Antoni Martínez Ballesté.

15:40-16:00 Quaternion Phase CNN.

E. Ulises Moya-Sánchez, Sebastian Colores, Abraham Sánchez and Ulises Cortés.

16:00-16:20 Towards a Universal Neural Network Encoder for Time Series.

Joan Serrà, Santiago Pascual and Alexandros Karatzoglou

16:20-16:40 Determining Classic versus Modern Style in Fashion.

Javier Tauste, Miguel Angel González, Lledó Museros, Ismael Sanz, Dolores Llidó and Luis Gonzalez-Abril.

Deliver your votes for *Best Presentation Award* (*Box Best Presentation Award at Conference desk*)

16:40-17:40 ACIA Awards

Chair: Josep Puyol

- Marc Esteva Vivanco Award: *Best AI Ph.D. Thesis.*
- ACIA Best final degree or master thesis Award.
- ACIA dissemination Award.

17:40-18:00 CCIA awards

Chair: Enric Plaza

- CCIA Best Paper Award 2018
- CCIA Best Poster Award 2018
- CCIA Best Presentation Award 2018

NOTE: CCIA2018 Awards will be delivered only to authors present in the room. Whenever the awarded author is not present, the award will be delivered to the following best work in the category.

18:00-18:40 Closing and CCIA2019 announcement

Sr. Josep Puyol, *President of the ACIA*

Sr. Enric Plaza, *CCIA2018 General Chair*

Sra. Zoe Falomir, *Chair of CCIA2018 Scientific Committee*

Sra. Karina Gibert, *Chair of CCIA2018 Local Organizing Committee*



21st Conference of the Catalan Association for Artificial Intelligence (CCIA²⁰¹⁸)

Roses, October 8-10, 2018

Meeting point at Castell de Peralada Visit



- | | |
|--|---|
| 1 CASTELL
CASTELL PERALADA RESTAURANT | 9 MIRADOR DEL CASTELL |
| 2 CASINO
EL PATI DE LES HORES
CLUB EPICUR PER FUMADORS | 10 PAVELLÓ |
| 3 ESGLÉSIA DEL CARME | 11 LA BOTIGA DEL CELLER |
| 4 MUSEU, BIBLIOTECA I CLAUSTRE | 12 EL GRILL DEL CELLER |
| 5 AUDITORI FESTIVAL | 13 HOTEL PERALADA WINE SPA & GOLF
RESTAURANT L'OLIVERA
WINE BAR |
| 6 PARC DEL CASTELL DE PERALADA | 14 WINE SPA |
| 7 COLÒNIA DE CIGONYES | 15 GOLF PERALADA |
| 8 COTTON CLUB | 16 FINCA MALAVEÍNA |

PERALADA resort