



UNIVERSITAT  
POLITÈCNICA  
DE VALÈNCIA

# CARMA 2018

**2nd International Conference on Advanced Research  
Methods and Analytics**

**July 12-13, 2018 · Valencia, Spain**

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Methods and Analytics

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## INDEX

WELCOME MESSAGE	4
ORGANIZING COMMITTEE	5
KEYNOTE	7
PROGRAM AT A GLANCE	8
THURSDAY, 12 JULY	9
FRIDAY, 13 JULY	13
SOCIAL PROGRAM	16
UPV MAP	17
ADDITIONAL INFORMATION	18

## Welcome message



Josep Domenech

Welcome to the Second International Conference on Advanced Research Methods and Analytics (CARMA 2018) hosted by the Universitat Politècnica de València, Spain during 12 and 13 July 2018. This second edition consolidates CARMA as a unique forum where Economics and Social Sciences research meets Internet and Big Data. CARMA provides researchers and practitioners with an ideal environment to exchange ideas and advances on how Internet and Big Data sources and methods contribute to overcome challenges in Economics and Social Sciences, as well as on the changes in the society because of the digital transformation.



María Rosalía Vicente

The selection of the scientific program was directed by Maria Rosalía Vicente, who led an international team of 33 scientific committee members representing 28 institutions. Following the call for papers, the conference received 73 paper submissions from all around the globe. All submissions were reviewed by the scientific committee members under a double blind review process. Finally, 40 papers were accepted for oral presentation during the conference. This represents an overall paper acceptance rate of 54%, ensuring a high quality scientific program. It covers a wide range of timely research topics in Internet and Big Data, including nowcasting people mobility and economic indicators, applications of Big Data methods in retail and finance, using search and social media data, among others.

CARMA 2018 also features two special sessions on “Big Data for Central Banks” and “Using Big Data in Official Statistics,” chaired by Juri Marcucci and Gian Luigi Mazzi, respectively. Both sessions give a complementary institutional perspective on how to use Internet and Big Data sources and methods for public policy and official statistics. The perspective from the private sector is contributed by Norbert Wirth, who will talk about “Data Science development at scale” in his keynote speech.



Desamparados  
Blázquez

The conference organizing committee would like to thank all who made this second edition of CARMA a great success. Specifically, thanks are indebted to the authors, scientific committee members, reviewers, invited speakers, session chairs, presenters, sponsors, supporters and all the attendees. Our final words of gratitude must go to the Faculty of Business Administration and Management of the Universitat Politècnica de València for supporting CARMA 2018.

## Organizing Committee

### General chair

Josep Domenech, Universitat Politècnica de València

### Scientific committee chair

Maria Rosalia Vicente, Universidad de Oviedo

### Local arrangements chair

Desamparados Blazquez, Universitat Politècnica de València

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Departamento de Economía y Ciencias Sociales

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Nikolaos Askitas, IZA – Institute of Labor Economics

Jose A. Azar, IESE Business School

Silvia Biffignandi, University of Bergamo

Petter Bae Brandtzaeg, SINTEF

Jonathan Bright, Oxford Internet Studies

José Luis Cervera, DevStat

Piet Daas, Statistics Netherlands

Pablo de Pedraza, Universidad de Salamanca / University of Amsterdam

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Enrique Orduña, Universitat Politècnica de València  
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Pilar Rey del Castillo, Instituto de Estudios Fiscales  
Anna Rosso, DEMM University of Milan  
Vincenzo Spiezia, OECD  
Pål Sundsøy, NBIM/Norway  
Sergio L. Toral Marin, Universidad de Sevilla  
Antonino Virgillito, Italian Revenue Agency  
Sang Eun Woo, Purdue University  
Zheng Xiang, Virginia Tech



## Keynote

### **Data Science development at scale**

*Norbert Wirth*

Thursday 12, 9:30 – 10:30

Room: Salón de Actos (Conference Hall)



Norbert is a digital, analytics, and innovation leader with exceptional track record and almost two decades of international industry, team and P&L building experience. He draws on his extensive experience in analytical consulting, the digital ecosystem, innovation management, multi asset data platform pioneering, product, and algorithm development. Norbert blends strong commercial sense, profound international management experience, intimate knowledge of the digital ecosystem, agile development, lean startup principles and data design thinking. He's a seasoned consultant of numerous Fortune 500 companies in questions of Data Science, the digital and big data ecosystem, data driven solutions, analytics, and innovation.

His role in various industry bodies, corporate environments and start-ups makes him a thought leader in digital and data driven solution development, applied artificial intelligence, questions of data privacy and data management. Norbert has a deep understanding of the required skills, capabilities and infrastructure to design, assess, develop, implement and execute data driven digital solutions.

## Program at a Glance

	Thursday 12	Friday 13
8:30-9:00	Registration	
9:00-10:30	Opening	Special session Using Big Data in Official Statistics
	Keynote Norbert Wirth	
10:30-11:00	Coffee Break	
11:00-12:30	Special session Big data for Central Banks	3a. Search Data 3b. Digital Transformation
12:30-13:00		Industry demo
13:00-14:15	Lunch	
14:15-16:15	1a. Economic Indicators 1b. Big Data in Retail	4a. Mobility and Network Models 4b. Social Networks and Text Mining
16:15-17:00	Poster Session	Closing
		Farewell Wine
17:00-18:20	2a. Data Management 2b. Finance	





## Thursday, 12 July

### Opening

Thursday 12, 9:00 – 9:30. Room Salón de Actos

### Keynote

Thursday 12, 9:30 – 10:30. Room Salón de Actos

Data Science development at scale  
Norbert Wirth

### Special Session 1

#### Big data for Central Banks

Thursday 12, 11:00 – 13:00. Room Salón de Actos

Chair: Juri Marcucci

Fears, Deposit Insurance Schemes, and the Reallocation of Deposits within the German Banking System

Falko Fecht, Stefan Thum, Patrick Weber

Macroeconomic Indicator Forecasting with Deep Neural Networks

Thomas R. Cook, Aaron Smalter Hall

Financial Stability Governance and Communication

Juan M. Londono, Stijn Claessens, Ricardo Correa, Nathan Mislang

Spread the Word: International Spillovers from Central Bank Communication

Hanna Armelius, Christoph Bertsch, Isaiah Hull, Xin Zhang

The Catalanian Crises through Google Searches: A Regional Perspective

Concha Artola, Javier J. Perez

The Sentiment Hidden in Italian Texts Through the Lens of a New Dictionary

Giuseppe Bruno, Juri Marcucci, Attilio Mattiocco, Marco Scarnò, Donatella Sforzini

### Session 1a

#### Economic Indicators

Thursday 12, 14:15 – 16:15. Room Salón de Actos

Chair: José Vila

Validation of innovation indicators from companies' websites

Mikael Heroux-Vaillancourt, Catherine Beaudry

Digital Vapor Trails: Using Website Behavior to Nowcast Entrepreneurial Activity

Timothy F. Slaper, Alyssa Bianco, Peter E. Lenz

Big Data Sources for Private Consumption Estimation: Evidence from Credit and Debit Card Records

María Rosalía Vicente, María Valdivieso-Anívarro

From Twitter to GDP: Estimating Economic Activity From Social Media

Agustín Indaco

Mining for Signals of Future Consumer Expenditure on Twitter and Google Trends

Viktor Pekar

Big data and official data: a cointegration analysis based on Google Trends and economic indicators

Andrea Marletta, Lisa Crosato, Paolo Mariani, Biancamaria Zavanella

## Session 1b

### Big data in Retail

Thursday 12, 14:15 – 16:15. Room Aula 2.2

Chair: Björn Asdecker

A Text-Based Framework for Dynamic Shopping-Cart Analysis

Wagner Kamakura

Grassroots Market Research on Grass: Predicting Cannabis Brand Performance Using Social Media Scraping

Kathleen Stevenson, Jennifer Kregor, Bethany Gomez, J. Steven Kelly

Automated Detection of Customer Experience through Social Platforms

Juan Bustamante, Leonardo Kuffo, Edgar Izquierdo, Carmen Vaca

Measuring Retail Visual Cues Using Mobile Bio-metric Responses

Paul Dishman, Joshua Groves, Dale Jolley

Big data analytics in returns management – Are complex techniques necessary to forecast consumer returns properly?

Björn Asdecker, David Karl

Historical query data as business intelligence tool on an internationalization context

Carlota Lorenzo-Romero, Juan M. Carro-Rodríguez, Miguel-Ángel Gómez-Borja

## Poster session

Thursday 12, 16:15 – 17:00. Faculty Hall

Women in leadership position: Do family-friendly organizational arrangements change anything?

Irina Hondralis

Digital transformation in manufacturing within Industry 4.0

Andrea Sujova, Ondrej Remeň



Public Goods, Corporate Nudging, and Internet Governance: The HTTP/2 Standardization Process

Sylvia Elizabeth Peacock

Forms of online political participation and hybrid styles. The response of a sample of Italians to a web survey

Maria Paola Faggiano, Lorenzo Barbanera, Ernesto Dario Calò, Melissa Mongiardo

Antecedents and consequences of product-service system evaluations in the sharing economy

Yu-Hsien Lin

Best collaboration practices for productizing Data Science

Schirin Rikhtehgar

Individual investor's limited attention and IPO performance

Bing Zhang

Automatic design of Customized Learning Path: the case of Industry 4.0

Filippo Chiarello, Simona Pira, Silvia Fareri, Andrea Bonaccorsi, Gualtiero Fantoni

Big Data Applications for Sustainable Construction

Paola Reyes

## **Session 2a**

### **Data Management**

Thursday 12, 17:00 – 18:20. Room Salón de Actos

Chair: Caterina Liberati

Towards an Automated Semantic Data-driven Decision Making Employing Human Brain  
Anna Fensel

Blockchain-backed analytics. Adding blockchain-based quality gates to data science projects.

Markus Herrmann, Jörg Petzold, Vivek Bombatkar

Access and analysis of ISTAC data through the use of R and Shiny

Christian González-Martel, José M. Cazorla-Artiles, Carlos J. Pérez-González

Fishing for Errors in an Ocean Rather than a Pond

John Wilson, Dov Te'Eni

**Session 2b**  
**Finance**

Thursday 12, 17:00 – 18:20. Room Aula 2.2

Chair: Concha Artola

Whatever it takes' to change beliefs: Evidence from Twitter

Rémi Vivès, Michael Stiefel

A combination of multi-period training data and ensemble methods to improve churn classification of housing loan customers

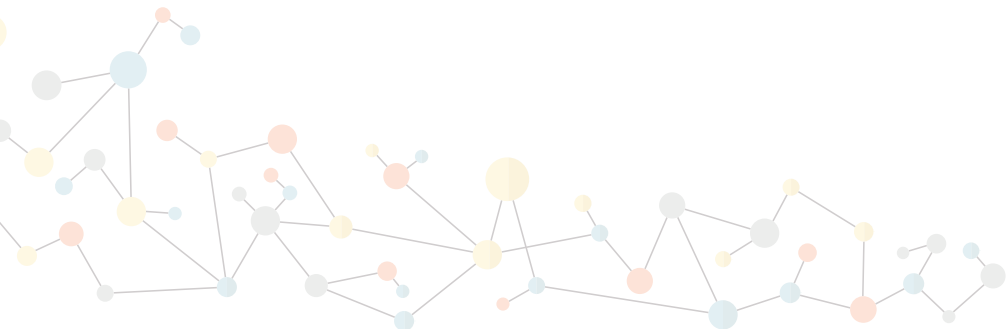
Tomi Seppälä, Le Thuy

An Unconventional Example of Big Data: BIST-100 Banking Sub-Index of Turkey

Sadullah Çelik, Elif İşbilen

Mining Big Data in statistical systems of the monetary financial institutions (MFIs)

Afshin Ashofteh





## Friday , 13 July

### Special Session 2

#### Using Big Data in Official Statistics

Friday 13, 9:00 – 10:30. Room Salón de Actos

Chair: Gian Luigi Mazzi

X11-like Seasonal Adjustment of Daily Data

Dominique Ladiray, Gian Luigi Mazzi

Empirical examples of using Big Internet Data for Macroeconomic Nowcasting

George Kapetanios, Massimiliano Marcellino, Fotis Papailias

Using big data at Istat: forecasting consumption

Fabio Bacchini, Roberto Iannaccone, Davide Zurlo

Using big data in official statistics: why, when, how, what for?

Gian Luigi Mazzi

### Session 3a

#### Search Data

Friday 13, 11:00 – 12:30. Room Salón de Actos

Chair: Pilar Rey del Castillo

Has Robert Parker lost his hegemony as a prescripitor in the wine World? A preliminar inquiry through Twitter

Cristina I. Font-Julian, Raúl Compés-López, Enrique Orduna-Malea

Measuring Technology Platforms impact with search data and web scraping

Desamparados Blazquez, Josep Domenech, José María García-Álvarez-Coque

Algorithmic Trading Systems Based on Google Trends

Raúl Gómez Martínez, Camilo Prado Román, María Del Carmen De La Orden De La Cruz

Do People Pay More Attention to Earthquakes in Western Countries?

Hanna Habibi, Jan Feld

### Session 3b

#### Digital Transformation

Friday 13, 11:00 – 12:30. Room Aula 2.2

Chair: Angelica María Maineri

Big Data and Data Driven Marketing in Brazil

Vítor Finger, Valesca Reichelt, João Capelli

Limits and virtues of a web survey on political participation and voting intentions.  
Reflections on a mixed-method search path

Maria Paola Faggiano

Italian general election 2018: digital campaign strategies. Three case studies:  
Movimento 5 Stelle, PD and Lega

Maria Paola Faggiano, Ernesto Dario Calò, Raffaella Gallo, Melissa Mongiardo

Gender discrimination in algorithmic decision-making

Galina Andreeva, Anna Matuszyk

The educational divide in e-privacy skills in Europe

Angelica Maria Maineri, Peter Achterberg, Ruud Luijkx

## Industry Demo

Friday 13, 12:30 – 13:00. Room Salón de Actos

BigML Demo

Amir Tabakovic

## Session 4a

### Mobility and Network Models

Friday 13, 14:15 – 16:15. Room Salón de Actos

Chair: Sergio Toral

Inferring Social-Demographics of Travellers based on Smart Card Data

Yang Zhang, Tao Cheng

Estimating traffic disruption patterns with volunteer geographic information

Jonathan Bright, Chico Camargo, Scott Hale, Graham Mcneill, Sridhar Raman

Transport-Health Equity Outcomes from mobile phone location data – a case study

Susan Grant-Muller, Frances Hodgson, Gillian Harrison, Nick Malleson, Tom Redfern

Identification of helpful and not helpful online reviews within an eWOM community  
using text-mining techniques

Sergio L. Toral, Maria Olmedilla, Rocio Martinez-Torres

Evolution and scientific visualization of Machine learning field

Rosa María Río-Belver, Gaizka Garechana, Iñaki Bildosola, Enara Zarrabeitia

Google matrix analysis of worldwide football mercato

José Lages, Justin Loye, Célestin Coquidé, Guillaume Rollin



**Session 4b**

**Social Networks and Text Mining**

Friday 13, 14:15 – 16:15. Room Aula 2.2

Chair: Elena Siletti

How to sort out uncategorisable documents for interpretive social science? On limits of currently employed text mining techniques

Axel Philipps

What should a researcher first read? A bi-relational citation networks model for strategic heuristic reading and scientific discovery

Cesar Moreno Pascual, Carlos Martinez De Ibarreta Zorita

Technical Sentiment Analysis: Measuring Advantages and Drawbacks of New Products Using Social Media

Filippo Chiarello, Andrea Bonaccorsi, Gualtiero Fantoni, Giacomo Ossola, Andrea Cimino

Facebook, digital campaign and Italian general election 2018. A focus on the disintermediation process activated by the web

Maria Paola Faggiano, Ernesto Dario Calò, Raffaella Gallo, Melissa Mongiardo

A proposal to deal with sampling bias in social network big data

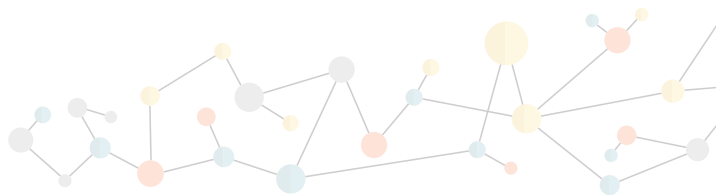
Elena Siletti, Stefano Maria Iacus, Giuseppe Porro, Silvia Salini

Relevance as an enhancer of votes on Twitter

Jorge Arroba Rimassa, Fernando Llopis, Rafael Munoz Guillena

**Closing**

Friday 13, 16:15 – 16:45. Room Salón de Actos



## SOCIAL PROGRAM

### Thursday 12 July, 21:00 Conference Dinner

Venue: Restaurante Contrapunto Les Arts

Address: Palau de les Arts, Av. Professor López Piñero 1

Dress Code: Smart Casual



16

The conference dinner will be the highlight of the conference program and your opportunity to relax and have fun. Join fellow delegates for an evening of delicious food and fine wine while enjoying the breathtaking views of the City of Arts and Sciences.

Directions: From the conference venue to Restaurante Contrapunto Les Arts, you can take bus number 40 (from Ramon Llull – Albalat dels Tarongers stop to Tomàs Montañana - Albereda stop) or bus number 99 (from Fausto Elio – Universitat Politècnica stop to Actor Antoni Ferrandis – Centre Comercial stop) (approx. 15 min).

### Friday 13 July, 16:45 Farewell Wine

Venue: Faculty Hall, at the UPV.

CARMA 2018 will conclude by celebrating with a wine reception, which will be held at the Faculty Hall for the enjoyment of fellow colleagues.





# UPV MAP



## Building 7J

- Faculty of Business Administration and Management
- Conference Hall: Saló de actes. 2nd floor;
- Faculty Hall: Main entrance. Ground floor;
- Room Aula 2.2. 2nd floor.

## Building 9D

Cafeteria El Trinquet

## ADDITIONAL INFORMATION

Lunch will be served on Thursday and Friday from 13:15 to 14:15 at Cafetería “El Trinquet” (Building 9D), located behind the Faculty of Business Administration and Management.

Coffee breaks will be served at the Faculty Hall:

- Morning 10:30 – 11:00
- Afternoon 16:15 – 17:00 (during the poster session)

Free wifi access will be provided for delegates at the conference.

### Emergency numbers

#### Services

Medical Service (Ambulancia)	061
National Police (Policía Nacional)	091
Local Police (Policía Municipal)	092
Firefighters (Bomberos)	080
Sea Rescue (Salvamento y seguridad marítima)	900 202 202
Pan-European emergency number	112

#### Phone

### Taxi Companies

#### Taxi Company

Radio Taxi	+34 96 370 33 33
Taxi Valencia	+34 607 181 181
Valencia Taxi	+34 96 374 02 02
Tele Taxi	+34 96 357 13 13

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