

# JICAN 2009



**ITI**

INSTITUTO TECNOLÓGICO  
DE INFORMÁTICA

## **Workshop on Computational Intelligence Applied to Business**

5 & 6 November, Valencia



## What is Computational Intelligence

**Computational Intelligence** (CI), sometimes also called *SoftComputing*, is a branch of Artificial Intelligence consisting of the development of adaptive mechanisms to allow or facilitate **intelligent behaviour** in complex and dynamic systems.

**Computational Intelligence** is based on the use of heuristics and computation to solve problems. While conventional Artificial Intelligence (whose key areas are case based reasoning, Bayesian networks and expert systems) has a "top down" approach, in which the structure of solutions is imposed from above, in CI the approach is "bottom up", where the solutions emerge from an initial unstructured state.

The main five paradigms in CI are **artificial neural networks, evolutionary computation, swarm intelligence, fuzzy systems** and **artificial immune systems**.

## Applications of CI

Currently CI is being employed successfully in these areas:

### **Finance:**

Risk prediction, portfolio management...

### **Logistics and transport:**

Efficient route planning, allocation of space in warehouses...

### **Production:**

Demand forecast, optimised production planning

### **Telecomms:**

Design of antennas, channel equalisations, network design...

### **Industry:**

Electronic circuit design, industrial process control, unmanned vehicles...

### **Biology and medicine:**

Protein folding, sequence analysis, disease diagnosis, patient monitoring...

### **Sustainable development:**

Waste management, control of green house gases, efficient energy use...

### **Art and entertainment:**

Videogames, computer animation, music.....

## Objectives

The **Workshop on Computational Intelligence Applied to Business** organised by Instituto Tecnológico de Informática aims to introduce the key concepts in the field of Computational Intelligence (CI) in a practical manner and with particular emphasis in the applications in the industrial and financial areas.

For this we will count on plus ITI's expert personnel, who will provide a basis of the different methodologies in CI and a number of practical applications in which CI was successfully employed.

## Who should attend?

The workshop is aimed at :

**Companies:** Project managers or directors (technical and non technical) who, as part of their work, face complex problems related to optimisation, prediction and decision making.

**Academia:** Researchers and students interested in the practical application of Computational Intelligence.

**5th November** [Thursday]

**09:00** Registration and handing out of documentation

**09:30** Welcome and introduction

Speakers: Juan Carlos Pérez - Director. Anna Esparcia - CAS Goup Coordinator - ITI (Spain)

**10:00** Sales forecasting, planning and production scheduling. The optimisation approach

Speaker: Rubén Ruiz - SOA Group Director - ITI (Spain)

**10:30** SeKuen: Production scheduling optimisation. Success cases in the ceramics sector

Speaker: Eva Vallada - SOA Group - ITI (Spain)

**11:00** Optimisation in routing and logistic problems

Speaker: Alejandro Rodríguez - SOA Group - ITI (Spain)

**11:30** Coffee break

**12:00** What a company needs to know about social networks

Speaker: JJ Merelo - Universidad de Granada (Spain)

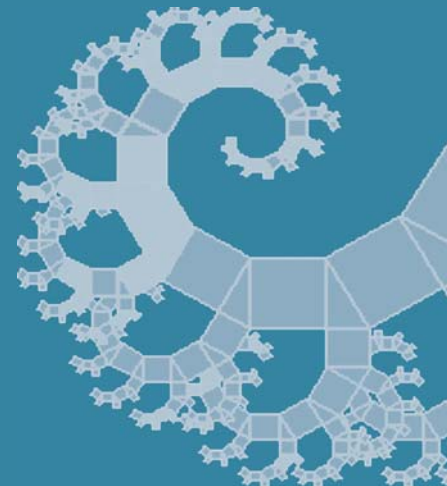
**13:00** Talking to Satellites using Computational Intelligence

Speaker: Darrell Whitley - Colorado State University (USA)

**14:00** Lunch

**15:30** Videogames and voluntary computation: exploiting the possibilities of Computational Intelligence

Speaker: Francisco Fernández de Vega - Universidad de Extremadura (Spain)



**16:30 Success cases in the videogames sector**

Speaker: José M<sup>a</sup> F. de Vega - Claroscuro Digital (Spain)

**17:00 Applying Computational Intelligence: How to create value**

Speaker: Arthur Kordon - Dow Chemical (USA)

**18:00 Round table: Computational intelligence to survive the crisis.**

Participants: JJ Merelo, F. Fdez de Vega, Arthur Kordon, Darrell Whitley, Tom Runarsson

**18:30 Closure****6th November [Friday]****10:00 Understanding Elementary Landspaces**

Speaker: Darrell Whitley - Colorado State University - in English -

**11:00 A web in versions 1.0, 2.0, 3.0**

Speaker: JJ Merelo - Universidad de Granada - in Spanish -

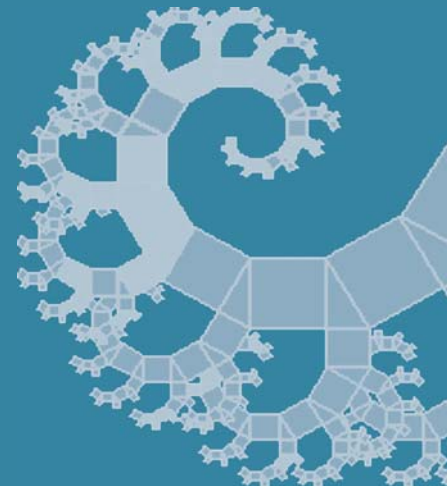
**12:00 Learning decision making strategies using computational intelligence**

Speaker: Thomas Runarsson - University of Iceland - in English -

**N.B.:**

- N.B. Simultaneous translation English/Spanish and vice-versa will be available for all

- Entrance is free for all public in Friday sessions





**Darrell  
Whitley**

Darrell Whitley received a Ph.D. in Anthropology from Southern Illinois University in 1985 and completed his M.S. degree in Computer Science in 1986. He joined the Computer Science Department at Colorado State University in 1986. He has been a Professor in the Computer Science Department at Colorado State University since August 1997. He is an active researcher in the areas of artificial intelligence, genetic algorithms, heuristic search, neural networks and scheduling.



**J.J. Merelo**  
Universidad de Granada

JJ Merelo has a degree and a PhD in Physics from the University of Granada and he is also a lecturer in that university since 1988. As well as his internationally acknowledged research work in the fields of evolutionary algorithms and neural networks, he has undertaken several technology transfer contracts with different companies in the fields of Internet and prediction. He is currently a partner in the virtual learning company Digital Learning.



**Arthur  
Kordon**

Arthur Kordon is a Data Mining & Modeling Leader in the Data Mining & Modeling Group in Corporate Work Process and Six Sigma Center, The Dow Chemical Company in Freeport, Texas, USA. He is an internationally recognized expert in applying computational intelligence technologies in industry. Dr. Kordon has successfully introduced several novel technologies based on computational intelligence for improved manufacturing and new product design.



**Paco  
Fernández  
de la Vega**

Francisco Fernández de Vega obtained his PhD (2001) from the Universidad de Extremadura (Uex), where he is currently a lecturer on Computer Technology and Architecture and Director of the GEA (Grupo de Evolución Artificial) Research Group. He was formerly director of the Computing service of the Uex and Subdirector of Research at the Mérida University Centre.



**Thomas  
Runarsson**

Thomas Runarsson is a professor within the School of Engineering and Natural Sciences, at the University of Iceland. He is the vice-head of the faculty of Industrial Engineering, Mechanical Engineering and Computer Science.

His research interests include evolutionary computation, constraint handling, global optimization, approximated dynamic programming, statistical learning, and real world applications.



**José M<sup>a</sup>  
Fernández**

José María Fernández holds an Engineering degree in Agriculture and Food Technology, but is an artist and graphic designer by vocation and profession. For the past 5 years he's been director of Claroscuro Digital, a graphic design studio specialising in 3D infographics.



**Rubén  
Ruiz**

Rubén Ruiz es Profesor en el Departamento de Estadística Aplicada, Investigación Operativa y Calidad de la Universidad Politécnica de Valencia. Recibió un BSC Y UN MSc sobre la informática de mano de la Universidad Politécnica de Valencia, donde le concedieron el premio "Bancaja" por su tesis MSc. Recibió un grado doctoral en la Investigación de Operaciones en la UPV y se le concedió, en 2005, el premio para la mejor tesis PhD por la misma universidad.



**Eva  
Vallada**

Eva Vallada got her Computer Science degree and PhD from the Polytechnic University of Valencia. She is currently Assistant Professor at the Department of Applied Statistics and Operational Research and Quality at the same university.

She is a member of the Applied Optimization Systems group (SOA) where she carries out her research work mainly in the scheduling area.



**Alejandro  
Rodríguez**

Alejandro Rodríguez is a Lecturer at the Departamento de Organización de Empresas of the Technical University of Valencia. In recent years he has combined his lecturing work at the university and in several postgraduate courses with consultancy and project management in several companies: Ford, Skoda, Aprilia, Daimler-Chrysler, Jaguar/Land Rover, Autotrim, Tutto Piccolo, Artenas, Keraben, Terra Mítica, Plastiken, Injusa, Massive, FausGroup, OKW, Llanera, Grupo Valero, GALOL, Vaello Campos, Granfort, ColorBaby, Pedro García, Cándido Miró, amongst others.

## Prices

**General:** 90 € + VAT

**Early registration** [On or before October 21th]: 50 € + VAT

### Discounts

**ITI Associate, IEEE or UPV Member:** 20% additional discount.

20% additional discount for registrations of two or more members of the same company.

The price includes attendance, documentation, coffees and lunch on Thursday.

(Attendance on Friday is free for all public)

## Venue

Salón de actos "Cubo amarillo" / "Yellow Cube" Lecture Theatre  
8E Building [on the third floor, at the terrace level]  
Ciudad Politécnica de la Innovación  
Campus de la Universidad Politécnica de Valencia  
Camino de Vera, s/n  
46022 Valencia

## Registration

[jornadas@iti.upv.es](mailto:jornadas@iti.upv.es)

<http://jican.iti.es>



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