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AYUDAS JUAN DE LA CIERVA-FORMACIÓN
HISTORIAL CIENTÍFICO-TÉCNICO DE LOS ÚLTIMOS CINCO AÑOS DEL EQUIPO DE INVESTIGACIÓN

(SCIENTIFIC/TECHNICAL RECORD DURING THE LAST FIVE YEARS OF THE RESEARCH TEAM*)***

Según el artículo 45 de la Resolución de convocatoria el equipo de investigación es el compuesto por el personal investigador que desarrolla la línea de investigación en la que se integrará el investigador candidato.
(According to what is established in article 45 of Call Resolution, the research team is defined as the one formed by the researchers developing the research line in which the candidate is to participate)

Especificar los trabajos de investigación desarrollados, publicaciones, proyectos, patentes, la capacidad formativa pre y posdoctoral y cualquier otro aspecto de interés.
(Please specify the research work that the team has developed, publications, funded projects, patents, capacity for providing guidance and training and any other aspect that may be of interest).

CUMPLIMENTAR PREFERIBLEMENTE EN INGLÉS – FILL IN BETTER IN ENGLISH

BRIEF INTRODUCTION TO THE REARCH GROUP Sinbad[2]

The Research group "*Intelligent Systems Based on Fuzzy Decision Analysis*" (Sinbad[2]) (https://sinbad2.ujaen.es/es) was founded in the University of Jaén in 2007 with the code PAI TIC-206, obtaining the qualification of the Quality Group in the PAIDI call of the Junta de Andalucía in 2008 and 2009 respectively. It was composed of a set of researchers who worked in Intelligent Systems, Soft Computing, Decision Making, Artificial Intelligence etc… and had begun to collaborate few years earlier. Throughout these 12 years the group has grown and expanded its areas of work in different fields of Fuzzy Decision Making, Computational Intelligence, E-health Care, Data Mining, etc. ... and applied fields such as smart home, bioinformatics, decision making, information retrieval, recommender systems, etc...

Luis Martínez López, the representative investigator in the research group for being the supervisor of the current application, is the director of the research group.

The group consists of more than 40 researchers (members and collaborators) among doctors and PhD students, with researchers from different universities/institutes in several countries, such as, Fuzhou University, Southwest Jiaotong University and Henan University in China; University of Ciego de Ávila and University of Informatics Science in Cuba; University of Ulster in UK; University of Hong Kong in Hong Kong; University of Technology Sydney in Sydney; Istanbul Technical University and Istanbul Medipol University in Turkey; NEOMA Business School in France, etc…

Throughout these years, many researchers have gone through the research group and currently they are working both in academic environment and in industry. Many of them have a continuing collaboration with the group as co-researchers.

The group is organized into seven directions involved by senior researchers according to the nine areas that identify the research group. Group members are associated with one or more directions according to their research lines. The directions are the following ones:
- Decision Support Systems (DSS)
- Consensus Reaching Process (CRP)
- Linguistic Decision Analysis (LDA)
- Computing with Words (CWWs)

- Modelling Preferences (MP)
- Recommendation Systems (RS)
- Decision Making (DM*)*
- Computational Intelligence (CI)
- Ambient Intelligence (AmI)

Luis Martínez involves all the research lines, and takes the responsibility of the research group.

Along the following sections, we present the scientific activities of the research group, with a special reference to the merits of the representative investigator in the research team. It is presented according to the following structure:

INDEX

To summarize the activities of Luis Martínez between 2014 and 2019, described along the research group activities, the following paragraphs describe it:

He is the principal researcher of **10 projects** and has been the supervisor of **10 PhD theses**. He is the coauthor of **86 papers** in SCI indexed international journals.

Bibliometric indicators:
   * His works have received in the Thomson Reuter Web of Science database **more than 10000 citations** (see the ISI ResearchID Profile http://www.researcherid.com/rid/A-1746-2009) and he has an **h-index of 40**,

which establishes him as a **highly cited author** in computer science.
* In the Scholar Google database he has an **h-Index of 51** and **more than 16000 citations** (see the Scholar Google Research Profile https://scholar.google.es/citations?user=PG3D8UMAAAAJ&hl=es).
* He belongs to the list of the HiCi in the areas of Engineering and Computer Sciences: http://highlycited.com/
* He is the author of **18 papers Highly Cited Papers**. Papers in the top 1% most highly cited papers in his field worldwide, according to the ISI computing period (2009-2019) (source: ISI Essential Science Indicators database).

He received the following appointments as Honorary/Guest Professor at international universities:
* Guest Professor in the Southwest Jiaotong University, July 2013-June 2018, Chengdu, China.
* Honorary Professor in Xihua University, July 2013-June 2018, Chengdu, China
* Distinguished Professor in Wuhan University of Technology, March 2016-To present, Wuhan, China.

He keeps an active international collaboration with renowned researchers such as: Dr. Dong, Dr. Chen, Dr Wang, Dr. Xu and Dr. Qin (China), Dr. Yera and Dr. Zulueta (Cuba), Dr. Liu and Dr. Nugent (United Kingdom), Dr. Chin and Dr. Tsui (Hong Kong), Dr. Lu (Australia), Dr. Yüksel, Dr. Dincer and Dr. Kahraman (Turkey), among others.

He received the following honors and awards: Highly Cited Researcher 2019, 2018 and 2017, Top reviewer in Cross-Field in 2019, Best Journal Paper Award in EUSFLAT 2019, Da Ruan Award 2016, IEEE Transactions on Fuzzy Systems Outstanding 2008 and 2012 Paper Award (bestowed in 2011 and 2015) respectively.

He currently acts as Editor-in-Chief of the international journal "International Journal of Computational Intelligence Systems" (Atlantis press) and Information (MDPI). He acts as an associate/area editor of the following journals: Knowledge-based systems, IEEE Transactions on Fuzzy Systems, Information Fusion, International Journal of Fuzzy Systems, Journal of Intelligent & Fuzzy Systems, Applied Artificial Intelligence, Journal of Fuzzy Mathematics**,** and he serves as a member of the editorial board of the Journal of Universal Computer Sciences.

1. RESEARCH PROJECTS

This section lists the group research projects **(21 projects, 2 excellent network project)** founded by different entities from 2014. It is organized into three subsections: i) projects financed by European institutions **(2 projects)** and National Natural Science Foundation of China (NSFC) **(5 projects)**, ii) projects and excellent network project financed by national entities **(3 projects, 2 excellent network project),** and iii) projects financed by Regional Projects and others **(11 projects)**.

During this period **Luis Martínez López** has been the principal researcher in **13 research projects**, two European Projects, one NSFC project, ten projects from the Spanish national research plan and others.

1.1 European and NSFC Projects

European and NSFC projects are usually obtained under a competitive award.

1.

Title	*The use of computational techniques to Improve compliance to reminders within smart environments*
Identification	734355
Financial Institution	European Commission, MSCA-RISE - Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE)
Coordinator	Chris Nugent
Main Local Coordinator	**Luis Martínez López**, Macarena Espinilla-Estévez
Time	January 2017 – December 2020

Budget	1,084,500.00 €

2.

Títle	Network EUREKA SD - Enhancement of University Research and Education in Knowledge Areas useful for Sustainable Development
Identification	545867-EM-1-2013-1-DE-ERA MUNDUS-EMA21
Financial Institution	*European Union*
Coordinator	Jorge Marx Gómez
Main Local Coordinator	**Luis Martínez López**
Time	July 2013 – July 2017
Budget	4,294,100.00 €

3.

Títle	*Evaluation models of railway emergency plan considering the prioritization and synergy of action alternatives*
Identification	71971182
Financial Institution	National Natural Science Foundation of China
Coordinator	**Luis Martínez López**
Time	January 2020 – December 2023
Budget	490,000.00 RMB

4.

Títle	On Trust NetworkBased Linguistic Large Group Decision Making and Its Applications
Identification	71971190
Financial Institution	National Natural Science Foundation of China
Coordinator	Cuiping Wei
Time	January 2020 – December 2023
Budget	500,000.00 RMB

5.

Títle	*Character Representation and Aggregation Paradigm for Personalized Linguistic Information and Construction of Its Group Decision-Making Model*
Identification	71801175
Financial Institution	National Natural Science Foundation of China
Coordinator	Zhen- Song Chen
Time	January 2019 – December 2021
Budget	180,000.00 RMB

6.

Títle	*Linguistic Rule Extraction and Uncertainty Inference Based on Formal Concept Lattice*
Identification	61772250
Financial Institution	National Natural Science Foundation of China
Coordinator	Zhou Li
Time	January 2018 – December 2021

**MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES**

AGENCIA
ESTATAL DE
INVESTIGACIÓN

Budget	190,000.00 RMB

7.

Títle	*Research on multi-criteria and group decision making based on intuitionistic unbalanced linguistic distribution*
Identification	71301129
Financial Institution	National Natural Science Foundation of China
Coordinator	Meng Dan
Time	January 2014 – December 2016
Budget	190,000.00 RMB

1.2 National and Excellent National Projects

National and excellent national projects are usually obtained and rewarded under a competitive award. This subsection will show national projects and excellent national project, respectively.

A. National Projects

1.

Title	*Intelligent decision making under uncertainty. New approaches for multi-purpose applications*
Identification	PGC2018-099402-B-I00
Financial Institution	Ministry of Economy and Competitiveness
Coordinator	**Luis Martínez López** & Rosa Mª Rodríguez Domínguez
Time	January 2019 - December 2021
Budget	20,000.00 €

2.

Title	*Intelligent consensus processes for group decision making under uncertainty*
Identification	TIN2015-66524-P
Financial Institution	Ministry of Education and Science
Coordinator	**Luis Martínez López**
Time	January 2016 - December 2019
Budget	51,000.00 €

3.

Title	*Making Smart Strategic Decisions in Contexts of Uncertainty*
Identification	TIN2012-31263
Financial Institution	Ministry of Economy, Science and Innovation
Coordinator	**Luis Martínez López**
Time	January 2013 - December 2015
Budget	34,380.00 €

B. Excellent Network Project

1.

Title	*Network of excellence in intelligent data processing and natural language generation*
Identification	TIN2017-90773-RED
Financial Institution	Ministry of Education and Science
Coordinator	Pablo Gervas Gomez-Navarro
Time	July 2018 - June 2020
Budget	20,000.00 €

2.

Title	Logica Difusa y Soft Computing
Identification	TIN2014-56381-REDT
Financial Institution	Ministry of Economy, Science and Innovation
Coordinator	Humberto Bustince Sola
Time	December 2014 - November 2017
Budget	11.700€

1.3 Regional Projects and others

The projects included in this section are financed by regional and other entities and they are usually obtained under a competitive award.

1.

Title	*Intelligent selection of knowledge-based strategies for Scheduling in GRID / CLOUD computing*
Identification	2013/00096
Financial Institution	University of Jaén
Coordinator	Sebastián García Galan, **Luis Martínez López**
Time	October 2013 - November 2015
Budget	4,250.00 €

2.

Title	*Experimental wireless network of sewage systems adapted for monotorization of acoustic noise in real time in urban environments*
Identification	2013/00100
Financial Institution	University of Jaén
Coordinator	José Ángel Fernández Prieto, **Luis Martínez López**
Time	October 2013 - May 2015
Budget	4,250.00 €

3.

Title	*Capture and pre-processing of large volumes of data from various micro-blogging sources*
Identification	2013/00099
Financial Institution	University of Jaén

Coordinator	Manuel Carlos Díaz-Galiano, **Luis Martínez López**
Time	October 2013 - May 2015
Budget	4,250.00 €

4.

Title	*Strategic decision making under uncertainty in Green Computing*
Identification	2013/00097
Financial Institution	University of Jaén
Coordinator	Macarena Espinilla Estévez, **Luis Martínez López**
Time	October 2013 - May 2015
Budget	4,250.00 €

5.

Title	*Implementation and exploitation of a Big Data environment for Data Mining problems*
Identification	2013/00098
Financial Institution	University of Jaén
Coordinator	Pedro Gonzalez-Garcia, **Luis Martínez López**
Time	October 2013 - May 2015
Budget	4,250.00 €

6.

Title	*Urban subsoil management using 3D GIS*
Identification	2013/00095
Financial Institution	University of Jaén
Coordinator	Lidia Ortega-Alvarado, **Luis Martínez López**
Time	October 2013 - May 2015
Budget	4,250.00 €

7.

Title	*Service for the development of a centralized telematics system for the management of a collection center*
Reference	ETSII file 03/12
Financial Institution	University of Granada
Coordinator	Maria Amparo Vila-Miranda
Time	June 2012-September 2013
Budget	62,540.00€

8.

Title	*Development and implementation of a hybrid recommendation system based on intuitionist trust relationships*
Identification	UJA2011/12/23
Financial Institution	University of Jaén
Coordinator	Manuel José Barranco García
Time	March 2012 - June 2014

Budget	148,400.00 €

9.

Title	*Virtual Simulation of Traumatisms and Composition of Fractures*
Identification	UJA2010/13/08
Financial Institution	University of Jaén
Coordinator	Juan Jose Jimenez-Delgado
Time	March 2011 - February 2013
Budget	28,000.00 €

10.

Title	*Development of Instrumental Analysis and Modelling Systems using Fuzzy Logic Applied to Sensory Characterization of Virgin Olive Oil*
Identification	AGR-6487
Financial Institution	Ministry of Economy, Innovation and Science
Coordinator	**Luis Martínez López**
Time	February 2011 - February 2014
Budget	93,617.45 €

11.

Title	*Strengths and Weaknesses in the Internationalization of the Provincial Olive Oil Sector of Jaén: The Case of Small and Medium Enterprises*
Identification	AGR-5961
Financial Institution	Ministry of Innovation, Science and Business. Junta de Andalucía
Coordinator	Gloria Esteban-De La Rosa
Time	November 2010 - November 2014
Budget	218,356.31 €

2 PHD THESIS SUPERVISED

This section lists the directed thesis by the research group SINBAD[2] from 2014 to 2019, a total of 10 PhD theses.

Luis Martínez López has supervised **17 theses**, **10** of them in the last 5 years.

- **Year 2014** *(3)*:

  1. Y. Zulueta, **Models of Evaluation of the Importance of the Environmental Impact in Complex Contexts under uncertainty**. *Department of Computer Science and Artificial Intelligence, University of Granada.*

     Advisor: **Luis Martínez**

  2. I. Palomares, **Multiagent System for modelling Consensus Processes in Large Scale Group Decision Making using Soft Computing Techniques**. *Department of Computer Science, University of Jaén.*

     Advisor: **Luis Martínez**

  3. M. M. Badaracco, **Smart Tutor System based on Competencies (STI-C) Architecture and Diagnosis Proposal**. *Department of Computer Science, University of Jaén.*

**MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES**

AGENCIA
ESTATAL DE
INVESTIGACIÓN

Advisors: **Luis Martínez**

▪ **Year 2015** *(2)*:

1. F. Javier Estrella, **Tools and Utilities Software to Support Linguistic Decision Making and Consensus Processes under Uncertainty**. *Department of Computer Science, University of Jaén.*

Advisors: **Luis Martínez,** Macarena Espinilla

2. R. Yera, **Data Preprocessing Methods for Collaborative Filtering Recommender Systems with Application in an E-learning Scenario.** *Knowledge Management Department, University of Ciego de Ávila, Ciego de Ávila, Cuba*.

Advisors: Yailé Caballero Mota, **Luis Martínez**

▪ **Year 2016** *(1)*:

1. F. Jesús Martínez, **Fuzzy Linguistic model for evaluation Problems with Heterogeneous Information Considering the Possible Dependence between Criteria. Application to the Evaluation of the Integral Performance.** *Department of Computer Science, University of Jaén.*

Advisor: **Luis Martínez**, Macarena Espinilla, Rocío de Andrés

▪ **Year 2018** *(2)*:

1. Y. Y. Liu, **Linguistic Decision Making based on Hybrid Mathematic Models.** *Department of Computer Science, University of Jaén.*
   Advisor: **Luis Martínez**, Rosa María Rodríguez

2. L. Wang, Emergency decision making under uncertainty. *Department of Computer Science, University of Jaén.*
   Advisor: **Luis Martínez**, Rosa María Rodríguez

▪ **Year 2019** *(2)*:

1. F. José Quesada, **Consensus Reaching Processes in the face of new challenges in Group Decision Making: Large groups and Recommendation.** *Department of Computer Science, University of Jaén.*
   Advisor: **Luis Martínez**

2. Jorge Castro, **Novel models in recommender systems and group recommender systems for improving recommendations.** *Department of Computer Science and Artificial Intelligence, University of Granada.*
   Advisor: **Luis Martínez**

3 PUBLICATIONS

This section lists the books and papers published in International Journals indexed in JCR by the research group SINBAD[2] from 2014 to 2019. They have published **1 book, 3 edited books (conference proceedings FLINS 2016 and 2018 and conference proceedings ICIM 2019)** and **103 JCR papers** (**66 papers in JCR Q1**) in different SCI indexed International Journals.

We have only included the books and papers published in International Journals to save space. The complete

**MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES**

AGENCIA
ESTATAL DE
INVESTIGACIÓN

and updated list of publications can be found on the website SINBAD² Publications[1]. In the last 5 years, it has been published **7** contributions to book chapters, **60** contributions to international conferences and **14** contributions to national conferences.

Note that **Luis Martínez** has published **1 book，3 edited books (conference proceedings FLINS 2016 and 2018 and conference proceedings ICIM 2019)** and **86 JCR papers (58 papers in JCR Q1)** along this period.

3.1 Books and Edited books

1. **L. Martínez**, R. M. Rodríguez, F. Herrera, **The 2-tuple Linguistic Model. Computing with Words in Decision Making**. *Springer International Publishing, 2015. ISBN: 978-3-319-24714-4.*

2. X. Y. Zeng, J. Lu, E. E. Kerre, **L. Martínez**, L. Koehl. **Uncertainty Modelling in Knowledge Engineering and Decision Making**. *World Scientific*, *Proceedings of the 12th International FLINS Conference, 2016. ISBN: 978-981-3146-96-9.*

3. J. Liu, J. Lu, Y. Xu, **L. Martínez**, E. E. Kerre. **Data Science and Knowledge Engineering for Sensing Decision Support**. *World Scientific*, *Proceedings of the 13th International FLINS Conference, 2018. ISBN: 978-981-3273-22-1.*

4. X. Chen, Y. Ma, **L. Martínez**. *Wuhan University of Technology Press*, *Proceedings of the 16th International Conference on Innovation and Management, 2019. ISBN: 978-7-5629-.*

3.2 International Journals

▪ **Year 2014** *(13)*:

1. I. Palomares, L. Martínez, F. Herrera. **A consensus model to detect and manage non-cooperative behaviors in large scale group decision making**. *IEEE Transactions on Fuzzy Systems, 2014, 22(3): 516-530.*

2. Y. Zulueta, J. Martínez-Moreno, R. Bello, L. Martínez. **A discrete time variable index for supporting dynamic multi-criteria decision making**. *International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems*, 2014, 22: 1-22.

3. H. B. Liu, R. M. Rodríguez. **A fuzzy envelope for hesitant fuzzy linguistic term set and its application to multicriteria decision making**. Information Sciences, 2014, 258: 220-238.

4. I. Palomares, L. Martínez. **A semi-supervised multi-agent system model to support consensus reaching processes**. *IEEE Transactions on Fuzzy Systems*, 2014, 22: 762-777.

5. L. García-Cabrera, N. Medina-Medina, P. José Sánchez, L. Martínez. **An axiomatic approach to maintaining the consistency of a hypermedia information system based on the SEM-HP model**. Logic Journal of IGPL, 2014, 22: 1045-1074.

6. L. Martínez, F. Herrera. **Challenges of computing with words in decision making**. *Information Sciences*, 2014, 258: 218-219.

7. I. Palomares, F. Javier Estrella, L. Martínez, F. Herrera. **Consensus under a fuzzy context: Taxonomy, analysis framework AFRYCA and experimental case of study**. *Information*

MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES

AGENCIA
ESTATAL DE
INVESTIGACIÓN

Fusion, 2014, 20: 252-271.

8. F. J. Estrella, M. Espinilla, F. Herrera, L. Martínez. **FLINTSTONES: A fuzzy linguistic decision tools enhancement based on the 2-tuple linguistic model and extensions**. *Information Sciences*, 2014, 280: 152-170.

9. F. J. Estrella, M. Espinilla, L. Martínez. **Fuzzy linguistic olive oil sensory evaluation model based on unbalanced linguistic scales**. *Journal of Multiple-valued Logic and Soft Computing*, 2014, 22: 501-520.

10. F. Herrera, L. Martínez, V. Torra, Z. S. Xu. **Hesitant fuzzy sets: An emerging tool in decision making**. *International Journal of Intelligent Systems*, 2014, 29: 493-494.

11. R. M. Rodríguez, L. Martínez, V. Torra, Z. S. Xu, F. Herrera. **Hesitant fuzzy sets: State of the art and future directions**. *International Journal of Intelligent Systems*, 2014, 29: 495-524.

12. I. Palomares, L. Martínez, F. Herrera. **MENTOR: A graphical monitoring tool of preferences evolution in large-scale group decision making**. *Knowledge-based Systems*, 2014, 58: 66-74.

13. J. Castro, R. M. Rodríguez, M. J. Barranco. **Weighting of features in content-based filtering with entropy and dependence measures**. *International Journal of Computational Intelligence Systems*, 2014, 7: 80-89.

▪ **Year 2015** *(7)*:

1. J. Castro, F. José Quesada, I. Palomares, L. Martínez. **A consensus-driven group recommender system**. *International Journal of Intelligent Systems*, 2015, 30: 887-906.

2. C. P. Wei, Z. L. Ren, R. M. Rodríguez. **A hesitant fuzzy linguistic TODIM method based on a score function**. *International Journal of Computational Intelligence Systems*, 2015, 8: 701-712.

3. A. Calzada, J. Liu, H. M. Wang, C. Nugent, L. Martínez. **Application of a spatial Intelligent decision system on self-rated health status estimation**. *Journal of Medical Systems*, 2015, 39: 138.

4. L. Martínez, R. De Moraes. **Computational Intelligence applications for data science**. *Knowledge-Based Systems*, 2015, 67: 1-2.

5. R. Yera, Y. Caballero, L. Martínez. **Correcting noisy ratings in collaborative recommender systems**. *Knowledge-based Systems*, 2015, 76: 96-108.

6. F. José Quesada, I. Palomares, L. Martínez. **Managing experts behavior in large-scale consensus reaching processes with uninorm aggregation operators**. *Applied Soft Computing*, 2015, 35: 873-887.

7. T. R. Li, J. Lu, L. Martínez. **Preface: Intelligent techniques for data science**. *International Journal of Intelligent Systems*, 2015, 30: 851-853.

▪ **Year 2016** *(9)*:

1. R. Yera, J. Castro, L. Martínez. **A fuzzy model for managing natural noise in recommender systems**. *Applied Soft Computing*, 2016, 40: 187-198.

MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES

AGENCIA
ESTATAL DE
INVESTIGACIÓN

2. L. Martinez, J. Lu. **A humble tribute to 50 years of fuzzy sets**. *International Journal of Computational Intelligence Systems*, 2016, 9: 1-2.

3. Y. Zulueta, R.M. Rodríguez, R. Bello, L. Martínez. **A linguistic fusion approach for heterogeneous environmental impact significance assessment**. *Applied Mathematical Modeling*, 2016, 40:1402-1417.

4. R. M. Rodríguez, B. Bedregal, H. Bustince, Y. C. Dong, B. Farhadinia, C. Kahraman, L. Martínez, V. Torra, Y. J. Xu, Z. S. Xu, F. Herrera. **A position and perspective analysis of hesitant fuzzy sets on information fusion in decision making towards high quality progress**. *Information Fusion*, 2016, 29: 89-97.

5. N. Medina-Medina, L. García-Cabrera. **A taxonomy for user models in adaptive systems: special considerations for learning environments.** *The Knowledge Engineering Review*, 2016, 31: 124-141.

6. R. M. Rodríguez, Á. Labella, L. Martínez. **An overview on fuzzy modeling of complex linguistics preferences in decision making**. *International Journal of Computational Intelligence Systems*, 2016, 9: 81-94.

7. Y. J. Xu, L. Chen, R. M. Rodríguez, F. Herrera, H. M. Wang. **Deriving the priority weights from incomplete hesitant fuzzy preference relations in group decision making**. *Knowledge-Based Systems*, 2016, 99: 71-78.

8. C. P. Wei, F. F. Yan, R. M. Rodríguez. **Entropy measures for hesitant fuzzy sets and their application in multi-criteria decision-making**. *Journal of Intelligent & Fuzzy Systems*, 2016, 31: 673-685.

9. J. Liu, R. M. Rodríguez, L. Martínez. **New trends of information fusion in decision making**. *Information fusion*, 2016, 29: 87-88.

▪ **Year 2017** *(20)*:

1. Y. Y. Liu, L. Martínez, K. Y. Qin. **A comparative study of some soft rough sets**. *Symmetry-Basel*, 2017, 9: 11.

2. M. Muñoz, E. Miranda, P. José Sánchez. **A fuzzy system for estimating premium cost of exchange option using Mamdani inference: Derivatives market of Mexico**. *International Journal of Computational Intelligence Systems*, 2017, 10: 153-164.

3. L. Wang, Y. M. Wang, L. Martínez. **A group decision method based on prospect theory for emergency situations**. *Information Sciences*, 2017, 418: 119-135.

4. Z. X. Zhang, L. Wang, R. M. Rodríguez, Y. M. Wang, L. Martínez. **A hesitant group emergency decision making method based on prospect theory**. *Complex and Intelligent Systems*, 2017, 3: 177-187.

5. Y. Zulueta, R. M. Rodríguez, R. Bello, L. Martínez. **A hesitant heterogeneous approach for environmental impact significance assessment**. *Journal of Environmental Informatics*, 2017, 29:74-87

6. R. Yera, L. Martínez. **A recommendation approach for programming online judges supported by data preprocessing techniques**. *Applied Intelligence*, 2017, 47: 277-290.

7. Á. Labella, F. Javier Estrella, L. Martínez. **AFRYCA 2.0: an improved analysis framework for consensus reaching processes**. *Progress in Artificial Intelligence*, 2017, 6: 181-194.

8. J. Castro, R. Yera, L. Martínez. **An empirical study of natural noise management in group recommendation systems**. *Decision Support Systems*, 2017, 94: 1-11.

9. C. Shewell, J. Medina, M. Espinilla, C. Nugent, M. Donnelly, H. M. Wang. **Comparison of fiducial marker detection and object interaction in activities of daily living utilizing a wearable vision sensor.** *International Journal of Communication Systems*, 2017, 30: e3223.

10. M. Espinilla, J. Medina, A. L. García, S. Campana, J. Peláez. **Fuzzy intelligent system for patients with preeclampsia in wearable devices**. *Mobile Information Systems*, 2017, 2017: 1-10.

11. B. Yatsalo, A. Korobov, L. Martínez. **Fuzzy multi-criteria acceptability analysis: A new approach to multi-criteria decision analysis under fuzzy environment**. *Expert Systems with Applications*, 2017, 84: 262-271.

12. R. Yera, L. Martínez. **Fuzzy tools in recommender systems: A survey**. *International Journal of Computational Intelligence Systems*, 2017, 10: 776-803**.**

13. Y. C. Dong, Z. G. Ding, L. Martinez, F. Herrera. **Managing consensus based on leadership in opinion dynamics**. *Information Sciences*, 2017, 397: 187-205.

14. Z. Zhang, C. Guo, L. Martinez. **Managing multi-granular linguistic distribution Assessments in Large Scale Multiattribute Group Decision Making**. *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, 2017, 47: 3063-3076.

15. L. Wang, Á. Labella, R. M. Rodríguez, Y. M. Wang, L. Martínez. **Managing non-homogeneous information and experts psychological behavior in group emergency decision making**. *Symmetry-Basel*, 2017, 9: 234.

16. M. Espinilla, J. Medina, A. Calzada, J. Liu, L. Martínez, C. Nugent. **Optimizing the configuration of the heterogeneous architecture of sensors for activity recognition, using the extended rule-based inference methodology**. *Microprocessors and Microsystems*, 2017, 52: 381-390.

17. C. C. Li, Y. C. Dong, F. Herrera, E. Herrera-Viedma, L. Martínez. **Personalized individual semantics in computing with words for supporting linguistic group decision making: An application on consensus reaching**. *Information Fusion*, 2017, 33: 29-40.

18. J. Medina, M. Fernández-Olmo, M. D. Peláez, M. Shin. **Real-time monitoring in home-based cardiac rehabilitation using wrist-worn heart rate devices**. *Sensors*, 2017, 17: 2892.

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1 Á. Labella, Y. Y. Liu, R. M, Rodríguez, L. Martínez. **Analyzing the performance of classical consensus models in large scale group decision making: A comparative study**. *Applied Soft Computing*, 2018, 67: 677-690.

2 L. H. Yang, J. Liu, Y. M. Wang, L. Martinez. **Extended belief-rule-based system with new activation rule determination and weight calculation for classification problem**. *Applied Soft Computing*, 2018, 72: 261-272.

3 Y. Y. Liu, K. Y. Qin, L. Martinez. **Improving decision making approaches based on fuzzy soft sets and rough soft sets**. *Applied Soft Computing*, 2018, 65:320-332.

4 L. Wang, R. M. Rodríguez, Y. M. Wang. **A dynamic multi-attribute group emergency decision making method considering expert's hesitation**. *International Journal of Computational Intelligence Systems*, 2018, 11: 163-182.

5 H. B. Liu, L. Jiang, L. Martinez. **A dynamic multi-criteria decision making model with bipolar linguistic term sets**. *Expert Systems with Applications*, 2018, 95: 104-112.

6 J. Castro, R. Yera, L. Martínez. **A fuzzy approach for natural noise management in group recommender systems**. *Expert Systems with Applications*, 2018, 94: 237-249.

7 A. Nikas, H. Doukas, L. Martínez. **A group decision making tool for assessing climate policy risks against multiple criteria**. *Heliyon*, 2018, 4: e00588.

8 L. H. Yang, Y. M. Wang, J. Liu, L. Martinez. **A joint optimization method on parameter and structure for belief-rule-based systems**. *Knowledge-Based Systems*, 2018, 142: 220-240.

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17 J. Castro, M. J. Barranco, R. M. Rodríguez, L. Martínez. **Group recommendations based on hesitant fuzzy sets**. *International Journal of Intelligent Systems*, 2018, 33: 2058-2077.

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25 J. Medina, M. A. L. Medina, A. Salguero, M. Espinilla. **Predicting the urgency demand of COPD patients from environmental sensors within smart cities with high-environmental sensitivity**. *IEEE Access*, 2018, 6: 25081-25089.

26 E. de la Hoz, P. Ariza-Colpas, J. Medina, M. Espinilla. **Sensor-based datasets for human activity recognition - A systematic review of literature**. *IEEE Access*, 2018, 6: 1-19.

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**MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES**

AGENCIA
ESTATAL DE
INVESTIGACIÓN

Year 2019 *(24)*:

1   P. Hao, G. Zhang, L. Martínez, J. Lu. **Regularizing Knowledge Transfer in Recommendation with Tag-Inferred Correlation**. *IEEE Transactions on Cybernetics*, 2019, 49(1): 83-96.

2   H. Dinçer, S. Yüksel, L. Martínez. **Balanced scorecard-based Analysis about European Energy Investment Policies: A hybrid hesitant fuzzy decision-making approach with Quality Function Deployment**. *Expert Systems with Applications*, 2019, 115: 152-179.

3   H. Seiti, A. Hafezalkotob, L. Martínez. **R-numbers, a new risk modeling associated with fuzzy numbers and its application to decision making**. *Information Sciences*, 2019, 483: 206-231.

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5   C.C Li, R.M. Rodríguez, L. Martínez, Y. Dong, F. Herrera. **Consensus Building with Individual Consistency Control in Group Decision Making**. *IEEE Transactions on Fuzzy Systems*, 2019, 27: 319-332.

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MINISTERIO
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Y UNIVERSIDADES

AGENCIA
ESTATAL DE
INVESTIGACIÓN

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4 AWARDS AND RECOGNITIONS

This section introduces the awards and recognitions got by the research group in the last 5 years. It is divided into 3 subsections: i) personal awards and recognitions of the group members **(6 awards)**, ii) awards and recognitions for work performed **(5 awards)**, and iii) awards and recognitions of PhD students **(6 awards)**.

L. Martínez has got **15 awards** in this period; **5** awards and **4** recognitions for working performed, and **6** recognitions have been got by his PhD students.

4.1 Personal awards and recognitions

1. L. Martínez: The **Da Ruan Award** in **FLINS2016** for all his efforts in support of activities within the FLINS Series Conferences**.**

2. L. Martínez: **Highly Cited Author 2017** in recognition of ranking among the Top 1% of researchers for most cited documents in **Computer Science** from **Web of Science 2017**.

3. L. Martínez: **Highly Cited Author 2018** in recognition of ranking among the Top 1% of researchers for most cited documents in **Computer Science** from **Web of Science 2018**.

4. L. Martínez: **Highly Cited Researcher 2019** in recognition of ranking among the Top 1% of researchers for most cited documents in **Computer Science** from **Web of Science 2019**.

5. L. Martínez: **Top Peer Reviewer 2019** in recognition the top 1% of reviewers in Cross-Field on Publons global reviewer database.

6. R. M. Rodríguez: **Highly Cited Author 2019** in recognition of ranking among the Top 1% of researchers for most cited documents in **Cross-Field** from **Web of Science 2019**.

4.2 Awards and recognitions for working performed

1. 2015 **IEEE Computational Intelligence Society award. IEEE Transactions on Fuzzy System Outstanding 2012 Paper Award** (bestowed in 2015), for the following paper:

   R. M. Rodríguez, L. Martínez and F. Herrera. **Hesitant Fuzzy Linguistic Term Sets for Decision Making, published in IEEE Transactions on Fuzzy Systems**, vol. 20, no. 1, pp. 109-119, January 2012.

2. 2016 **Best paper award** on 10th International Conference on Ubiquitous Computing & Ambient Intelligence (UCAmI 2016), November 29th -December 2nd, 2016, Canary Islands (Spain), for the following paper::

   M. Espinilla, A. Rivera, M. D. Perea-Godoy, J. Medina, L. Martínez and C. Nugent. **Recognition of Activities in Resource Constrained Environments; Reducing the Computational Complexity**, pp. 65-74, December 2016.

3. 2018 **Best paper award** on 12th International Conference on Ubiquitous Computing & Ambient Intelligence (UCAmI 2018), December 4-7th, 2018, Punta Cana (Dominican Republic), for the following paper:

   J. Medina, C. Orr, S. Zhang, C. Nugent, A. Salguero, M. Espinilla. **Real-time Recognition of Interleaved Activities Based on Ensemble Classifier of Long Short-term Memory with Fuzzy Temporal Windows**.

4. 2019 **Best Paper Award** in the IEEE 14th International Conference on Intelligent Systems and Knowledge Engineering, November 14-16th, 2019, Dalian (China), for the following paper:

   A. Labella, R.M. Rodríguez, L. Martínez. **A Novel Linguistic Cohesion Measure for Weighting Experts' subgroups in Large-scale Group Decision Making Methods**.

5. *2019* **Best Journal Paper Award** in the 11th Conference of the European Society for Fuzzy Logic and Technology, September 9-13th, 2019, Prague (Czech Republic).

   R. Yera and L. Martínez. **Fuzzy tools in Recommender Systems: A Survey** in International Journal of Computational Intelligence Systems, 10:776-803, 2017.

**MINISTERIO
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AGENCIA
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INVESTIGACIÓN

4.3 Awards and recognitions for working carried out by PhD students

1. 2014 **Best Presentation Award** to **Francisco José Quesada Real** for the **outstanding contribution** to the "**I International Meeting of Young Researchers on Heritage – PatrimoniUN10**", organized by the Heritage Campus of International Excellence PatrimoniUN10, hosted by Universidad Internacional de Andalucia, Baeza (Jaen), Spain, November 19-21 2014.

2. 2015 **PhD student Research work award: Francisco José Quesada Real** got the award to the best PhD student presentation in "**I Doctoral Seminars of the Doctoral Program in ICT**" organized by TIC of University of Jaén, hosted in Universidad Internacional de Andalucia, July 10-11 2015, Baeza (Jaén), Spain.

3. 2016 **Best Application Software or Hardware Category:** Daniel Zafra Romero got the **Best Award** for his proposal "**System for the Monitoring of Intelligent Environments through Management and Access to Services**" directed by Macarena Espinilla, in "II Premios Ada Lovelace en Tecnologias de la Informacion y la Comunicacion de la Universidad de Jaen", organized by the Center for Advanced Studies in Information and Communication Technologies of the University of Jaén, July 14th 2016.

4. 2016 **Best Application Modality to PhD student:** Álvaro Labella got the **Best Award** for "**AFRYCA: A Framework for the analysis of Consensus Approaches**", in "III Premios Ada Lovelace en Tecnologias de la Informacion y la Comunicacion de la Universidad de Jaen", organized by the Center for Advanced Studies in Information and Communication Technologies of the University of Jaén, November 8th 2017.

5. 2017 **Extraordinary Doctoral Award to PhD student:** Rosa Mª Rodriguez got the award to the t PhD student with the **Extraordinary Doctoral Award in the field of Engineering and Architecture** entitled "**Use of Comparative Linguistic Preferences in Decision-Making under Uncertainty**" directed by **Luis Martinez** in 2017.

6. 2019 **Best Student Paper Award** in the Intelligent and Fuzzy Systems Conference with the title "**FLINTSTONES 2.0 an Open and Comprehensive Fuzzy Tool for Multi-criteria Decision Analysis**", A. Labella, L. Martínez

5 POSTDOC EXPERIENCES OF THE GROUP MEMBERS

This section presents the postdoc experiences of the group members, **Dr. Rosa M. Rodriguez** and **Dr. Javier Medina Quero.**

Dr. Rosa M. Rodriguez got **four** postdoc contracts in **Computer Science** that are obtained under very competitive open calls. The detail information will be provided as follows.

➤ Postdoc contract. **Competitive call from the Austrian Research Promotion Agency**

   Place: Technology of Vienna University
   Department: Institute for Computer Languages
   Date: 25th November 2013 to 24th November 2014

➤ Postdoc contract (Juan de la cierva formación). **Competitive call from the Ministry of Economy and Competitiveness 2013**

Place: University of Granada

Department: Computer Science and Artificial Intelligence

Date: 1ˢ December 2015 to 30th November 2016

➢ Postdoc contract (Juan de la cierva incorporación). **Competitive call from the Ministry of Economy and Competitiveness 2015**

   Place: University of Granada

   Department: Computer Science and Artificial Intelligence

   Date: 1st April 2017 to 28th February 2019

➢ Postdoc contract (Ramón y Cajal). **Competitive call from the Ministry of Economy and Competitiveness 2017**

   Place: University of Jaén

   Department: Computer Science

   Date: 1st March 2019 to 29th February 2024

Dr. **Javier Medina Quero** got his postdoc contract in **Computer Science** that are obtained under a very competitive open call. The detail information will be provided as follows.

➢ Postdoc contract (Acción 6 de contratación de doctores para apoyo en la investigación de la Universidad de Jaén 2017-2019. Referencia: R08/06/2018)

   Place: University of Jaén

   Department: Computer Science

   Date: 1th March 2018 to 28th February 2020

6   SCIENTIFIC IMPACT

This section presents the scientific impact focused on the highly cited papers of the group. Dr. **R. M. Rodriguez** has **11** highly cited papers and Dr. **Luis Martínez** has **18** highly cited papers. Some of them are co-works, which are in the fields of **engineering** (**6** papers) and **computer science** (**15** papers) respectively.

Luis Martínez is the author of 18 papers in the top 1% most highly cited papers in his field worldwide, according to the ISI computing period (2009-2019) (source: Essential Science Indicators database).

6.1   Highly cited papers in Engineering field (in the Top 1%) in the last 10 years. (Source: Essential Science Indicators, Thomson Reuters).

Table 1: Highly cited papers in Engineering

Paper	Citations
F. Mata, L. Martínez, E. Herrera-Viedma, **An Adaptive Consensus Support Model for Group Decision Making Problems in a Multi-Granular Fuzzy Linguistic Context**. *IEEE Transactions on Fuzzy Systems, 17:2 (2009) 279-290*	239

Paper	Citations
R.M. Rodriguez, L. Martinez, F. Herrera, **Hesitant Fuzzy Linguistic Term Sets for Decision Making.** *IEEE Transactions on Fuzzy Systems 20 (2012) 109-119*	852
R.M. Rodriguez, L. Martinez, V. Torra, Z.S. Xu, F. Herrera, **Hesitant Fuzzy Sets: State of the Art and Future Directions.** *International Journal of Intelligent Systems 29:6 (2014) 495-524*	250
I. Palomares, L. Martínez, F. Herrera. **A Consensus Model to Detect and Manage Noncooperative Behaviors in Large-Scale Group Decision Making**. IEEE Transactions on Fuzzy Systems 22:3 (2014): 516-530	142
Z. Zhang, C. H. Guo, L. Martinez. **Managing Multigranular Linguistic Distribution Assessments in Large-Scale Multiattribute Group Decision Making**. IEEE Transactions on Systems Man Cybemetics-Systems, 47(2017) 3063-3076	88
H. Dincer, S. Yuksel, L. Martinez. **Balanced scorecard-based analysis about European energy investment policies: A hybrid hesitant fuzzy decision-making approach with Quality Function Deployment**. *Experts Systems with Applications, 115 (2019) 152-171*.	9

6.2 Highly cited papers in Computer Science field (in the Top 1%) in the last 10 years. (Source: Essential Science Indicators, Thomson Reuters).

Table 2: Highly cited papers in Computer Science

Paper	Citations
J. M. Merigo, M. Casanovas, L. Martínez. **Linguistic aggregation operators for linguistic decision making based on the dempster-shafer theory of evidence**. *International Journal of Uncertainty Fuzziness and Knowledge-Based Systems*, 18(2010) 287-304	171
L. Martinez, D. Ruan, F. Herrera, **Computing with words in decision support systems: An overview on models and application**. *International Journal of Computational Intelligence Systems*, 3 (2010) 382-395	184
L. Martínez, F. Herrera, **An overview on the 2-tuple linguistic model for Computing with Words in Decision Making: Extensions, applications and challenges**. *Information Sciences 207 (2012) 1-18*	297
R. M. Rodriguez, L. Martinez, F. Herrera, **A group decision making model dealing with comparative linguistic expressions based on hesitant fuzzy linguistic term sets**. *Information Sciences, 241(2013) 28-42*	307
R. M. Rodríguez, L. Martínez. **An analysis of symbolic linguistic computing models in decision making**. *International Journal of General Systems*, 42(2013) 121-136	145
H. B. Liu, R. M. Rodríguez. **A Fuzzy Envelop for Hesitant Fuzzy Linguistic Term Set and its Application to Multicriteria Decision Making**. Information Sciences, 258(2014) 220-238	178
R. M. Rodríguez, B. Bedregal, H. Bustince, Y. C. Dong, B. Farhadinia, C. Kahraman, L. Martínez, V. Torra, Y. J. Xu, Z. S. Xu, F. Herrera. **A position and perspective analysis of hesitant fuzzy sets on information fusion in decision making**. **Towards high quality progress**. *Information Fusion*, 29(2016) 89-97	150
R. M. Rodríguez, A. Labella, L. Martínez. **An overview on fuzzy modelling of complex linguistic preferences in decision making**. *International Journal of Computational Intelligence Systems*, 9 (2016) 81-94	106

Y. J. Xu, L. Chen, R. M. Rodriguez, F. Herrera, H. M. Wang. **Deriving the Priority Weights from Incomplete Hesitant Fuzzy Preference Relations in Group Decision Making**. Knowledge-Based Systems, 99 (2016) 71-78	99
C. C. Li, Y. C. Dong, F. Herrera, E. Herrera-Viedma, L. Martinez. **Personalized Individual Semantics in Computing with Words for Supporting Linguistic Group Decision Making. An application on Consensus Reaching**. *Information Fusion*, 33 (2017) 29-40.	153
Y. C. Dong, Z. G. Ding, L. Martinez, F. Herrera. **Managing consensus based on leadership in opinion dynamics**. *Information Sciences*, 397(2017) 187-205	78
C. C. Li, R. M. Rodríguez, L. Martínez, Y. C. Dong, F. Herrera. **Personalized individual semantics based on consistency in hesitant linguistic group decision making with comparative linguistic expressions**. *Knowledge-Based Systems*, 145 (2018)156-165	59
C. C. Li, R. M. Rodríguez, L. Martínez, Y. C. Dong, F. Herrera. **Consistency of Hesitant fuzzy linguistic preference relations: An interval consistency index.** *Information Sciences, 432 (2018) 347-361.*	40
C. Wei, Z. Ren, R. M. Rodríguez. **A Hesitant Fuzzy Linguistic TODIM Method Based on a Score Function**. *International Journal of Computational Intelligence Systems, 8(4): (2018) 701-712.*	98
H. Seiti, A. Hafezalkotob, L. Martinez. **R-numbers, a new risk modeling associated with fuzzy numbers and its application to decision making**. *Information Sciences, 483 (2019) 206-231.*	20

7   INTERNATIONAL RECOGNITION AS JOURNAL EDITORIAL BOARD MEMBERS

This section is devoted to the international recognition of several senior members of the group, showing the presence on the editorial boards of the International Journals.

Luis Martínez is **Editor in Chief of two international journals** and area/associate editors of several well-recognized journals in different international journals.

- **Editor in Chief:**
  - **International Journal of Computational Intelligence Systems** (Atlantis Press)
    ISSN: 1875-6891
    Luis Martínez

- **Editor in Chief:**
  - **Information (MDPI)**
    ISSN: 2078-2489
    Luis Martínez

- **Editorial Assistant:**
  - **International Journal of Computational Intelligence Systems** (Atlantis Press)
    ISSN: 1875-6891
    Rosa M. Rodríguez

- **Area Editors:**
  - **Information Fusion** (Elsevier)
    ISSN: 1566-2535
    Luis Martínez
    Area: Information Fusion in Decision making

**MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES**

AGENCIA
ESTATAL DE
INVESTIGACIÓN

- **Associated Editors:**
    - **Knowledge-based Systems** (Elsevier)
      ISSN: 0950-7051
      Luis Martínez

    - **IEEE Transactions on Fuzzy Systems** (IEEE Computational Intelligence Society, IEEE Press)
      ISSN: 1063-6706
      Luis Martínez

    - **International Journal of Fuzzy Systems** (Springer)
      ISSN: 1562-2479
      Luis Martínez

    - **International Journal of Fuzzy Systems** (Springer)
      ISSN: 1562-2479
      Rosa M. Rodríguez

    - **Journal of Intelligent & Fuzzy Systems** (IOS Press)
      ISSN: 1064-1246
      Luis Martínez

    - **Journal of Intelligent & Fuzzy Systems** (IOS Press)
      ISSN: 1064-1246
      Rosa M. Rodríguez

    - **Applied Artificial Intelligence** (Taylor and Francis)
      ISSN: 0883-9514
      Luis Martínez

    - **Journal of Fuzzy Mathematics** (TIB)
      ISSN: 1066-8950
      Luis Martínez

- **Editorial board:**
    - **Journal of Universal Computer Sciences** (Scimago Journal & Country Rank)
      ISSN: 0948-695X
      Luis Martínez

8 YOUNG RESEARCHERS TRAINING CONTRACTS

1.

Nombre Investigador/a Principal:	**MARTÍNEZ LÓPEZ, LUIS**
D.N.I.:	**26018033L**
Nombre persona contratada:	**RODRÍGUEZ DOMÍNGUEZ, ROSA Mª**
D.N.I.:	**26239113T**
Ref.ª / Cód. contrato laboral:	**PIFIPE/09 2011/00143**
Fecha inicio contrato:	**01/09/2011**
Fecha fin contrato:	**31/08/2013**
Denominación proyecto o contrato:	**Modelos y sistemas de soporte a la decisión en contextos heterogéneos**
Ref.ª / Cód. proyecto o contrato:	**P08-TIC-03548 2009/00048/001**

Entidad financiadora:	**CONSEJERIA DE ECONOMIA, INNOVACION Y CIENCIA**

2.

Nombre Investigador/a Principal:	**MARTÍNEZ LÓPEZ, LUIS**
D.N.I.:	**26018033L**
Nombre persona contratada:	**RODRÍGUEZ DOMÍNGUEZ, ROSA Mª**
D.N.I.:	**26239113T**
Ref.ª / Cód. contrato laboral:	**POSPIFIPE/2009 2013/00201**
Fecha inicio contrato:	**15/11/2013**
Fecha fin contrato:	**14/11/2014**
Denominación proyecto o contrato:	**Ayuda posdoctoral asociada a Proyectos de Investigación de Excelencia**
Ref.ª / Cód. proyecto o contrato:	**2013/00083/001**
Entidad financiadora:	**CONSEJERÍA DE ECONOMÍA, INNOVACIÓN, CIENCIA Y EMPLEO**

3.

Nombre Investigador/a Principal:	**MARTÍNEZ LÓPEZ, LUIS**
D.N.I.:	**26018033L**
Nombre persona contratada:	**PALOMARES CARRASCOSA, IVÁN**
D.N.I.:	**26247772B**
Ref.ª / Cód. contrato laboral:	**FPI/2010 2012/00154**
Fecha inicio contrato:	**01/09/2010**
Fecha fin contrato:	**31/08/2014**
Denominación proyecto o contrato:	**Beca/Contrato Formación de doctores asociadas a proyectos de investigación de I+D+I - FPI - Información Lingüística en Procesos de Análisis de Decisión. Modelo de Preferencias y Aplicaciones**
Ref.ª / Cód. proyecto o contrato:	**BES-2010-029976 TIN2009-08286 2010/00317/001**
Entidad financiadora:	**MINISTERIO DE CIENCIA E INNOVACION**

4.

Nombre Investigador/a Principal:	**MARTÍNEZ LÓPEZ, LUIS**
D.N.I.:	**26018033L**
Nombre persona contratada:	**QUESADA REAL, FRANCISCO JOSE**
D.N.I.:	**77353262F**
Ref.ª / Cód. contrato laboral:	**2014/CL043 2014/00198**
Fecha inicio contrato:	**24/09/2014**
Fecha fin contrato:	**31/07/2015**
Denominación proyecto o contrato:	**Toma de decisiones estratégicas inteligentes en contextos de incertidumbre**
Ref.ª / Cód. proyecto o contrato:	**TIN2012-31263 2013/00013/001**
Entidad financiadora:	**MINISTERIO DE ECONOMÍA Y COMPETITIVIDAD**

5.

Nombre Investigador/a Principal:	**MARTÍNEZ LÓPEZ, LUIS**
D.N.I.:	**26018033L**
Nombre persona contratada:	**MOYA PEREZ, FRANCISCO**
D.N.I.:	**77374084Z**
Ref.ª / Cód. contrato laboral:	**2014/CL063 2014/00199**
Fecha inicio contrato:	**24/09/2014**
Fecha fin contrato:	**23/12/2014**
Denominación proyecto o contrato:	**GR.TIC206 SIS. INTELIGENTES BASADOS EN ANALISIS DECISION DIFUSO**
Ref.ª / Cód. proyecto o contrato:	**0618057097 IBG**

**MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES**

AGENCIA
ESTATAL DE
INVESTIGACIÓN

Entidad financiadora:	**CONSEJERÍA DE CONOCIMIENTO, INVESTIGACIÓN Y UNIVERSIDAD DE LA J.A.**

6.

Nombre Investigador/a Principal:	**MARTÍNEZ LÓPEZ, LUIS**
D.N.I.:	**26018033L**
Nombre persona contratada:	**ESTRELLA LIEBANA, FRANCISCO JAVIER**
D.N.I.:	**77349708H**
Ref.ª / Cód. contrato laboral:	**2014/CL079_Acción2 2014/00288**
Fecha inicio contrato:	**16/12/2014**
Fecha fin contrato:	**15/12/2015**
Denominación proyecto o contrato:	**Acción 2/2014 Modalidad: Centros e Instituto de Investigación**
Ref.ª / Cód. proyecto o contrato:	**2014/00148/001**
Entidad financiadora:	**UNIVERSIDAD DE JAEN**

7.

Nombre Investigador/a Principal:	**MARTÍNEZ LÓPEZ, LUIS**
D.N.I.:	**26018033L**
Nombre persona contratada:	**ESTRELLA LIEBANA, FRANCISCO JAVIER**
D.N.I.:	**77349708H**
Ref.ª / Cód. contrato laboral:	**2014/CL042(T2) 2014/00196**
Fecha inicio contrato:	**16/10/2014**
Fecha fin contrato:	**15/12/2014**
Denominación proyecto o contrato:	**Toma de decisiones estratégicas inteligentes en contextos de incertidumbre**
Ref.ª / Cód. proyecto o contrato:	**TIN2012-31263 2013/00013/001**
Entidad financiadora:	**MINISTERIO DE ECONOMÍA Y COMPETITIVIDAD**

8.

Nombre Investigador/a Principal:	**MARTÍNEZ LÓPEZ, LUIS**
D.N.I.:	**26018033L**
Nombre persona contratada:	**MOYA PEREZ, FRANCISCO**
D.N.I.:	**77374084Z**
Ref.ª / Cód. contrato laboral:	**2014/CL063P 2014/00269**
Fecha inicio contrato:	**24/12/2014**
Fecha fin contrato:	**12/03/2015**
Denominación proyecto o contrato:	**GR.TIC206 SIS. INTELIGENTES BASADOS EN ANALISIS DECISION DIFUSO**
Ref.ª / Cód. proyecto o contrato:	**0618057097 IBG**
Entidad financiadora:	**CONSEJERÍA DE CONOCIMIENTO, INVESTIGACIÓN Y UNIVERSIDAD DE LA J.A.**

9.

Nombre Investigador/a Principal:	**MARTÍNEZ LÓPEZ, LUIS**
D.N.I.:	**26018033L**
Nombre persona contratada:	**LABELLA ROMERO, ÁLVARO**
D.N.I.:	**77348227D**
Ref.ª / Cód. contrato laboral:	**2015/CL109 2016/00045**
Fecha inicio contrato:	**10/02/2016**
Fecha fin contrato:	**09/08/2016**
Denominación proyecto o contrato:	**GR.TIC206 SIS. INTELIGENTES BASADOS EN ANALISIS DECISION DIFUSO**
Ref.ª / Cód. proyecto o contrato:	**0618057097 IBG**
Entidad financiadora:	**CONSEJERÍA DE CONOCIMIENTO, INVESTIGACIÓN Y UNIVERSIDAD DE LA J.A.**

**MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES**

AGENCIA
ESTATAL DE
INVESTIGACIÓN

10.

Nombre Investigador/a Principal:	**MARTÍNEZ LÓPEZ, LUIS**
D.N.I.:	**26018033L**
Nombre persona contratada:	**ESTRELLA LIEBANA, FRANCISCO JAVIER**
D.N.I.:	**77349708H**
Ref.ª / Cód. contrato laboral:	**2015/CL110 2016/00046**
Fecha inicio contrato:	**01/09/2016**
Fecha fin contrato:	**28/02/2017**
Denominación proyecto o contrato:	**GR.TIC206 SIS. INTELIGENTES BASADOS EN ANALISIS DECISION DIFUSO**
Ref.ª / Cód. proyecto o contrato:	**0618057097 IBG**
Entidad financiadora:	**CONSEJERÍA DE CONOCIMIENTO, INVESTIGACIÓN Y UNIVERSIDAD DE LA J.A.**

11.

Nombre Investigador/a Principal:	**MARTÍNEZ LÓPEZ, LUIS**
D.N.I.:	**26018033L**
Nombre persona contratada:	**LABELLA ROMERO, ÁLVARO**
D.N.I.:	**77348227D**
Ref.ª / Cód. contrato laboral:	**2015/CL109P 2016/00175**
Fecha inicio contrato:	**10/08/2016**
Fecha fin contrato:	**30/04/2017**
Denominación proyecto o contrato:	**GR.TIC206 SIS. INTELIGENTES BASADOS EN ANALISIS DECISION DIFUSO**
Ref.ª / Cód. proyecto o contrato:	**0618057097 IBG**
Entidad financiadora:	**CONSEJERÍA DE CONOCIMIENTO, INVESTIGACIÓN Y UNIVERSIDAD DE LA J.A.**

12.

Nombre Investigador/a Principal:	**MARTÍNEZ LÓPEZ, LUIS**
D.N.I.:	**26018033L**
Nombre persona contratada:	**LABELLA ROMERO, ÁLVARO**
D.N.I.:	**77348227D**
Ref.ª / Cód. contrato laboral:	**AC_FPI/2016 2017/00252**
Fecha inicio contrato:	**01/05/2017**
Fecha fin contrato:	**30/04/2021**
Denominación proyecto o contrato:	**Procesos de Consenso Inteligentes para la Toma de Decisiones en Gupo bajo Incertidumbre.; 2017/00522/001 Ayuda PIF - Programa FPI**
Ref.ª / Cód. proyecto o contrato:	**2016/00075/001**
Entidad financiadora:	**MINISTERIO DE ECONOMÍA Y COMPETITIVIDAD**

13.

Nombre Investigador/a Principal:	**MARTÍNEZ LÓPEZ, LUIS**
D.N.I.:	**26018033L**
Nombre persona contratada:	**RUANO PEINADO, MANUEL**
D.N.I.:	**77368311Z**
Ref.ª / Cód. contrato laboral:	**SNGJ_PTA_P_117P 2017/00478**
Fecha inicio contrato:	**01/12/2017**
Fecha fin contrato:	**31/05/2018**
Denominación proyecto o contrato:	**RESOLUCIÓN DE 6 DE ABRIL DE 2017, DEL RECTOR DE LA UNIVERSIDAD DE JAÉN, POR LA QUE SE PUBLICAN LAS BASES REGULADORAS Y LA CONVOCATORIA PARA LA CONTRATACIÓN TEMPORAL DE PERSONAL LABORAL TÉCNICO DE APOYO Y DE GESTIÓN DE LA I+D+i, EN EL MARCO DEL SISTEMA NAC**

**MINISTERIO
DE CIENCIA, INNOVACIÓN
Y UNIVERSIDADES**

Ref.ª / Cód. proyecto o contrato:	**2017/00680/001 Personal Técnico de Apoyo a la Investigación Garantía Juvenil**
Entidad financiadora:	**CONSEJERÍA DE ECONOMÍA Y CONOCIMIENTO-FEDER**

14.

Nombre Investigador/a Principal:	**MARTÍNEZ LÓPEZ, LUIS**
D.N.I.:	**26018033L**
Nombre persona contratada:	**MARTÍNEZ MIMBRERA, FRANCISCO JESUS**
D.N.I.:	**77334644L**
Ref.ª / Cód. contrato laboral:	**2017/CL093 2018/00029**
Fecha inicio contrato:	**05/02/2018**
Fecha fin contrato:	**28/02/2018**
Denominación proyecto o contrato:	**Plan de Apoyo a la Investigación (2017-2019) - Acción 1 - Estructuras de Investigación**
Ref.ª / Cód. proyecto o contrato:	**TIC206 061805707A IBG**
Entidad financiadora:	**UNIVERSIDAD DE JAÉN**

15.

Nombre Investigador/a Principal:	**MARTÍNEZ LÓPEZ, LUIS**
D.N.I.:	**26018033L**
Nombre persona contratada:	**GARRIDO MUÑOZ, ISMAEL**
D.N.I.:	**53599534N**
Ref.ª / Cód. contrato laboral:	**SNGJ_JINV_P_039P 2018/00354**
Fecha inicio contrato:	**16/10/2018**
Fecha fin contrato:	**15/07/2019**
Denominación proyecto o contrato:	**RESOLUCIÓN DE 19 DE OCTUBRE DE 2017, DEL RECTOR DE LA UNIVERSIDAD DE JAÉN, POR LA QUE SE APRUEBAN LAS BASES REGULADORAS Y LA CONVOCATORIA PARA LA CONTRATACIÓN DE JOVEN PERSONAL INVESTIGADOR, EN EL MARCO DEL SISTEMA NACIONAL DE GARANTÍA JUVENIL Y DEL PROGR**
Ref.ª / Cód. proyecto o contrato:	**2018/00082/001 Personal Joven Investigador Garantía Juvenil**
Entidad financiadora:	**CONSEJERÍA DE ECONOMÍA Y CONOCIMIENTO-FEDER**

16.

Nombre Investigador/a Principal:	**MARTÍNEZ LÓPEZ, LUIS**
D.N.I.:	**26018033L**
Nombre persona contratada:	**GARRIDO MUÑOZ, ISMAEL**
D.N.I.:	**53599534N**
Ref.ª / Cód. contrato laboral:	**SNGJ_JINV_P_039 2018/00096**
Fecha inicio contrato:	**16/01/2018**
Fecha fin contrato:	**15/10/2018**
Denominación proyecto o contrato:	**RESOLUCIÓN DE 19 DE OCTUBRE DE 2017, DEL RECTOR DE LA UNIVERSIDAD DE JAÉN, POR LA QUE SE APRUEBAN LAS BASES REGULADORAS Y LA CONVOCATORIA PARA LA CONTRATACIÓN DE JOVEN PERSONAL INVESTIGADOR, EN EL MARCO DEL SISTEMA NACIONAL DE GARANTÍA JUVENIL Y DEL PROGR**
Ref.ª / Cód. proyecto o contrato:	**2018/00082/001 Personal Joven Investigador Garantía Juvenil**
Entidad financiadora:	**CONSEJERÍA DE ECONOMÍA Y CONOCIMIENTO-FEDER**

9 INTERNATIONAL COLLABORATIONS

The research group maintains an important international collaboration with researchers of recognized research centers. This section presents a summarize of the different international collaborations carried out by the group members SINBAD[2] taking into account only the publications obtained in International Journals from 2014 until

now.

Luis Martínez keeps an active international collaboration with renowned researchers such as: Dr. Dong, Dr. Chen, Dr Wang, Dr. Xu and Dr. Qin (China), Dr. Yera and Dr. Zulueta (Cuba), Dr. Liu and Dr. Nugent (United Kingdom), Dr. Chin and Dr. Tsui (Hong Kong), Dr. Lu (Australia), Dr. Yüksel, Dr. Dincer and Dr. Kahraman (Turkey), among others.

The research group has started a total of **92** collaborations with more than **40** international collaborators along last years.

Firstly, a list of all the researchers who have made any collaboration is shown. Afterwards, it is devoted the number of collaborators organized by country, as well as, the number of collaborations carried out in each country.

9.1 Researchers list

Table 3: Names of collaborators

Surname, Name	Institution	Number of collaborations
Dong, Yu-Cheng	Business School, Sichuan University, Chengdu, China	7
Yera, Raciel	Knowledge Management Department, University of Ciego de Ávila, Cuba.	7
Liu, Jun	School of Computing, Ulster University at Jordanstown Campus, Newtownabbey, UK	7
Chin, Kwai-Sang	Department of Systems Engineering and Engineering Management, City University of Hong Kong, Hong Kong	5
Chen, Zhen-Song	School of Economics and Management, Wuhan University, China	5
Wang, Ying-Ming	Decision Sciences Institute, Fuzhou University, China	5
Xu, Z.S.	Business School, Sichuan University, Chengdu, China	4
Lu, Jie	Centre for Artificial Intelligence, University of Technology Sydney, Sydney, Australia	4
Qin, Keyun	College of Mathematics, Southwest Jiaotong University, Chengdu, Sichuan	4
Wei, Cuiping	College of Mathematical Sciences, Yangzhou University, Yangzhou, China	3
Tsui, Kwok Leung	Department of Systems Engineering and Engineering Management, City University of Hong Kong, Hong Kong	3
Zulueta, Yeleny	University of Informatics Science, Havana, Cuba	3
Nugent, Chris	School of Computing, University of Ulster at Jordanstown, Newtownabbey, UK	3
Yüksel, Serhat	Department of Business Administration, Istanbul Medipol University, Istanbul, Turkey	3

Dincer, Hasan	Department of Business Administration, Istanbul Medipol University, Istanbul, Turkey	3
Wang, Xian-Jia	School of Economics and Management, Wuhan University, China	2
Kahraman, Cengiz	Department of Industrial Engineering, Istanbul Technical University, Istanbul, Turkey	2
Bello, Rafael	Informatics Research Center, Universidad Central "Marta Abreu" de las Villas, Santa Clara, Cuba	2
Yatsalo, Boris I.	Information Systems Department, National Research Nuclear University MEPHI (IATE NRNU MEPHI), Moscow, Russian	2
Zhang, Guang Quan	Centre for Artificial Intelligence, University of Technology Sydney, Sydney, Australia	2
Calzada, Alberto	School of Computing and Mathematics, University of Ulster, Jordanstown, Northern, United Kingdom	2
Liu, Hong Bin	Department of Mathematics and Information Science, Henan University of Economics and Law, Zhengzhou, China	2
Xu, Yejun	Business School, Hohai University, Nanjing, China	2
Gong, Zaiwu	School of Economics and Management, Nanjing University of Information Science and Technology, Nanjing, China	1
De Tré, Guy	Department of Telecommunications and Information, Ghent University, Gent, Belgium	1
Doukas, H.	School of Electrical and Computer Engineering, National Technical University of Athens, Athens, Greece	1
Li, Kevin	Odette School of Business, University of Windsor, Windsor, Canada	1
Zhang, Zhen	Institute of Systems Engineering, Dalian University of Technology, Dalian, China	1
Guo, Conghui	Institute of Systems Engineering, Dalian University of Technology, Dalian, China	1
De Moraes, Ronei Marcos	Departments of Statistics, Federal Universty of Paraíba, João Pessoa, Brazil	1
Wang, Hui	Institute of Biomedical Engineering and Health Technology, Chinese Academy of Sciences, Beijing, China	1
Bedregal, Benjamin	Departmento de Informática e Matemática Aplicada,Universidade Federal do Rio Grande do Norte, Natal, Brazil	1
Ishizaka, Alessio	Department of Information Systems,	1

Supply Chain and Decision making, NEOMA Business School, France

9.2 Classification by countries

Table 4: Collaborations by countries

Country	Number of collaborations
Hong Kong	8
China	38
Turkey	8
Cuba	12
Russian	2
Belgium	1
United Kingdom	12
Greece	1
Canada	1
Australia	6
Brazil	2
France	1