

# IWANN 2007

**9th International Work-Conference on  
Artificial Neural Networks**

Computational and Ambient Intelligence

**San Sebastián  
June 20-22, 2007**



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# HONOUR COMMITTEE

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Changjiu Zhou	Singapore Polytechnic
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Pedro Zufiria	Universidad Politécnica de Madrid, SP



## Instructions for authors

### *Instructions for Oral Session authors*

The number of papers scheduled in the Oral Sessions allows dedicating a maximum of 15 minutes to the oral presentation of your work. You are kindly required to attend the indications of the session chair concerning time limitations. Following this rule, time for 2 or 3 questions will be allowed at the end of each presentation.

We have assigned a "Room Manager" for each room. These people will be the responsible for the presentation and multimedia facilities. Authors must contact the Room Manager before starting their own session in order to install their slides in the room computer.

Standard presentation facilities are computer and data projector (Acrobat and PowerPoint). Upon request, overhead projector, slide projector and microphone may be provided. Do not hesitate to contact the Organization for special requirements.

**Please note:** Speakers may not use their own laptop PCs. The very tight schedule for oral presentations will not allow equipment to be switched around between talks.

### *Instructions for Poster authors.*

Posters **must be displayed during the whole duration of the conference** on the assigned panels (your poster will be allocated on a specific panel). There are no poster sessions scheduled. The meeting time for poster discussion are the Coffee Breaks, therefore poster authors are required to be present during coffee breaks along the conference.

The poster panel size is: height 120 x width 200 cm. The Organization will provide you facilities for fixing your material (pins).

## Scientific Programme Workshop Plan

<i>Tuesday, June 19</i>		<i>Wednesday, June 20</i>	
		<b>8:30</b> – <b>10:30</b>	<b>Sessions</b> <b>1a: Assistive Technologies and e-Health</b> (ID:307,235,270,240,241,236) <b>1b: Kernel Methods</b> (ID:303,60,140,24,188) <b>1c: Nature-inspired Intelligent Methods - 1</b> (ID:168,66,131,157,237,197)
		<b>10:30</b> – <b>11:00</b>	<b>Coffee Break – Poster Session</b>
		<b>11:00</b> – <b>12:20</b>	<b>Sessions</b> <b>2a: Neural Inspired Architectures for Nanoelectronics</b> (ID:304,175,177,216) <b>2b: Emergent Behaviors and Cognition in Embodied Systems</b> (ID:306,173,110,193) <b>2c: Improvings models and learning procedures - 1</b> (ID:37,58,59)
		<b>12:20</b> – <b>13:00</b>	<b><u>Official opening</u></b>
		<b>13:00</b> – <b>14:00</b>	<b>Plenary Talk</b> <b>Prof. Dr. Piero P. Bonissone</b>
		<b>14:00</b> – <b>16:00</b>	<b>Lunch</b>
<b>16:00</b> – <b>19:10</b>	<b>Registration</b>	<b>16:00</b> – <b>17:20</b>	<b>Sessions</b> <b>3a: Data Analysis and Preprocessing – 1</b> (ID:238,191,200,233) <b>3b: Signal Processing – 1</b> (ID:6,8,250) <b>3c: Improvings models and learning procedures - 2</b> (ID:251,127,159,186)
		<b>17:20</b> – <b>17:50</b>	<b>Coffee break - Poster Session</b>
		<b>17:50</b> – <b>19:10</b>	<b>Sessions</b> <b>4a: Neural Networks for Control</b> (ID:52,84,151,230) <b>4b: Signal Processing – 2</b> (ID:99,123,243,196) <b>4c: Internet and Web Applications</b> (ID:184,89,226,242)
<b>20:30</b>	<b>Welcome Reception</b>	<b>20:30</b>	<b>Official dinner at “Sidreria”</b>

**Poster: 17,44,219,178,73,112,12,150,179**

<b>Thursday, June 21</b>		<b>Friday, June 22</b>	
<b>09:00</b> – <b>11:00</b>	<b>Sessions</b> <b>5a: ANN and other Machine Learning Methods in Cancer Research–1</b> (ID:308,50,72,121,155,221) <b>5b: Fuzzy Systems</b> (ID:76,83,111,137,158) <b>5c: Nature-inspired Intelligent Methods–2</b> (ID:30,126,120,9)	<b>09:00</b> – <b>11:00</b>	<b>Sessions</b> <b>9a: ANN and other Machine Learning Methods in Cancer Research-2</b> (ID:170,132,215,113,79) <b>9b: Evolutionary and Genetic Algorithm</b> (ID:10,96,107,130,156,187) <b>9c: Learning and Adaptation</b> (ID:19,22,82,91,239)
<b>11:00</b> – <b>11:30</b>	<b>Coffee Break – Poster Session</b>	<b>11:00</b> – <b>11:30</b>	<b>Coffee Break – Poster Session</b>
<b>11:30</b> – <b>12:50</b>	<b>Sessions</b> <b>6a: Complex Data Analysis–1</b> (ID:142,153,210,234) <b>6b: Self-organizing Networks</b> (ID:13,78,134,138) <b>6c: Neurocomputational formulations</b> (ID:47,103,104,198)	<b>11:30</b> – <b>12:30</b>	<b>Plenary Talk</b> <b>Prof. Dr. Vassilis G. Karburlasos</b>
<b>13:00</b> – <b>14:00</b>	<b>Plenary Talk</b> <b>Prof. Dr. Jeanny Héroult</b>	<b>12:40</b> – <b>14:00</b>	<b>Sessions</b> <b>10a: Complex Data Analysis-2</b> (ID:45,75,95,124) <b>10b: Mathematical for Neural Networks</b> (ID:80,172,194,207) <b>10c: Power systems</b> (ID:16,29,70,244)
<b>14:00</b> – <b>16:00</b>	<b>Lunch</b>		
<b>16:00</b> – <b>17:20</b>	<b>Sessions</b> <b>7a: Improving models and learning procedures–3</b> (ID:202,214,218,109) <b>7b: Emulation of Cognitive Functions</b> (ID:18,48,128,154) <b>7c: Bio-inspired systems and Neuro-engineering</b> (ID:125,165,192,220)		
<b>17:20</b> – <b>17:50</b>	<b>Coffee break – Poster Session</b>		
<b>17:50</b> – <b>19:10</b>	<b>Sessions</b> <b>8a: Data Analysis and Preprocessing–2</b> (ID:169,205,190) <b>8b: Time Series Forecasting</b> (ID:35,118,189) <b>8c: Signal Processing–3</b> (ID:152,212,213,199)		
<b>20:30</b>	<b>Gala Dinner</b>		

# IWANN2007 SCHEDULING

**Tuesday, June 19**

**16:00 - 19:10**

**Registration**

**20:30**

**Welcome Reception**

**Wednesday, June 20**

**08:30 - 10:30**

**Session 1a: Assistive Technologies and e-Health**

**Session 1b: Kernel Methods**

**Session 1c: Nature-inspired Intelligent Methods - 1**

**ROOM A**

**SESSION 1a: Assistive Technologies and e-Health**

**Chair: Ulises Cortés**

**Co-chair: Roberta Annicchiarico**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
307	Intelligent Healthcare Managing: An Assistive Technology approach. Page LNCS: 1045	Ulises Cortés, Cristina Urdiales, Roberta Annicchiarico
235	Design Improvements for Proportional Control of Autonomous Wheelchairs Via 3DOF Orientation Tracker. Page LNCS: 1052	Christian Mandel, Udo Frese, Thomas Röfer
270	The Impact of Cognitive Navigation Assistance on People with Special Needs. Page LNCS: 1060	Roberta Annicchiarico, Ulises Cortés, Alessia Federici, Pablo Campana, Cristian Barrué, Antonio B. Martínez, Carlo Caltagirone
240	Shared Autonomy in Assistive Technologies. Page LNCS: 1067	Cristian Barrué, Ulises Cortés, Roberta Annicchiarico
241	Augmented Reality visualization interface for Biometric Wireless Sensor Networks. Page LNCS: 1074	Débora Claros, Mario de Haro, Miguel Domínguez, Carmen de Trazegnies, Cristina Urdiales, Francisco Sandoval
236	Using the CARREL+ to Increase Availability of Human Organs for Transplantation. Page LNCS: 10182	Pancho Tolchinsky, Ulises Cortés, Sanjay Modgil, Francisco Caballero, Antonio López-Navidad

**ROOM B**

**SESSION 1b: Kernel Methods**

**Chair: Cecilio Angulo**

**Co-chair: Andreu Catala**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
303	Kernel Machines for non-vectorial data. Page LNCS: 252	Francisco J. Ruiz, Cecilio Angulo, Nuria Agell, Andreu Catala
60	An EA multi-model selection for SVM multiclass schemes. Page LNCS: 260	Giles Lebrun, Olivier Lezoray, Christophe Charrier, Hubert Cardot
140	Classifier Complexity Reduction by Support Vector Pruning in Kernel Matrix Learning Page LNCS: 268	V. Vijaya Saradhi, Harish Karnick

24	Multi-classification with Tri-class Support Vector Machines. A Review. Page LNCS: 276	Cecilio Angulo, Luis González, Andreu Catala, Francisco Velasco
188	Kernel Methods Applied to Time Series Forecasting. Page LNCS: 782	Ginés Rubio, Héctor Pomares, Luis J. Herrera, Ignacio Rojas

## ROOM C

### SESSION 1c: Nature-inspired Intelligent Methods-1

Chair: Bogdan Gabrys

Co-chair: Emilio Corchado

ID#	Title	Authors
168	ViSOM Ensembles for Visualization and Classification. Page LNCS: 235	Bruno Baruque, Emilio Corchado, Hujun Yin
66	Adaptive Representation of Objects Topology Deformations with Growing Neural Gas. Page LNCS: 244	José García-Rodríguez, Francisco Flórez-Revuelta, Juan M. García-Chamizo
131	A Comparison of Neural Projection Techniques Applied to Intrusion Detection Systems. Page LNCS: 1138	Álvaro Herrero, Emilio Corchado, Paolo Gastaldo, Rodolfo Zunino
157	Traffic Sign Classification by Image Preprocessing and Neural Networks. Page LNCS: 741	Raúl Vicen-Bueno, Antonio García-González, Elena Torijano-Gordo, Roberto Gil-Pita, Manuel Rosa-Zurera
237	Consequences of Data Uncertainty and Data Precision in Artificial Neural Network Sugar Cane Yield Prediction. Page LNCS: 1147	Hector F. Satizabal, Daniel R. Jiménez, Andres Pérez-Urbe
197	Bio-inspired memory generation by recurrent neural networks. Page LNCS: 55	Manuel G. Bedia, Juan M. Corchado, Luis F. Castillo

### 10:30 – 11:00

Coffee Break – Poster Session

### 11:00 – 12:20

Session 2a: Neural Inspired Architectures for Nanoelectronics

Session 2b: Emergent Behaviors and Cognition in Embodied Systems

Session 2c: Improving models and learning procedures - 1

## ROOM A

SESSION 2a: Neural Inspired Architectures for Nanoelectronics

Chair: Ulrich Rückert

Co-chair: Valeriu Beiu

ID#	Title	Authors
304	Neural inspired architectures for nanoelectronics. Page LNCS: 414	Ralf Eickhoff, Tim Kaulmann, Ulrich Rückert
175	What von Neumann Did Not Say About Multiplexing. Page LNCS: 487	Valeriu Beiu, Walid Ibrahim, and Sanja Lazarova-Molnar
177	Defects Tolerant Logic Gates for Unreliable Future Nanotechnologies. Page LNCS: 422	Lorena Anghel, Michael Nicolaidis
216	Statistical Simulations for Exploring Defect Tolerance and Power Consumption for 4. Page LNCS: 455	Snorre Aunet, Hans Kristian Otnes Berge

## ROOM B

SESSION 2b: Emergent Behaviors and Cognition in Embodied Systems

Chair: Andreu Catala

Co-chair: Cecilio Angulo

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
306	Embodying cognitive abilities: categorization. Page LNCS: 790	Ricardo A. Téllez, Cecilio Angulo
173	Behavioral flexibility: an emotion-based approach. Page LNCS: 798	Carlos Herrera, Alberto Montebelli, Tom Ziemke
110	Collaborative Emergent Navigation based on Biometric Weighted Shared Control. Page LNCS: 814	Blanca Fernández-Espejo, Alberto Poncela, Cristina Urdiales, Francisco Sandoval
193	Emerging Behaviors by Learning Joint Coordination in Articulated Mobile Robots. Page LNCS: 806	Diego E. Pardo, Cecilio A. Bahón

## **ROOM C**

### **SESSION 2c: Improving models and learning procedures - 1**

**Chair: Arturo Berrones**

**Co-chair: Juan Julian Merelo**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
37	Improving Adaptive boosting with an relaxed equation to update the sampling distribution. Page LNCS: 119	Joaquín Torres-Sospedra, Carlos Hernández-Espinosa, Mercedes Fernández-Redondo
58	Heuristic Search based Exploration in Reinforcement Learning. Page LNCS: 110	Ngo Anh Vien, Nguyen Hoang Viet, Seungwan Iee, Taechoong Chung
59	Generating Random Deviates Consistent with the Long Term Behavior of Stochastic Search Processes in Global Optimization. Page LNCS: 1	Arturo Berrones

**12:20 – 13:00**

**Official opening**

**13:00 – 14:00**

**Plenary Talk: Prof. Dr. Piero P. Bonissone**

***Soft Computing Applications to Prognostics and Health Management (PHM): Leveraging Field Data and Domain Knowledge.* Page LNCS: 928**

**Chair: Francisco Sandoval**

**14:00 – 16:00**

**Lunch**

**16.00 – 17:20**

**Session 3a: Data Analysis and Preprocessing – 1**

**Session 3b: Signal Processing – 1**

**Session 3c: Improving models and learning procedures - 2**

## **ROOM A**

### **SESSION 3a: Data Analysis and Preprocessing – 1**

**Chair: Francisco Pelayo**

**Co-chair: Amaury Lendasse**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
238	Use of ANNs as Classifiers for Selective Attention Brain-Computer Interfaces. Page LNCS: 956	Miguel A. López, Héctor Pomares, Miguel Damas, Eduardo Madrid, Alberto Prieto, Francisco Pelayo, Eva M. de la Plaza-Hernández
191	Auto adjustable ANN-based classification system for optimal high dimensional data analysis. Page LNCS: 588	Abraham Prieto, Francisco Bellas, Richard Duro, Fernando López-Peña

- |     |  |   |
|-----|--|---|
| 200 | Advantages of Using Feature Selection Techniques on Steganalysis Schemes. Page LNCS: 606         | Yoan Miche, Patrick Bas, Amaury Lendasse, Christian Jutten, Olli Simula |
| 233 | Clustering and visualizing HIV quasispecies using Kohonen's Self-Organizing Maps. Page LNCS: 940 | A.M. Mora, J.J. Merelo, C. Briones, F. Morán, J.L.J. Laredo             |

## ROOM B

### SESSION 3b: Signal Processing – 1

Chair: Marcos Faundez Zanuy

Co-chair: Francisco Garcia-Lagos

ID#	Title	Authors
6	Evaluation of supervised versus non supervised databases for hand geometry verification. Page LNCS: 1122	Marcos Faundez-Zanuy, Joan Fabregas, Miguel A. Ferrer, Carlos M. Travieso, Jesús B. Alonso
8	An efficient VAD based on a hang-over scheme and a likelihood ratio test. Page LNCS: 31	Oscar Pernía, J. Manuel Górriz, Javier Ramírez, Carlos G. Puntonet, I. Turias
250	Neural Networks for Defect Detection in Non-Destructive Evaluation by Sonic Signals. Page LNCS: 638	Addisson Salazar, Juan Unió, Arturo Serrano, Jorge Gosalbez

## ROOM C

### SESSION 3c Improvings models and learning procedures - 2

Chair: Juan M. Corchado

Co-chair: Arturo Berrones

ID#	Title	Authors
251	A New Learning Strategy for Classification Problems with Different Training and Test Distributions. Page LNCS: 178	Óscar Pérez, Manuel Sánchez-Montañés
127	Specialized Ensemble of Classifiers for Traffic Sign Recognition. Page LNCS: 733	M. Paz Sesmero, Juan M. Alonso-Weber, Germán Gutiérrez, Agapito Ledezma, Araceli Sanchis
159	Behaviour-based Clustering of Neural Networks applied to Document Enhancement. Page LNCS: 144	Francisco Zamora-Martínez, Salvador España-Boquera, María J. Castro-Bleda
186	Topology optimization and training of Recurrent Neural Networks with Pareto-based Multi-objective algorithms: An experimental study. Page LNCS: 359	Manuel-Pegalajar Cuéllar, Miguel Delgado, María C. Pegalajar

**17:20 – 17:50**

**Coffee break - Poster Session**

**17:50 – 19:10**

**Session 4a: Neural Networks for Control**

**Session 4b: Signal Processing – 2**

**Session 4c: Internet and Web Applications**

## ROOM A

### SESSION 4a: Neural Networks for Control

Chair: Miguel Atencia

Co-chair: Rodolfo Haber

ID#	Title	Authors
52	RBF Based Induction Motor Control with A Good Nonlinearity Compensation. Page LNCS: 878	Hasan Riza Özçalik, Ceyhun Yildiz, Mustafa Danaci, Zafer Koca

- |     |   |  |
|-----|---|--|
| 84  | Using Simulated Annealing for Optimal Tuning of a PID controller for Time-Delay Systems. An Application to a High-Performance Drilling Process. Page LNCS: 1155 | Rodolfo E. Haber, Rodolfo Haber-Haber, Raúl M. Del Toro, José R. Alique            |
| 151 | Bio-inspired control model for object manipulation by humanoid robots. Page LNCS: 822   | Silvia Tolu, Eduardo Ros, Rodrigo Agís   |
| 230 | Estimation of the rate of detection of infected individuals in an epidemiological model. Page LNCS: 948   | Miguel Atencia, Gonzalo Joya, Esther García, Héctor de Arazoza, Francisco Sandoval |

## **ROOM B**

### **SESSION 4b: Signal Processing – 2**

**Chair: Francisco Garcia-Lagos**

**Co-chair: Marcos Faundez Zanuy**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
99	Incidence Position Estimation in a PET Detector Using a Discretized Positioning Circuit and Neural Networks. Page LNCS: 684	R Fernando Mateo, Ramón J. Aliaga, Jorge D. Martínez, José M. Monzó, Rafael Gadea
123	Optical Devices Diagnosis by Neural Classifier Exploiting Invariant Data Representation and Dimensionality Reduction Ability. Page LNCS: 1098	Matthieu Voiry, Kurosh Madani, Véronique Amarger, Joël Bernier
243	Sine Fitting Multiharmonic Algorithms implemented by Artificial Neural Networks. Page LNCS: 622	José Salinas, Francisco García-Lagos, Gonzalo Joya, Francisco Sandoval
196	Validation of an Expressive Speech Corpus by Mapping Automatic Classification to Subjective Evaluation. Page LNCS: 646	Ignasi Iriondo, Santiago Planet, Francesc Alías, Joan Claudi Socoró, Elisa Martínez

## **ROOM C**

### **SESSION 4c: Internet and Web Applications**

**Chair: Alberto Prieto**

**Co-chair: Rafael del Hoyo**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
184	Neural Networks for QoS Network Management. Page LNCS: 887	Rafael del Hoyo-Alonso, Pilar Fernández-De-Alarcón, Juan-José Navamuel-Castillo, Nicolás J. Medrano-Marqués, Bonifacio Martin-del-Brio, Julián Fernández-Navajas, David Abadía-Gallego
89	Improvement of Anomaly Intrusion Detection Performance by Indirect Relation for FTP Service. Page LNCS: 895	Byungrae Cha, Jonggeun Jeong
226	Combining SVM classifiers for email anti-spam filtering. Page LNCS: 903	Ángela Blanco, Alba M. Ricket, Manuel Martín-Merino
242	Analyzing a Web-Based Social Network using Kohonen's SOM. Page LNCS: 911	Beatriz Prieto, Juan J. Merelo, Alberto Prieto, Fernando Tricas

**20:30**

**Official dinner at "Sidreria"**



**Thursday, June 21**

**09:00 – 11:00**

**Session 5a: ANN and other Machine Learning Methods in Cancer Research – 1**

**Session 5b: Fuzzy Systems**

**Session 5c: Nature-inspired Intelligent Methods – 2**

**ROOM A**

**SESSION 5a: ANN and other Machine Learning Methods in Cancer Research – 1**

**Chair: Alfredo Vellido**

**Co-chair: Paulo Lisboa**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
308	Neural networks and other machine learning methods in cancer research. Page LNCS: 964	Alfredo Vellido, Paulo J.G. Lisboa
50	Mixture modeling of DNA copy number amplification patterns in cancer. Page LNCS: 972	Jarkko Tikka, Jaakko Hollmén, Samuel Myllykangas
72	Towards the Integration of a Bioprofile in Ocular Melanoma. Page LNCS: 978	Azzam Taktak, Antonio Eleuteri, Christian Setzkorn, Angela Douglas, Sarah Coupland, Paul Hiscott, Bertil Damato
121	Independent Component Analysis Applied to Detection of Early Breast Cancer Signs. Page LNCS: 988	Ramón Gallardo-Caballero, Carlos J. García-Orellana, Horacio M. González-Velasco, Miguel Macías-Macías
155	A Prototype Integrated Decision Support System for Breast Cancer Oncology. Page LNCS: 996	Paulo J.G. Lisboa, Ian H. Jarman, Terence A. Etchells, Phillip Ramsey
221	Early breast cancer prognosis prediction and rule extraction using a new constructive neural network algorithm. Page LNCS: 1004	Leonardo Franco, José L. Subirats, Ignacio Molina, Emilio Alba, José M. Jerez

**ROOM B**

**SESSION 5b: Fuzzy Systems**

**Chair: Rodolfo Haber**

**Co-chair: Ivan Silva**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
76	Assessing Students' Teamwork Performance by means of Fuzzy Logic. Page LNCS: 383	José A. Montero, Francesc Alías, Carles Garriga, Lluís Vicent, Ignasi Iriondo
83	Networked Control Based on Fuzzy Logic. An Application to a High-Performance Milling Process. Page LNCS: 391	Rodolfo E. Haber, Michael Schmitt diel, Angel Alique, Andrés Bustillo, Ramón Galán
111	Automatic Selection of Input Variables and Initialization Parameters in an Adaptive Neuro Fuzzy Inference System. Application for Modeling Visual Textures in Digital Images. Page LNCS: 407	Andrés Mejías Borrero, Omar Sánchez Pérez, Sixto Romero Sánchez
137	Efficient Parametric Adjustment of Fuzzy Inference System Using Unconstrained Optimization. Page LNCS: 399	Ivan Silva, Rogerio Flauzino
158	Multiresolutive Adaptive PN Acquisition Scheme with a Fuzzy Logic Estimator in Non Selective Fast SNR Variation Environments. Page LNCS: 367	Rosa M. Alsina, Claudia Mateo, Joan C. Socoró

**ROOM C**

**SESSION 5c: Nature-inspired Intelligent Methods – 2**

**Chair: Emilio Corchado**

**Co-chair: Bogdan Gabrys**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
30	Optimal Scheduling of Multiple Dam System Using Harmony Search Algorithm. Page LNCS: 316	Zong Woo Geem
126	Particle Swarm Optimisation in Generation of Multiple Classifier Systems. Page LNCS: 333	Martin Macas, Bogdan Gabrys, Dymitr Ruta, Lenka Lhotska
120	Morphological Independence for Landmark Detection in Vision Based SLAM. Page LNCS: 847	Ivan Villaverde, Manuel Graña, Alicia d'Anjou
9	Nature-Inspired Planner Agent for Health Care. Page LNCS: 1090	Javier Bajo, Dante I. Tapia, Sara Rodríguez, Ana De Luis, Juan M. Corchado

**11:00 – 11:30**

**Coffee Break – Poster Session**

**11:30 – 12:50**

**Session 6a: Complex Data Analysis – 1**

**Session 6b: Self-organizing Networks**

**Session 6c: Neurocomputational formulations**

**ROOM A**

**SESSION 6a: Complex Data Analysis – 1**

**Chair: Marie Cottrell**

**Co-chair: Michael Verleysen**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
142	Speeding Up the Dissimilarity Self-Organizing Maps by Branch and Bound. Page LNCS: 203	Brieuc Conan-Guez, Fabrice Rossi
153	Mixing Kohonen Algorithm, Markov Switching Model and Detection of Multiple Change-Points: An Application to Monetary History. Page LNCS: 547	Marie-Thérèse Boyer-Xambeu, Ghislain Deleplace, Patrice Gaubert, Lucien Gillard, Madalina Olteanu
210	Fuzzy Labeled Self-Organizing Map for Classification of Spectra. Page LNCS: 556	Thomas Villmann, Frank-Michael Schleif, Erzsebet Merenyi, Barbara Hammer
234	Some Applications of Interval Analysis to Statistical Problems. Page LNCS: 564	Vicent Vigneron

**ROOM B**

**SESSION 6b: Self-organizing Networks**

**Chair: Manuel Graña**

**Co-chair: Ezequiel López Rubio**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
13	Self-organization of Probabilistic PCA models. Page LNCS: 211	Ezequiel López-Rubio, Juan M. Ortiz-De-Lazcano-Lobato, Domingo López-Rodríguez, María C. Vargas-González
78	Visualizing High-Dimensional Input Data with Growing Self-Organizing Maps. Page LNCS: 580	Soledad Delgado, Consuelo Gonzalo, Estíbaliz Martínez, Águeda Arquero
134	Derivation of SOM-like rules for intensity inhomogeneity correction in MRI. Page LNCS: 676	Maite García-Sebastián, Ana I. González Acuña, Manuel Graña
138	A new adaptation of Self-Organizing Map for dissimilarity data. Page LNCS: 219	Tien Ho-Phuoc, Anne Guérin-Dugué

**ROOM C**

**SESSION 6c: Neurocomputational formulations**

**Chair: Roberta Sirovich**

**Co-chair: Daniel Bruederle**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
47	Effect of increasing inhibitory inputs on information processing within a small network of spiking neurons. Page LNCS: 23	Roberta Sirovich, Laura Sacerdote, Alessandro E. P. Villa
103	A Software Framework for Tuning the Dynamics of Neuromorphic Silicon towards Biology. Page LNCS: 479	Daniel Brüderle, Andreas Grübl, Karlheinz Meier, Eilif Mueller, Johannes Schemmel
104	Visual Processing Platform based on Artificial Retinas. Page LNCS: 506	Sara Granados, Eduardo Ros, Rafael Rodríguez, Javier Díaz
198	Interconnecting VLSI Spiking Neural Networks Using Isochronous Connections. Page LNCS: 471	Stefan Philipp, Andreas Grübl, Karlheinz Meier, and Johannes Schemmel

### **13:00 – 14:00**

**Plenary Talk: Prof. Dr. Jeanny Hérault.**

***Modeling Visual Perception for Image Processing. Page LNCS: 662***

**Chair : Joan Cabestany**

### **14:00 – 16:00**

**Lunch**

### **16.00 – 17:20**

**Session 7a: Improving models and learning procedures – 3**

**Session 7b: Emulation of Cognitive Functions**

**Session 7c: Bio-inspired systems and Neuro-engineering**

### **ROOM A**

**SESSION 7a: Improving models and learning procedures – 3**

**Chair: Tomás Martínez**

**Co-chair: Alister Hamilton**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
202	Gaussian fitting based FDA for chemometrics. Page LNCS: 186	Tuomas Kärnä, Amaury Lendasse
214	Building Automated Negotiation Strategies enhanced. Page LNCS: 152	Ioanna Roussaki, Ioannis Papaioannou, Miltiades Anagnostou
218	Learning Autonomous Behaviours for Non-Holonomic Vehicles. Page LNCS: 839	Tomás Martínez-Marín
109	A Programmable Time Event Coded Circuit Block for Reconfigurable Neuromorphic Computing. Page LNCS: 430	Thomas J. Koickal, Luiz C. Gouveia, Alister Hamilton

### **ROOM B**

**SESSION 7b: Emulation of Cognitive Functions**

**Chair: Bogdan Raducanu**

**Co-chair: José Martínez Sotoca**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
18	Efficient Facial Expression Recognition for Human Robot Interaction. Page LNCS: 700	Fadi Dornaika, Bogdan Raducanu
48	A Connectionist Model of Human Reading. Page LNCS: 1106	J. Ignacio Serrano, Ángel Iglesias, M. Dolores Del Castillo
128	Improving the performance of the RBF neural networks trained with imbalanced samples. Page LNCS: 162	Roberto Alejo, Vicente García, José M. Sotoca, Ramón A. Mollineda, José S. Sánchez
154	Automatic Detection of Filters in Images with Gaussian Noise Using Independent Component Analysis. Page LNCS: 692	J Salua Nassabay, Ingo R. Keck, Carlos G. Puntonet, Rubén M. Clemente, Elmar W. Lang

## ROOM C

### SESSION 7c: Bio-inspired systems and Neuro-engineering

Chair: Karl Gosser

Co-chair: Jeanny Hérault

ID#	Title	Authors
125	Towards a Platform for FPGA Implementation of the MLP based Back Propagation Algorithm. Page LNCS: 497	Nouma Izeboudjen, Ahcene Farah, Hamid Bessalah, Ahmed Bouridene, Nassim Chikhi
165	IAF Neuron Implementation for Mixed-Signal PCNN Hardware. Page LNCS: 447	Tim Kaulmann, Sven Lütke-meier, Ulrich Rückert
192	Fuzzy ART Neural Networks on the GPU. Page LNCS: 463	Mario Martínez-Zarzuela, Francisco J. Díaz, José F. Díez, Míriam Antón
220	Neuronal Architecture for reactive and adaptive navigation of a mobile robot. Page LNCS: 830	Francisco García-Córdova, Antonio Guerrero-González, Fulgencio Marín-García

**17:20 – 17:50**

**Coffee break - Poster Session**

**17:50 – 19:10**

**Session 8a: Data Analysis and Preprocessing – 2**

**Session 8b: Time Series Forecasting**

**Session 8c: Signal Processing – 3**

## ROOM A

### SESSION 8a: Data Analysis and Preprocessing – 2

Chair: Amaury Lendasse

Co-chair: Francisco Pelayo

ID#	Title	Authors
169	Applying Fuzzy Data Mining for soaring area selection. Page LNCS: 597	Alberto Salguero, Francisco Araque, Ramón Carrasco, M. Amparo Vila, Luis Martínez
205	Discovering Stock Market Trading Rules using Multi-Layer Perceptrons. Page LNCS: 1114	Piotr Lipinski
190	A study on the Use of the Fuzzy Reasoning Method based on the Winning Rule Vs. Voting Procedure for Classification with Imbalanced Data Sets. Page LNCS: 375	Alberto Fernández, Salvador García, María J. Del Jesús, Francisco Herrera

## ROOM B

### SESSION 8b: Time Series Forecasting

Chair: Patrick Rousset

Co-chair: Gonzalo Joya

ID#	Title	Authors
35	A Novel 2-D Model Approach for the Prediction of Hourly Solar Radiation. Page LNCS: 749	Fatih O. Hocaoglu, Ömer N. Gerek, Mehmet Kurban
118	Classifying qualitative time series with SOM: the typology of career paths in France. Page LNCS: 757	Patrick Rousset, Jean-Francois Giret
189	Predicting Financial Distress: A Case Study Using Self-Organizing Maps. Page LNCS: 774	Antonio M. Mora García, Juan L. Jiménez Laredo, Pedro A. Castillo Valdivieso, Juan J. Merelo Guervós

## ROOM C

### SESSION 8c: Signal Processing – 3

Chair: Xabier Albizuri Irigoyen

Co-chair: Alicia d'Anjou d'Anjou

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
152	Low Complexity MLP-Based Detector: Influence of the Training Algorithm and the MLP Size. Page LNCS: 630	Raúl Vicen-Bueno, María P. Jarabo-Amores, David Mata-Moya, Manuel Rosa-Zurera, Roberto Gil-Pita
212	Extracting User Preferences by GTM for aIGA-based Weight Tuning in Unit Selection Text-to-Speech Synthesis. Page LNCS: 654	Lluís Formiga, Francesc Alías
213	Face Recognition with Facial Mask Application and Neural Networks. Page LNCS: 709	Marco Grassi, Marcos Faundez-Zanuy
199	Two pages Graph Layout via Recurrent Multivalued Neural Networks. Page LNCS: 194	Domingo López-Rodríguez, Enrique Mérida-Casermeiro, Juan M. Ortiz-de-Lazcano-Lobato, Gloria Galán-Marín

**20:30**  
**Gala Dinner**

**Friday, June 22**

**09:00 – 11:00**

**Session 9a: ANN and other Machine Learning Methods in Cancer Research - 2**

**Session 9b: Evolutionary and Genetic Algorithm**

**Session 9c: Learning and Adaptation**

**ROOM A**

**SESSION 9a: ANN and other Machine Learning Methods in Cancer Research - 2**

**Chair: Paulo Lisboa**

**Co-chair: Alfredo Vellido**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
170	Genomics and metabolomics research of Brain Tumours based on Machine Learning. Page LNCS: 1012	Juan M. García-Gómez, Salvador Tortajada, Javier Vicente, Carlos Sáez, Xavier Castells, Jan Luts, Margarida Julia-Sapé, Alfons Juan-Ciscar, Sabine Van Huffel, Anna Barceló, Joaquín Ariño, Carles Arús, Montserrat Robles
132	Neural Network Based Virtual Reality Spaces for Visual Data Mining of Cancer Data: An Unsupervised Perspective. Page LNCS: 1020	Enrique Romero, Julio J. Valdés, Alan Barton
215	Hybrid Unsupervised/Supervised Virtual Reality Spaces for Visualizing Cancer Databases: An Evolutionary Computation Approach. Page LNCS: 1028	Julio Valdes, Alan J. Barton
113	Supervised Neural Gas for Classification of Functional Data and its Application to the Analysis of Clinical Proteom Spectra. Page LNCS: 1036	Frank-Michael Schleif, Thomas Villmann, Barbara Hammer,
79	A comparison between ANN generation and training methods and their development by means of graph evolution: 2 sample problems. Page LNCS: 94	Daniel Rivero, Julián Dorado, Juan R. Rabuñal, Marcos Gestal

**ROOM B**

**SESSION 9b: Evolutionary and Genetic Algorithm**

**Chair: Julio Ortega**

**Co-chair: Juan V. Sánchez Pérez**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
10	Well-distributed Pareto Front by Using the eMOGA Evolutionary Algorithm. Page LNCS: 292	Juan M. Herrero, Miguel A. Martínez, Javier Sanchis, Xavier Blasco
96	The Parallel Single Front Genetic Algorithm (PSFGA) for Dynamic Multi-Objective Optimization. Page LNCS: 300	Mario Cámara, Julio Ortega, Francisco De Toro
107	Genetic Algorithm in the optimization of the acoustic attenuation systems. Page LNCS: 614	Vicent Romero-García, Elies Fuster-Garcia, Juan V. Sánchez-Pérez, Luis M. Garcia-Raffi, Xavier Blasco, Juan M. Herrero, Javier Sanchis
130	Multiple Instance Learning with Genetic Programming for Web Mining. Page LNCS: 919	Amelia Zafra, Sebastián Ventura, Enrique Herrera-Viedma, Cristóbal Romero
156	CoEvRBFN: first approach to solve the classification problem with a hybrid cooperative-coevolutionary algorithm. Page LNCS: 324	M. Dolores Pérez, Antonio Jesús, M. José Del Jesús, Ignacio Rojas
187	Parallel Multi-objective Memetic RBFNNs Design and Feature Selection for Function. Page LNCS: 341	Alberto Guillen, Ignacio Rojas, Jesús González, Héctor Pomares, Luis Javier Herrera, Alberto Prieto

## **ROOM C**

### **SESSION 9c: Learning and Adaptation**

**Chair: Alicia d'Anjou d'Anjou**

**Co-chair: Xabier Albizuri Irigoyen**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
19	Automatic model selection for Probabilistic PCA. Page LNCS: 127	Ezequiel López-Rubio, Juan M. Ortiz-De-Lazcano-Lobato, Domingo López-Rodríguez, María C. Vargas-González
22	Probabilistic aggregation of classifiers for incremental learning. Page LNCS: 135	Patricia Trejo, Ricardo Nanculef, Héctor Allende, Claudio Moraga
82	Perceptive Particle Swarm Optimization: A New Learning Method From Birds Seeking. Page LNCS: 1130	Xingjuan Cai, Zhihua Cui, Jianchao Zeng, Ying Tan
91	Hybrid Evolutionary Algorithm with Product-Unit Neural Networks for Classification. Page LNCS: 351	Francisco J. Martínez-Estudillo, César Hervás-Martínez, Alfonso C. Martínez-Estudillo, Pedro A. Gutiérrez-Peña
239	Surface Modelling with Radial Basis Functions Neural Networks using Virtual Environments. Page LNCS: 170	Miguel A. López, Héctor Pomares, Miguel Damas, Antonio Díaz-Estrella, Alberto Prieto, Francisco Pelayo, Eva M. de La Plaza Hernández

### **11:00 – 11:30**

**Coffee Break – Poster Session**

### **11:30 – 12:30**

**Plenary Talk: Prof. Dr. Vassilis G. Karburlasos**

***Unified Analysis and design of ART/SOM Neural Networks and Fuzzy Inference Systems Based on Lattice Theory. Page LNCS: 80***

**Chair: Manuel Graña**

### **12:30 – 14:00**

**Session 10a: Complex Data Analysis - 2**

**Session 10b: Mathematical for Neural Networks**

**Session 10c: Power systems**

## **ROOM A**

**SESSION 10a: Complex Data Analysis - 2**

**Chair: Michael Verleysen**

**Co-chair: Marie Cottrell**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
45	Clustering signals using wavelets. Page LNCS: 514	Michel Misiti, Yves Misiti, Georges Oppenheim, Jean-Michel Poggi
75	Information-theoretic feature selection for the classification of hysteresis curves. Page LNCS: 522	Vanesa Gómez-Verdejo, Michel Verleysen, Jérôme Fleury
95	Consumer Profile Identification and Allocation. Page LNCS: 530	Patrick Letrémy, Marie Cottrell, Eric Esposito, Valérie Laffite, Sally Showk
124	Neural gas clustering for dissimilarity data with continuous prototypes. Page LNCS: 539	Alexander Hasenfuss, Barbara Hammer, Frank-Michael Schleif, Thomas Villmann

**ROOM B**  
**SESSION 10b: Mathematical for Neural Networks**  
**Chair: Pedro Zufiria**  
**Co-chair: Daniela Danciu**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
80	A Study on the Use of Statistical Tests for Experimentation with Neural Networks. Page LNCS: 72	Julián Luengo, Salvador García, Francisco Herrera
172	Non-parametric Residual Variance Estimation in Supervised Learning. Page LNCS: 63	Elia Liitiäinen, Amaury Lendasse, Francesco Corona
194	Dynamics of Neural Networks - Some Qualitative Properties. Page LNCS: 8	Daniela Danciu, Vladimir Rasvan
207	Analysis of hebbian models with lateral weight connections. Page LNCS: 39	Pedro Zufiria, Andrés Berzal

**ROOM C**  
**SESSION 10c: Power systems**  
**Chair: Kazimierz Wilkosz**  
**Co-chair: Kadri Buruncuk**

<b>ID#</b>	<b>Title</b>	<b>Authors</b>
16	Intelligent Detection of Voltage Instability in Power Distribution Systems. Page LNCS: 870	Adnan Khashman, Kadri Buruncuk, Samir Jabr
29	Power quality event identification using higher-order statistics and neural classifiers. Page LNCS: 47	Juan-José González-de-La-Rosa, Carlos G. Puntonet, Antonio Moreno Muñoz
70	Self Organizing Map (SOM) Approach for Classification of Mechanical Faults in Induction Motors. Page LNCS: 855	Emin Germen, D. Gökhan Ece, Ö. Nezh Gerek
244	Method for Power System Topology Verification with use of Radial Basis Function Networks. Page LNCS: 862	Robert Lukomski, Kazimierz Wilkosz

## Social activities

### Tuesday, June 19

- 20:30 Welcome reception  
Coro Easo (Children choir)  
Informal dinner – non seated catering

### Wednesday, June 20

- 12:30 Formal opening ceremony
- 14:00 Lunch at the Hotel Costa Vasca
- 20:30 Bus travel to the Sidrería Saizar, buses will be parked at the Hotel Costa Vasca parking lot
- 21:00 Dinner at the Sidrería Saizar  
Stone lifting demonstration  
Folk music (trikitrixa)
- 24:00 Return by bus to the Hotel Costa Vasca parking lot

### Thursday, June 21

- 14:00 Lunch at the Hotel Costa Vasca
- 20:30 Bus travel to the Hotel Monte Igeldo, buses will be parked at the Hotel Costa Vasca parking lot
- 21:00 Gala dinner  
Conference awards
- 24:00 Return by bus to the Hotel Costa Vasca parking lot



## What to see and visit in San Sebastian

**Walks:** San Sebastian is an ideal city to walk around because of its compact city centre. A stroll through the Old Part is very pleasant. There's a great atmosphere and numerous small shops, old buildings, restaurants and bars. The 'Paseo Nuevo' between the sea and Urgull mountain has wonderful views - when the sea is rough people go there to watch the waves crash against the sea wall spectacularly. You get marvellous panoramic views from the top of Urgull mountain which is a small walled mountain with a small fortified castle (12th century), the English cemetery and a statue of Christ at the top - you can reach it easily on foot from the Old Part. The 'Concha' promenade which goes all around the Concha bay and also to Ondarreta beach all the way to the 'Peine del Viento' - a famous sculpture by Chillida - in a fabulous setting. The promenade in Gros takes you past the Moneo Cubes ('el Kursaal') and along the Zurriola beach where you can see surfers almost everyday of the year.

**Cathedrals and Churches:** The 'Buen Pastor' Cathedral was built in the 19th century and is Neogothic. The 'Santa Maria Basilica' is in the Old Part, built above some Roman ruins, it has a Baroque facade with a sculpture of San Sebastian, the Christian martyr.

**Casinos:** There is only one - 'el casino Gran Kursaal' in the 'calle Mayor' in the Old Part.

**Museums:** The San Telmo museum in the Old Part is in a former artillery barracks which was later converted into a convent. It has a renaissance style cloister and it also houses a church with wall paintings by the Catalan artist Jose María Sert. It was converted into a museum in the 20th century, it is dedicated to the history of Basque culture and art. The Naval Museum is located in a 18th century building in the port, and it is dedicated to the history of the Basques at sea. The Religious Art museum is in the Amara neighbourhood (20 minutes walk from the centre). The Science Museum 'Kutxaespacio' is a place where you can learn about science using a range of interactive methods - for both adults and children - it is 10 minutes bus ride away from the city centre. It also has a planetarium.

**Parks:** The Aiete park, designed by the Frenchman Pierre Ducasse, although not in the centre of the city it is the most spectacular. It surrounds a palace built in 1878, where Queen Maria Cristina, King Alfonso XIII and the dictator Franco all stayed at

one point or other in history. The 'Cristina Enea' park is the largest - located in an area called Egia just 5 minutes from the city centre. There are also a number of much smaller parks such as Miramar park with its panoramic views of the Concha and Ondarreta beaches and Gipuzkoa square park right in the middle of the city.

**El Aquarium:** Set up in 1928, it is now one of the most modern aquariums in Europe. Recently reformed it has a transparent tunnel which gives you a 360° view where you can see sharks and many other types of fish - truly amazing. It holds almost 5000 different species of marine life in all. Located in the port in a building built on the rocks.

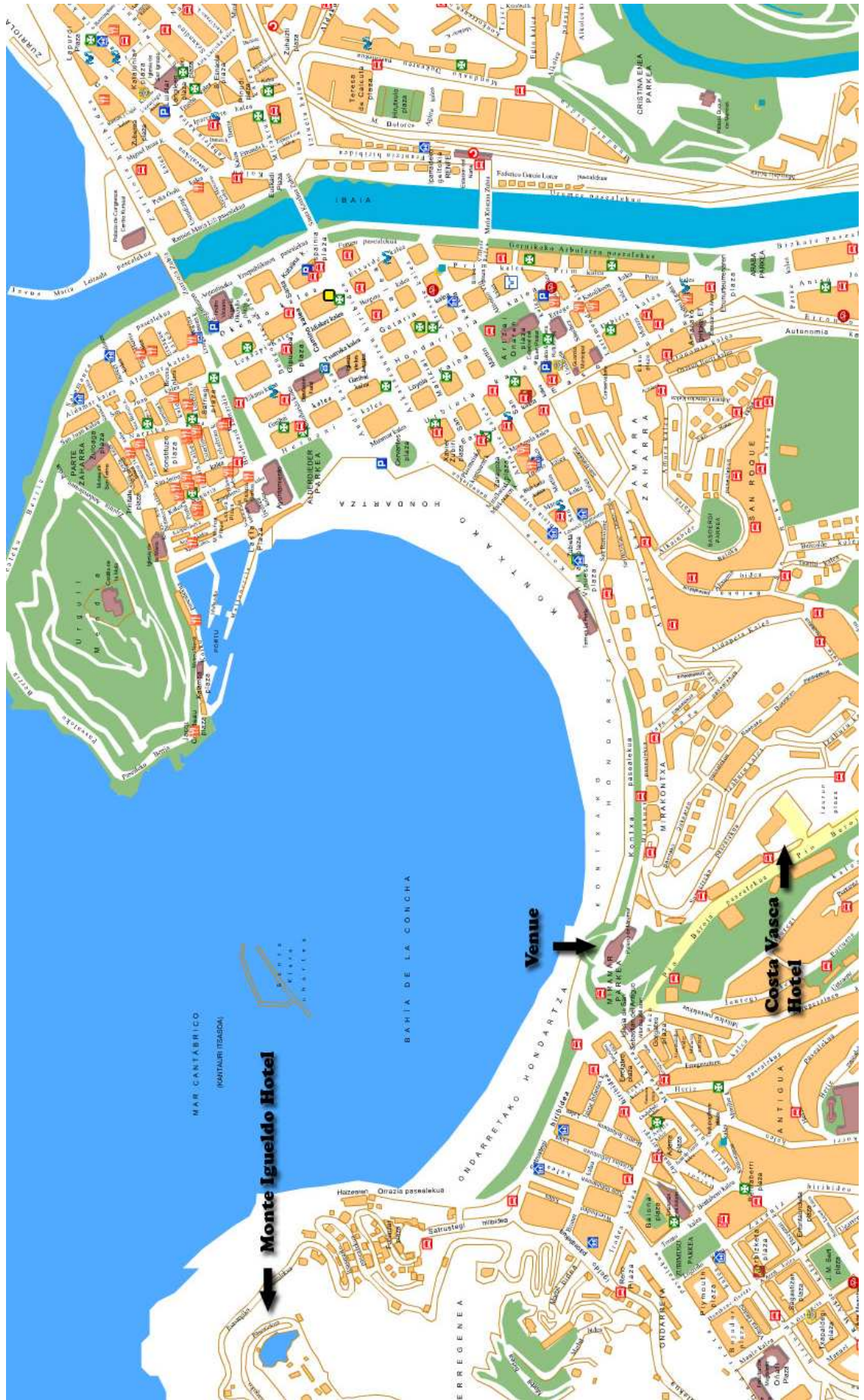
**La Perla Thermal Baths and Sports Centre:** A spa situated on the Concha promenade in an emblematic building overlooking the bay. Its an ideal place to spend a rainy day.

'Chillida-leku' (sculpture park) in a beautiful natural setting, there is also an old Basque farmhouse which you can see. Located on the outskirts of the city 10 minutes bus ride from the centre.

**Fiestas and festivals:** The Tamborrada starts the night of the 19th January in the Constitution Square in the Old Part and continues until the following night. It is San Sebastian's own special fiesta the Donostiarras (people from San Sebastian) dress as cooks or soldiers and parade around the city playing drums. The biggest fiesta is at 'Semana Grande' (big week) which last a week in the middle of August - the best part of the fiesta are the spectacular firework displays over the beach every night. There are also open air free concerts and street theatre during the day. The International Jazz Festival takes place at the end of July (some concerts are free). Finally the International Film Festival takes place in September and lasts 10 days.

**Shopping:** The main commercial streets are 'La Avenida', 'la calle Fuenterrabia' and 'el Boulevard'. San Sebastian is a very fashionable city something which is reflected in the numerous small boutiques and designer shops. The Bretxa market, next to the Old Part, is the best place to buy local produce and you can find great fresh fruit and vegetables, great cheeses, honey and much more.

**Cuisine:** San Sebastian is well known for its excellent gastronomy. Traditional Basque cuisine is based on fish and meat dishes. Chefs such as Martin Berasategi and Arzak are famous throughout the world.



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