

Programme

"The program of the conference can be downloaded from [here](#)".

| Program IE'12 | | | | | | | |
|---------------|---|--------|---------------------------------------|--|-----------------------|-----------------------|-----------------------------|
| | Tuesday 26 th of June Workshops | | | Wednesday 27 th of June Conference | | | |
| 8:00 | Registration | | | Registration | | | |
| 8:30 | AITAmI | WOFIEE | WOLSIE | Registration | | | |
| 9:00 | | | | Conference Opening Salón San Javier | | | |
| 9:30 | | | | Keynote: Keith Prettyjohns Salón San Javier | | | |
| 10:30 | Coffee Break | | | Coffee Break | | | |
| 11:00 | iDR | WOFIEE | | Conference Session 1A | Conference Session 1B | Conference Session 1C | Doctoral Colloquium Session |
| 13:00 | Lunch | | | Lunch | | | |
| 14:00 | WoRIE | IMIASH | | Conference Session 2A | Conference Session 2B | Conference Session 2C | Doctoral Colloquium Session |
| 16:00 | Coffee Break | | | Coffee Break | | | |
| 16:30 | WISWell | IMIASH | Industrial Automation Workshop/ Forum | Keynote: Derek Clements-Croome Salón San Javier | | | |
| 17:30 | | | | | | | |
| 18:30 | Industrial Forum Keynote: Keith Prettyjohns* INDUSTRIAL FORUM AND RECEPTION Salón Terraza | | | | | | |
| 19:00 | | | | CONFERENCE COCKTAIL AND BANQUET Casa Colorada | | | |
| 20:00 | | | | | | | |

*Salón Guanajuato

WORKSHOPS

AITAmI: Salón San Javier

- Structured Light and Shape Descriptors for Automatic 3D Object Classification

by Daniel GARCIA, Manuel ORNELAS, Raul SANTIAGO, Hector PUGA and Martin CARPIO

- *Real Time Activity Recognition Using a Cell Phone's Accelerometer and Wi-Fi*

by Enrique A. GARCIA and Ramón BRENA

- *ALDRO Learning and Mixed Decision Support Method for Mobile Robot*

by Fernando ORDUÑA, Alma VALLE, Alán DENNIS, Javier ROJAS, Flavio MUÑOZ, Alberto RAMIREZ, Iván LUNA, Guadalupe VASQUEZ and Karina HINOJOSA

- *Generation of instances for the revision of Beliefs*

by Rodolfo AGUIRRE, Pedro BELLO, Ana Patricia CERVANTES and Meliza CONTRERAS

- *Optimization of a fuzzy contrast method for a pattern recognition system*

by Miguel Angel LOPEZ, Arnulfo ALANIS, Bogart YAIL, Karina ROMERO, Maria del Rosario BALTAZAR, Victor Manuel ZAMUDIO

- *A Comparative Study of Intelligent Bio-inspired Algorithms Applied to Minimizing Cyclic Instability in Intelligent Environments*

by Leoncio ROMERO, Victor ZAMUDIO, Rosario BALTAZAR, Marco SOTELO, Carlos LINO, Efen MEZURA and Vic CALLAGHAN

- **Keynote talk:** *Contextual Reasoning in Context-Aware Systems*

by Hedda Rahel Schmidtke

WOFIEE: Salón Ejecutivo

- **Keynote talk:** *The University as an incubator for technology, innovation and entrepreneurship*

by Professor James Carlson

- *The InterReality Portal: A Mixed Reality Co-creative Intelligent Learning Environment*

by Anasol PEÑA-RIOS, Vic CALLAGHAN, Michael GARDNER and Mohammed J. ALHADDAD

- *Intelligent Assistive Interfaces for Editing Mathematics*

by Dilaksha ATTANAYAKE, James DENHOLM-PRICE, Gordon HUNTER, Eckhard PFLUEGEL, Angela WIGMORE

- *Adapting e-learning contents based on navigations styles and preferences*

by Rosa BASAGOITI, Asier AZTIRIA, Igor ORDOÑEZ, Ion Padilla

- *Physical Activity and Team Work with Pervasive Games*

by Fernando Martinez Reyes

- *An Entrepreneurship Model for Future Intelligent Educational Environments*

by Victor CALLAGHAN, Ping ZHENG, Hsuan-Yi WU

WOLSIE: Salón Guanajuato

- *Keynote talk: Beyond Four Walls: Towards Large-Scale Intelligent Environments*

by James DOOLEY

- *Smart Home in a Box: A Large Scale Smart Home Deployment*

by Aaron Crandall

- *Collaborative Agents Framework for the Internet of Things*

by Priscila Angulo-Lopez

- *Towards FollowMe User Profiles for Macro Intelligent Environments*

by Luke Whittington

- *Intelligent Signaling for Prevention of Intersection Collisions in Urban Zones*

by Juan Manuel Ramirez Alcazar

IDR: Salón San Javier

- *Real-Time Human Pose Recognition for Autonomous Robots Using a Single Structured Light 3D-Scanner (skype)*

by Tim Van ELTEREN, Tijin Van Der ZANT

- *Recognition of Static Gestures using Three-Dimensional Chain Codes using Dominant Direction Vectors*

by Jose FIGUEROA, Jesus SAVAGE, Ernesto BRIBIESCA and Enrique SUCAR

- *Development of Means for Support of Comfortable Conditions for Human-Robot Interaction in Domestic Environments*

by Andrey RONZHIN, Maria PRISCHEPA and Viktor BUDKOV

- *Human-Robot Interface using Face Detection and Recognition, for the Service Robot, "Donaxi"*

by Hector VARGAS, Esperanza MEDINA, Daniel MARTINEZ, Edson OLMEDO, Gerson BERISTAIN

WoRIE: Salón San Javier

- **Keynote talk:** *Towards Reliability of Intelligent Environments through Testing Services and Applications*

by Juan A. BOTÍA

- *MidBlocks: A Supervising Middleware for Reliable Intelligent Environments*

by Rafael BAQUERO, José RODRIGUEZ, Sonia MENDOZA and Dominique DECOUCHANT

- *Consistency in Context-Aware Behavior: A Model Checking Approach*

by Davy PREUVENEERS and Yolande BERBERS

- *Using Simulation and Verification to Inform the Development of Intelligent Environments*

by Juan Carlos AUGUSTO and Miguel J. HORNOS

- *A Proposal for Evaluating the Privacy Management through "Fair Trade" Metaphor*

by Abraham ESQUIVEL, Pablo A. HAYA and Xavier ALAMÁN

- *FollowMe: A Bigraphical Approach*

by Martin HENSON, James DOOLEY, Luke WHITTINGTON and Abdullah AL MALAISE AL GHAMDI

IMIASH: Salón Ejecutivo

- **Welcome speech:** Oscar SANDOVAL

- *Virtual Reality Sports Training*
by Paolo TRIPICCHIO

- *Capturing the rower performance on the SPRINT platform*
by Alessandro FILIPPESCH, Paolo TRIPICCHIO, Massimo SATLER and Emanuele RUFFALDI

- *Knee Rehabilitation with fuzzy Velocity and force control and compensation of weight*
by Juan Alberto PRADO-PRICHARDO, Armando SEGOVIA-DE LOS RÍOS, Otniel PORTILLO-RODRIGUEZ

Coffee Break

- *Ocular and Craniofacial Trauma Treatment Training System: Overview & Eyelid*

by Mark P. OTTENSMEYER, Bummo AHN, John CHO MOORE, Evgheni MUNTEANU, Stefano IORINO, Gianluca DE NOVI, Ryan BARDSLEY, Rajesh SHAH, Paul NEUMANN, Dan LANGSTON

- *Event-driven Surgical Gesture Segmentation and Task Recognition for Ocular Trauma Simulation*

by Gianluca DE NOVI, Ryan BARDSLEY, Rajesh SHAH, Mark P. OTTENSMEYER, John Cho MOORE, Bummo AHN

- *Development of a natural interaction interface for people with disabilities in a home automation control room*

by Ruben POSADA-GOMEZ, Cristhian Omar RODRIGUEZ-BERNARDO, Phares Salathiel LUNA-BRAVO, Giner ALOR-HERNANDEZ, Albino MARTINEZ-SIBAJA, Alejandro RODRIGUEZ-GONZÁLEZ

- *Visuo-Vibrotactile Stimuli Applied for Skills Transfer and Rehabilitation*

by Ignacio HERRERA-AGUILAR, Osvaldo SANDOVAL-GONZALEZ, Blanca GONZALEZ-SANCHEZ, Juan JACINTO-VILLEGAS, Alejandro Rodríguez-González, Giner ALOR-HERNANDEZ and Otniel PORTILLO-RODRIGUEZ

WISHWell: Salón San Javier

- **Keynote talk:** *Activity, Behavior and Context: The ABC of Pervasive Healthcare Research*

by Jesus FAVELA

- *Evaluating the User Experience of a Cognitive Stimulation Tool through Elders' Interactions*

by Alberto L. MORÁN and Victoria MEZA-KUBO

- *Wireless heart rate and temperature monitor with alarm and location system*

by Manuela Paulina Trejo Ramírez and Sergio Oscar Reyes Guerrero

- *Assesment of Respiratory Diseases through Acoustic GMM Modeling*

by Pedro MAYORGA, Cristopher DRUZGALSKI, Oscar Hugo GONZÁLEZ, Hernán Silverio LOPEZ, and Marco Antonio CRIOLLO

- *Diagnostic Aid System based on triaxial high sensitivity MEMS for detection and characterization of specific neurodegenerative diseases*

by Rogelio BUSTAMANTE-BELLO, Arleni E. RAMIREZ-RODRIGUEZ, Luis YÉPEZ PÉREZ

- *PAC-Means: clustering algorithm based on c-Means technique and associative memories*

by Luis C. PADIERNA, Martha B. GONZÁLEZ and Leoncio A. ROMERO

- *Ambient Intelligence Used For Fall Detection*

by Vanessa SALDIVAR, Víctor M. ZAMUDIO, Rosario BALTAZAR, Arnulfo ALANIS, Miguel LOPEZ

- *System Multi-Agents for the study of basic emotions and their effect on personality*

by Cinthya SOLANO ARAGÓN, Arnulfo ALANIS GARZA, Miguel Ángel LÓPEZ, María del Rosario BALTAZAR, Víctor Manuel ZAMUDIO

IAIE: Salón Guanajuato

- Welcome speech: Juan Carlos OROZCO

- **Keynote:** Current State of The Art of Intelligent Environments

by Professor Vic Callaghan

- Augmented Reality example videos.

- Explanation of the methodology of the workshop study case.
- Study case analysis and discussion by the workshop participants.
- Workshop Conclusions.
- Industrial Forum and Reception.
- Keynote: Managing real-time control over Ethernet in busy industrial Intelligent Environments (IE).

by Dr. Keith Prettyjohns

CONFERENCE

Full Papers

Session 1A: Aml Salón. San Javier

- *Bayesian Networks Structure Learning for Activity Prediction in Smart Homes*

by Ehsan Nazerfard and Diane J. Cook

- *Simple and Complex Activity Recognition through Smart Phones*

by Stefan Dernbach, Barnan Das, Narayanan C. Krishnan, Brian L. Thomas, and Diane J. Cook

- *Multispectrum Video for Proactive Response in Intelligent Environments*

by José Carlos Castillo, Juan Serrano-Cuerda, Marina V. Sokolova, Antonio Fernández-Caballero, Angelo Costa, and Paulo Novais

- *User Profiling Based on Similarity, Trust and Reputation*

by Alberto Caballero, Andrés Muñoz, and Juan A. Botía

Session 1B: Systems Design. Salón Ejecutivo

- *Prototyping Ubiquitous Biosensing Applications through Speculative Design*

by Marc Böhlen, Ilya Maharika, Paul Lloyd Sargent, Silvia Zaianty, Nicole Lee, Angelica Piedrahita Delgado, Nevena Niagolova, and Fabian Vogelsteller

- *Creating Scenes for an Intelligent Nursing Environment: Co-design and User Evaluations of a Home Control System*

by Tiina Kymäläinen, Juhani Heinilä, Timo Tuomisto, Johan Plomp, and Timo Urhema

- *Towards Simple and Effective Formal Methods for Intelligent Environments*

by Martin Henson, James Dooley, Abdullah Al Malaise Al Ghamdi, and Luke Whittington

- *CommonSENSE: A Participatory Design Toolkit for Shaping Physical Space through Real-Time Data*

by Theodora Vardouli, Eirini Vouliouri, Christos Chondros, and Elena Antonopoulou

Session 1C: Virtual/Mixed Reality. Salón Guanajuato

- *Image- Based In Situ Modeling for Augmented Reality Offices and Rooms: A Motion-Based General Purpose Augmented Reality (AR) System for Planar Piecewise Worlds*

by Javier Flavio Viguera Gómez

- *Architecture to Enable Dual Reality for Smart Environments*

by Gerrit Kahl and Christian Bürckert

- *Virtual Testing for Smart Buildings*

by Julien Bruneau, Charles Consel, Marcia O'Malley, Walid Taha, and Wail Masry Hannourah

- *Towards the Next Generation of Learning Environments: An InterReality Learning Portal and Model*

by Anasol Peña-Ríos, Vic Callaghan, Michael Gardner, and Mohammed J. Alhaddad

Session 2A: Robotics. Salón San Javier

- *Development of a Robotic Helicopter for Monitoring Pollution and Habitat in Estuaries*

by Mahmoud Tarokh and Minjuan Wang

- *Control of a Virtual Prototype for Ankle Rehabilitation*

by A. Blanco Ortega, E. Quintero Mármol, G. Vela Valdés, G. López López, and H.R. Azcaray Rivera

- *Neural-Fuzzy Approach to Optimize Process Parameters for Injection Molding Machine*

by Pablo Ayala Hernandez

- *Development of a Biped Robot Based on Dynamic Walking: Design, Simulation and Construction*

by C.H. Guzmán Valdivia, A. Blanco Ortega, E. Quintero Mármol Márquez, and M.A. Oliver Salazar

Session 2B: Applications. Salón Ejecutivo

- *Persuasive Healthcare Self-Management in Intelligent Environments*

by Hamid Mukhtar, Arshad Ali, Djamel Belaïd, and Sungyoung Lee

- *Intelligent Business Process Engineering: An Agent Based Model for Understanding and Managing Business Change*

by Victor Zamudio, Ping Zheng, and Vic Callaghan

- *Implementation of a Mobile Device to Determine Danger in a Great City Based on Ubiquity*

by Alberto Ochoa, Julio Ponce, Jöns Sánchez, Arturo Hernández, and Alice Makalawele

- *Toward Supporting Constructivist Instruction through CSCL Activities Embedded in LMSs*

by Erik Ramos, Moisés Ramírez, Jorge Hernández, Lluvia Morales, Mónica García, and Jorge Rodríguez

Session 2C: Ubicomp/Percomm. Salón Guanajuato

- *Behavior-Based Home Energy Prediction*

by Chao Chen and Diane J. Cook

- *Ambient Videogames for Health Monitoring in Older Adults*

by Iván Zavala-Ibarra and Jesús Favela

- *Intelligent Widgets for Intuitive Interaction and Coordination in Smart Home Environments*

by Davy Preuveneers and Yolande Berbers

- *Ma\$\$iv€—An Intelligent Mobile Grocery Assistant*

by Sourav Bhattacharya, Patrik Floréen, Andreas Forsblom, Samuli Hemminki, Petri Myllymäki, Petteri Nurmi, Teemu Pulkkinen, and Antti Salovaara

Session 3A: Aml. Salón San Javier

- *Explorations of Autonomy: An Investigation of Adjustable Autonomy in Intelligent Environments*

by Matthew Ball and Vic Callaghan

- *Dynamic Partial Reconfiguration in Embedded Systems for Intelligent Environments*

by Javier Echanobe, Inés del Campo, Raul Fínker, and Koldo Basterretxea

- *Context-Sensitive Ecosystem of Intelligent Environments*

by Rodolfo Ostos, J. Francisco Cervantes, Félix F. Ramos, Bernardino Castillo, and Michel Ocello

- *Monitoring Microscopic Pedestrian Mobility Using Bluetooth*

by Patrick Utsch and Thomas Liebig

Session 3B: Middleware. Salón Ejecutivo

- *An Approach for Secure Role Assignment*

by Wolfgang Apolinarski, Marcus Handte, and Pedro José Marrón

- *Seamless Integration of Heterogeneous Devices and Access Control in Smart Homes*

by Ji Eun Kim, George Boulos, John Yackovich, Tassilo Barth, Christian Beckel, and Daniel Mosse

- *A Novel Distributed Energy-Efficient Self-Organized Algorithm for Wireless Ad Hoc Networks*

by J. Guadalupe Olascuaga-Cabrera, Andres Mendez-Vazquez, and Ernesto López-Mellado

Session 3C: HCI. Salón Guanajuato

- *“What Do You Want to Do Next?” Providing the User with More Freedom in Adaptive Spoken Dialogue Systems*

by Gregor Bertrand, Florian Nothdurft, and Wolfgang Minker

- *The Nonverbal Toolkit: Towards a Framework for Automatic Integration of Nonverbal*

by Communication into Virtual Environments

Frank Honold, Felix Schüssel, Kalina Panayotova, and Michael Weber

- *Smart Interaction Management: An Interaction Approach for Smart Meeting Rooms*

by Axel Radloff, Anke Lehmann, Oliver Staadt, and Heidrun Schumann

Session 3D: Context Awareness. Salón Camino Real Club

- *Highly Adaptive and Context-Aware Intelligent System of Urban Events for Mobile Devices*

by Sergio Misó, Miguel J. Hornos, and María L. Rodríguez

- *Smart Environmental Architecture for Node Localization in a Wireless Sensor Network*

by Salvador Jauregui-Ortiz, Mario Siller, Felix Ramos, and Edson Scalabrin

- *SOCOM: Multi-sensor Oriented Context Model Based on Ontologies*

by Rong Tan, Junzhong Gu, Zhou Zhong, and Peng Chen

- *Intelligent Mobile Cloud Education: Smart Anytime-Anywhere Learning for the Next Generation Campus Environment*

by Minjuan Wang and Jason W.P. Ng

Doctoral Colloquium Session. Salón Camino Real Club

- *First Analysis of Custom WSN Architecture as Hardware for Pervasive Computing*

V.D. Velasco-Martínez, M.J. Flores-Medina, and F.G. Flores-García

- *Intelligent Sensing Systems for Measuring Wellness Indices of the Daily Activities for the Elderly*

N.K. Suryadevara, M.T. Quazi, and S.C. Mukhopadhyay

- *Persona-Based Adaptation in a Smart Green Home*

Etto Salomons, Wouter Teeuw, Henk van Leeuwen, and Paul Havinga

- *Development and Integration of Automated Systems Aimed to the Comfort of Seniors and People with Disabilities*

Rafael Rojas-Rodríguez, Rita Aceves-Pérez, Obed Cortés-Aburto, Carlos García-Meneses, and Luis Vela-Valdés

- *Toward a Two-Handed Gesture-Based Visual 3D Interactive Object-Oriented Environment for Software Development*

Raul A. Herrera Acuna, Christos Fidas, Vasileios Argyriou, and Sergio A. Velastin

- *Learning Objects for Intelligent Environments*

Poster Session. Salón Terraza

- Intelligent Event Management with Bluetooth Sensor Networks

M. Versichele, R. Huybrechts, T. Neutens, and N. Van de Weghe

- Changing the Culture of Do Not Touch: Interactive Textiles as Vehicles for Historical Education

Justin Taylor

- Enchantment Under the Sea: An Intelligent Environment for User Friendly Music Mixing

Norma Elva Chávez, Rodrigo Savage, Dulce Tania Nava, and Saiph Savage

- Enhancing User Experience with Brain-Computer-Interfaces in Smart Home Environments

Pierluigi Casale, Juan Manuel Fernández, Xavier Rafael Palou, Sergi Torrellas, Mojdeh Ratsgoo, and Felip Miralles

- A Hybrid Method for Hand Gesture Recognition

Yu Huang, Dorothy Monekosso, Hui Wang, and Juan Carlos Augusto

- Intelligent In-Car-Infotainment Systems: A Contextual Personalized Approach

Sandro Rodriguez Garzon

- Multi-agent System Feedback and Support for Ambient Assisted Living

James McNaull, Juan Carlos Augusto, Maurice Mulvenna, and Paul McCullagh

- Speech Interaction with the Internet—A User Study

Hansjörg Hofmann, Ute Ehrlich, André Berton, and Wolfgang Minker

- SWIMS (Speech-Based Web Interface for Mathematics Using Statistical Language Models): An Intelligent Editing Assistant for Mathematical Text

Dilaksha Attanayake, Eckhard Pfluegel, Gordon Hunter, and James Denholm-Price

- The Virtual Maze: A Game to Promote Social Interaction between Children

Fernando Martínez-Reyes and Israel Hernández-Santana

- Triaxial High Sensitivity MEMS Based System for the Detection and Characterization of Neurodegenerative Diseases

Rogelio Bustamante-Bello, Luis Yépez-Pérez, Luis Aranzeta-Ojeda, and Edgar Lopez-Caudana

Demo & Video Session. Salón Terraza

- Intelligent In-Car-Infotainment System: A Prototypical Implementation

Sandro Rodriguez Garzon

- HOLDS: Efficient Fall Detection through Accelerometers and Computer Vision

Antonio Fernández-Caballero, Marina V. Sokolova, Juan Serrano-Cuerda, José Carlos Castillo, Verónica Moreno, Rodrigo Castiñeira, and Luis Redondo

- A System to Learn Frequent Behavioural Patterns

Asier Aztiria, Rosa Basagoiti, Juan Carlos Augusto, and Gonzalo Espejo

- Peer Energy Cloud—Civil Marketplace for Trading Renewable Energies

Boris Brandherm, Jörg Baus, and Jochen Frey

- Personalized In-Vehicle Information Systems: Building an Application Infrastructure for Smart Cars in Smart Spaces

Mohammad Mehdi Moniri, Michael Feld, and Christian Müller