
FRANCISCO HERRERA

CURRICULUM VITAE

Octubre 2018

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Francisco Herrera Curriculum Vitae

<http://decsai.ugr.es/~herrera>

<http://www.researcherid.com/rid/C-6856-2008>

<http://scholar.google.es/citations?user=HULIk-QAAAAJ&hl=es>

I. Professional Data

Name: Francisco Herrera

Birthday: March 20, 1966

Affiliation: University of Granada

Official address: Dept. of Computer Science and Artificial Intelligence

ETS de Ingenierías de Informática y de Telecomunicación, University of Granada, 18071-Granada, SPAIN

Current position(s): Full Professor.

Contact coordinates: Phone: +34 958 240598 Fax : +34 958 243317 e-mail: herrera@decsai.ugr.es

II. Education

MS (1988) - University of Granada (Spain) - Mathematics

PhD (1991) - University of Granada (Spain) - Mathematics

III. Summary: Publications, PhD Theses Advisor, Areas of Interest and Research Profiles

Summary of Publications

- Number of international journal papers: 361 (The APPENDIX B contains the journal publications of the last 5 years, 2013-2017, 164 papers. The APPENDIX C contains the remaining journal papers from 1992 to 2012, 232 papers)
- Number of Book chapters: 80 (List available at the personal website)
- Number of Conference contributions: 419 (List available at the personal website)
- Edited Special Issues: 35 (APPENDIX D contains the list of special issues).
- Books:**
 - O. Cordón, F. Herrera, F. Hoffmann, L. Magdalena. **GENETIC FUZZY SYSTEMS. Evolutionary Tuning and Learning of Fuzzy Knowledge Bases.** World Scientific, July 2001. ISBN 981-02-4016-3
 - S. García, J. Luengo, F. Herrera. **Data Preprocessing in Data Mining.** Springer, January 2015. ISBN: 978-3-319-10246
 - L. Martínez, R.M. Rodríguez, F. Herrera. **The 2-tuple Linguistic Model. Computing with Words in Decision Making.** Springer, November, 2015. ISBN 978-3-319-24712-0
 - F. Herrera, F. Charte, F.J. Rivera, M.J. del Jesus. **Multilabel Classification. Problem analysis, metrics and techniques.** Springer, 2016. ISBN 978-3-319-41111-8
 - F. Herrera, S. Ventura, R. Bello, C. Cornelis, A. Zafra, D. Sánchez-Tarragó, S. Vluymans. **Multi Instance Learning. Foundations and Algorithms.** Springer, 2016. ISBN 978-3-319-47759-6
 - A. Fernández, S. García, R.C. Prati, B. Krawczyk, F. Herrera. **Learning from Imbalanced Data sets.** Springer, 2018. ISBN 978-3-319-98074-4

Ph D theses supervisor: 42 (The APPENDIX A contains the list of PhD thesis).

Areas of Interest: Soft Computing (fuzzy rule-based systems, genetic fuzzy systems, computing with words and decision making, genetic algorithms), information fusion, biometrics, data science and big data.

Research Profiles: H-index: 85 (WoS, >28.000 citations) and 121 (Scholar Google, >59.000 citations).

He belongs to the list of the Highly Cited Researchers in the areas of Engineering and Computer Sciences: <http://highlycited.com/>



Francisco Herrera

Professor of Computer Science and Artificial Intelligence, Granada University
Dirección de correo verificada de decsai.ugr.es - [Página principal](#)
Artificial Intelligence Computational Intelligence Data mining
Evolutionary Algorithms Big Data Analytics

Citado por	VER TODO	
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IV. Projects and Contracts: Principal Researcher

He is the Principal Researcher of several projects and contracts on the areas of Data Science and Soft Computing and their applications. In the following subsections there are the projects, contracts and software registered under GNU General Public License as a result of some projects.

IV.1. Projects

Learning fuzzy rule based systems with genetic algorithms and neural networks. Applications.

Project: CICYT TIC96-0778

Period: August 1996 - July 1999

Intelligent data analysis using fuzzy rule based systems and genetic learning.

Project: CICYT PB-981319

Period: January 2000 - December 2002

KEEL: Platform for knowledge extraction based on evolutionary algorithms: Implementation and development

Coordinated project: Univ. Granada, Univ. de Oviedo, Univ. Córdoba, Univ. Ramon Llull, Univ. Jaén.

Project: TIC2002-04036-C05

Period: December 2002 – November 2005

Subproject: Evolutionary algorithms for knowledge extraction for fuzzy rule based systems, instance selection and data mining. KEEL implementation and development.

Subproject: TIC2002-04036-C05-01

KEEL II: Platform for knowledge extraction based on evolutionary algorithms

Coordinated project: Univ. Granada, Univ. Oviedo, Univ. Córdoba, Univ. Ramon Llull, Univ. Jaén. Project: TIN2005-08386-C05

Period: December 2005 – December 2008

Subproject: KEEL II: Evolutionary algorithms for data reduction and fuzzy rules extraction. Diversity and convergence in evolutionary algorithms. Interpretability versus precision in data mining.

Subproject: TIN2005-08386-C05-01

MINDAT-PLUS: Data Mining for users in different application areas.

Regional excellence project: P05-TIC-00531

Coordinated project: 10 research groups and 7 andalusian universities (UGR, UMA, US, UH, UA, UJ y UCO).

Period: January 2006 – February 2009

KEEL-CTNC: Knowledge Discovery based on Evolutionary Learning: Current Trends and New Challenges

Coordinated project: Univ. Granada, Univ. Oviedo, Univ. Córdoba, Univ. Ramon Llull, Univ. Jaén, Univ. Huelva.

Project: TIN2008-06681-C06

Period: January 2009 – December 2011

Subproject: KEEL-CTNC: EVOLUTIONARY LEARNING OF FUZZY RULE BASED SYSTEMS, IMBALANCED DATA SETS, FREQUENT AND INTERESTING PATTERN MINING. DATA PREPROCESSING AND ALGORITHM SCALABILITY IN DATA MINING. WEB MINING. Subproject: TIN2008-06681-C06-01

MIBISOC. Medical Imaging Using Bio-inspired and Soft Computing

Project Ref. 238819 Marie Curie Initial Training Networks (ITN)

FP7-PEOPLE-ITN-2008

Period: October 2009 – August 2013

New Challenges in the use of Soft Computing Techniques in Data Mining

Regional excellence project: P10-TIC-06858

Period: March 2011 – April 2016

ASOCO-DM: Applying Soft Computing Techniques in Data Mining. New Approaches

Project: TIN2011-28488

Period: January 2012 – March 2018.

Data Reduction in Data Mining with Soft Computing Techniques

Regional excellence project: P11-TIC-7765

Period: June 2013 – June 2017

National Excellence Network: Big Data and Scalable Data Analysis

Project: TIN2014-56425-REDT,
Period: January 2015 – November 2017.
TIN2016-82013-REDT
Period: July 2017 - June 2019.

HeMoCDIC-Bigdata: Tools and Models for Data Science based on Computational Intelligence. Big Data

Project: TIN2014-57251-P,
Period: January 2015 – December 2017.

BigDaPTools: Big Data Preprocessing: Models and Tools to improve the quality of the data

Project: Ayudas Fundación BBVA- BigData Project 75/2016
Period: October 2016 - September 2018.

Smart-DaSCI: Data Science and Computational Intelligence models: building the bridge between Big Data and Smart Data

Project: TIN2017-89517-P
Period: January 2018 – December 2020.

IV.2. Contracts



Using data mining for low quality pattern extraction for banking loan operations.

Contract Project: CajaGranada, Reference: FEUG 3022-00

Period: March 1, 2008 – September 30, 2008

Leading researchers: Francisco Herrera y Enrique Herrera-Viedma



Data Mining and Soft Computing to improve the data quality for banking scoring

Contract Project: Caja Navarra, Reference: FEUG 3245-00

Period: March 15, 2009 – January 30, 2010

Leading researchers: Francisco Herrera y Enrique Herrera-Viedma



CAB: Biometrical Authentication Center

Contract Project: INCITA (Reference: OTRI Contract 2845)

Period: July 10, 2011 – October 10, 2013

Leading researchers: Francisco Herrera y José Manuel Benítez



aPLaCA: Advanced Platform Cloud for Andalucía

Contract Project: INDRA (Reference: OTRI Contract 3056)

Period: December 1, 2011 - June 30, 2013

Leading researchers:



SecuVoice: Voice biometrics systems to ensure the security of the business applications

Contract Project: INCITA (Reference INNPACTO project: IPT-2012-0082-390000)

Period: December 1, 2012 - December 30, 2015

Leading researchers: Francisco Herrera



HMS-DAMICI - PDR: Health Monitoring System for a Wind Turbine based on DATA Mining and Computational Intelligence: Phase PDR

Contract project: GAMESA (Reference FG-UGR-EC-3764-00)

Period: November 15, 2012 - April 30, 2013

Leading researchers: Francisco Herrera and José Manuel Benítez



Application of data mining and Computational Intelligence techniques for data analysis of railway lines

Contract project: THALES (Reference OTRI Contract 3438)

Period: July 1, 2013 - December 31, 2014.

Leading researchers: Francisco Herrera and José Manuel Benítez



Application of Computational intelligence and Data Mining techniques for the prediction of crops and diseases in greenhouses

Contract project: LA PALMA (Reference FG-UGR-EC-3871-00)

Period: October 1, 2013 - September 30, 2014.

Leading researchers: Francisco Herrera and José Manuel Benítez



Advice and technical support in the tasks simulation, data mining, and big data

Contract project: INSPIRALIA (Reference FG-UGR-EC-4112-00)

Period: March 01, 2015 – September 30, 2018.

Leading researchers: Francisco Herrera and Oscar Cordón



Computational Intelligence techniques for the development and implementation of algorithms for calculating enterprise resource optimization of regular transport bus travel.

Contract project: SHS Consultores (Reference FG-UGR-EC-4179-00)

Period: September 15, 2015 - July 31, 2016.

Leading researchers: Francisco Herrera and José Manuel Benítez



GRANDEMAND: Data Analytics for non-household water consumption prediction

Contract project: CETAQUA (Reference FG-UGR-EC-4374-00)

Period: December 01, 2016 - March 31, 2017.

Leading researchers: Francisco Herrera and Salvador García



Development of artificial intelligence algorithms for learning about complex data and complex dynamic data

Contract Project: REPSOL (Reference OTRI 3923)

Period: February 15, 2018 - February 15, 2019

Leading researchers: Francisco Herrera and Salvador García



Turing project: Human impact on a controlled magnetic field sensor under variable contour conditions: Model development and algorithm integration

Contract Project: ONTECH SECURITY, S.L. (Reference OTRI-CTA 3939)

Period: March 1, 2018 - August 31, 2019

Leading researchers: Francisco Herrera and Salvador García



INSPECTOR: Industrial inSPeCTION and MainTenance of complex OR Unattended Facilities”.

Contract Project: Proyecto CIEN - Preditec (Reference: OTRI 3940)

Period: October 2017 - September 2021

Leading researchers: Francisco Herrera and Salvador García



Scientific and Technical Consultancy for Tecnologías Avanzadas Inspiralia S.A. Contract project:

INSPIRALIA, Reference: OTRI 4042

Period: October 2018 – September 2019

Budget: 79.992,89 euros

Leading researchers: Francisco Herrera and Oscar Cordón



Transformation of unstructured information from clinical analysis into structured information

Contract Project: Maphre España (Reference: OTRI 4057)

Period: October, 2018 – December 31, 2018

Leading researchers: Francisco Herrera and Eugenio Martínez



IV.3. Software registered under GNU General Public License

Two open source ([license GPLv3](http://www.gnu.org/licenses/gpl-3.0.html) <http://www.gnu.org/licenses/gpl-3.0.html>) software tools:



KEEL: A Software Tool to Assess Evolutionary Algorithms to Data Mining Problems

<http://www.keel.es>



SciMAT: Software Science Mapping Analysis Tool

<http://sci2s.ugr.es/scimat/>

V. Editorship Activity

Editor in Chief

Information Fusion (Elsevier) ISSN: 1566-2535
<http://www.journals.elsevier.com/information-fusion>

Progress in Artificial Intelligence (Springer) (Springer launches the Journal in 2012).
<http://www.springer.com/journal/13748>

Area Editor of the International Journal:

International Journal of Computational Intelligence Systems (Atlantis Press) ISSN: 1875-6891. Area: Information Systems.

Associate Editor or Editorial Board Member

IEEE transactions on Cybernetics (IEEE SMC Society, IEEE Press) ISSN: 2168-2267

Information Sciences (Elsevier) ISSN: 0020-0255

Fuzzy Sets and Systems (NORTH-HOLLAND) ISSN: 0165-0114

Applied Intelligence (Springer) ISSN: 0924-669X

Knowledge and Information Systems (Springer) ISSN: 0219-1377

Knowledge Based Systems (Elsevier) ISSN: 0950-7051

Evolutionary Intelligence (Springer-Verlag) ISSN: 1864-5909

International Journal of Hybrid Intelligent Systems (IOS Press) ISSN: 1448-5869

Swarm and Evolutionary Computing (Elsevier) ISSN: 2210-6502

Big Data Analytics (BioMed Central) ISSN: 2058-6345

Cognitive Computing (Springer) ISSN: 1866-9956

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

Co-editor of four research books published by Springer:

- **Genetic Algorithms and Soft Computing** (Physica-Verlag, 1996)
- **Interpretability Issues in Fuzzy Modeling** (Springer, 2003)
- **Accuracy Improvements in Linguistic Fuzzy Modeling** (Springer, 2003)
- **Fuzzy Sets and Their Extensions: Representation, Aggregation and Models. Intelligent Systems from Decision Making to Data Mining, Web Intelligence and Computer Vision** (Springer, 2008)

Co-editor of Thirty Five special issues: in international journals on different Soft Computing and data mining topics, such as, "Preference Modelling", "Computing with Words", "Ant Colony Optimization", "Real Coded Genetic Algorithms", "Fuzzy Modelling", "Genetic Fuzzy Systems", "data reduction",
(APPENDIX D contains the list of special issues).

VI. Experience in Scientific-Academic Management Positions

- **Head of the Research Group** "Soft Computing and Information Intelligent Systems", TIC-186, 2001-Present. <http://sci2s.ugr.es>
- **Director** of the "Genetic Fuzzy Systems" Task Force, Fuzzy Systems Technical Committee (FSTC), IEEE Computational Intelligence Society (CIS) from June 2007-November 2009.
- **President** of the National Commission for Young Researchers/Teachers Accreditation in Engineering (National Agency for Quality Assessment and Accreditation - ANECA), PEP Accreditation Program (<http://www.aneca.es/Programas/PEP/Comites-composicion>). March 2011 - April 2015.



VII. Invited Lectures and Tutorials

1. **EUROGEN 2003:** Evolutionary Methods for Design, Optimisation and Control with Applications to Industrial and Societal Problems. September 15-17, 2003, Barcelona.
Invited Talk: Genetic Fuzzy Systems
2. **ESTYLF 2004:** XII Congreso Español sobre Tecnologías y Lógica Fuzzy. 15-17 Septiembre 2004, Jaén.
Invited talk: Sistemas Difusos Evolutivos
3. **COMCEV 2005:** II Congreso Mexicano de Computación Evolutiva. 25-27 Mayo 2005, Aguascalientes, Mexico.
Invited talk: Algoritmos Meméticos
4. **IWAI 2005:** II International Workshop of Artificial Intelligence. Nov. 30 – Dec. 2, 2005, Pamplona.
Invited talk: Data Reduction in KDD
5. **EUROFUSE 2007:** EUROFUSE Workshop “New Trends in Fuzzy Preference Modeling”, 11-13 April, 2007, Jaén.
Invited talk: Computing with words in decision making.
6. **HAIS 2008:** 3rd International Workshop on Hybrid Artificial Intelligence Systems, September 24-26, 2008, Burgos.
Invited talk: Design of Experiments in Computational Intelligence: On the use of Statistical Inference.
7. **HM 2008:** International Workshop on Hybrid Metaheuristics, October 8-9, 2008. Málaga.
Invited talk: Evolutionary Algorithms and Fuzzy Systems
8. **IDEAL 2009:** 10th International Conference on Intelligent Data Engineering and Automated Learning, September 23-26, 2009, Burgos.
Invited talk: Subgroup Discovery: Foundations and Applications.
9. **AEPIA 2009:** XIII Conferencia de la Asociación Española para la Inteligencia Artificial. Noviembre 10-12, 2009, Sevilla.
Invited tutorial: Introducción a los Algoritmos Metaheurísticos.
10. **GEFS 2010:** Fourth International Workshop Genetic and Evolutionary Fuzzy Systems, March 17-19, 2010, Mieres (Asturias).
Invited talk: Genetic Fuzzy Systems for Subgroup Discovery: Models and Applications.
11. **HAIS 2011:** 6th Hybrid Artificial Intelligence Systems, May 23-25, 2011, Wroclaw, Poland.
Invited talk: Imbalanced Classification: Common Approaches and Open Problems. Challenges on Class Distribution
12. **IWANN 2011:** International Work Conference on Artificial neural Networks, June 8-10, 2011, Málaga
Invited talk: Dataset Shift in Classification: Approaches and Problems.
13. **EUROFUSE 2011:** International EUROFUSE WORKSHOP 2011: FUZZY METHODS FOR KNOWLEDGE-BASED SYSTEMS, September 21-23, 2011, Régua, Portugal.
Invited talk: On the Usefulness of Interval Valued Fuzzy Sets for Learning Fuzzy Rule Based Classification Systems
14. **NABIC 2011:** Third World Congress on Nature and Biologically Inspired Computing, October 19-21, 2011, Salamanca.
Invited talk: A Snapshot on the use of Evolutionary Algorithms for Parameter Optimization: Milestones and Current Trends
15. **FORO X 2013.** X FORO INTERNACIONAL SOBRE LA EVALUACIÓN DE LA CALIDAD DE LA INVESTIGACIÓN Y DE LA EDUCACIÓN SUPERIOR (FECIES), Junio 25-28, 2013, Granada.
Invited tutorial: ¿Cómo elaborar y redactar un proyecto de investigación en Ciencias de la Computación e Informática?
16. **INIT/AERFAI 2013 Summer School** on MACHINE LEARNING, June 24-28, 2013, Benicassim, Spain.
Invited tutorial: Statistical Analysis of experiments
17. **SSTiC 2013:** 2013 International Summer School on Trends in Computing, July 22-26, 2013, Tarragona.
Invited tutorial: Imbalanced Classification: Common Approaches and Open Problems
18. **CAEPIA 2013:** XV Conferencia de la Asociación Española de Inteligencia Artificial, September 17-20, 2013, Madrid.
Invited talk: Big Data

19. **SEMATICA 2013:** Jornadas científico-técnicas y seminario doctoral de la Red ATICA, Noviembre 20-22, 2013, Madrid.
Invited talk: Algunas ideas sobre la investigación (reflexiones y consejos): Tesis doctoral, metodología de la investigación y escritura de artículos científicos
20. **SWJTU 2014:** The SWJTU-Ulster Collaborative AMI Research Centre Strategic Workshop 2014 on “Towards Advanced Machine Intelligence for the Cyber World“, July 6th, 2013, Chengdu, China.
Invited talk: Big Data: Introducing Computational Intelligence Approaches
21. **JRSS 2014:** Joint Rough Set Symposium, July 9-13, 2014, Granada-Madrid.
Invited talk: Big Data: Selected Computational Intelligence Approaches
22. **IDEAL 2014:** 15th International Conference on Intelligent Data Engineering and Automated Learning, September 10-12, 2014, Salamanca
Invited talk: Big Data: Selected extremely imbalanced big data approaches
23. **TPNC 2014:** 3rd International Conference on the Theory and Practice of Natural Computing, December 9-11, 2014, Granada.
Invited talk: Bioinspired real parameter optimization. Where we are and what's next.
24. **INIT/AERFAI 2015 Summer School** on MACHINE LEARNING, June 22-26, 2015, Benicassim, Spain.
Invited tutorial: Data mining methods for big data preprocessing
25. **CORES 2015:** The 9th International Conference on Computer Recognition Systems, 25-27 May 2015, Wroclaw, Poland.
Invited talk: A tour on Big Data classification: Learning algorithms, feature selection and imbalanced classification.
26. **IFSA-ESFLAT 2015:** 16th World Congress of the International Fuzzy Systems Association (IFSA) and the 9th Conference of the European Society for Fuzzy Logic and Technology (EUSFLAT), June 30, July 3, 2015, Gijón, Spain.
Invited talk: A tour on Big Data classification: Selected Computational Intelligence Approaches
27. **ICCCI 2015:** 7th International Conference on Computational Collective Intelligence Technologies and Applications. September 21-23, 2015, Madrid, Spain.
Invited talk: Big Data: Technologies and algorithms to deal with challenges
28. **EUROCON 2015:** 16th International Conference on Computers as Tools, September 8-11, 2015, Salamanca, Spain.
Invited talk: Big Data: Technologies and Applications
29. **CAEPIA 2015:** Spanish Conference on Artificial Intelligence, November 09-12, 2015, Albacete, Spain.
Invited tutorial: Big Data: Technologies and Applications
30. **BigData 2016:** 2nd International Winter School on Big Data. February 8-12, 2016, Bilbao, Spain.
Invited tutorial: Big Data Preprocessing
31. **ESTYLF 2016:** XVIII Congreso Español sobre Tecnologías y Lógica Fuzzy, May 25-27, 2016, San Sebastián, Spain.
Invited talk: Challenges on the use of fuzzy systems in Data Science and Big Data.
32. **SCI 2016:** XII Simposio CEA de Control Inteligente, 22-24 Junio 2016, Oviedo, España.
Invited talk: Big Data: Algoritmos de Preprocesamiento de Datos y Sistemas Difusos
33. **FLINS 2016:** 12th International FLINS Conference, August 24-26, 2016, Roubaix, France.
Invited talk: Designing Fuzzy Systems for Big Data.
Invited tutorial: A Tutorial on Big Data: Technologies and Applications
34. **IEEE WCCI 2016:** IEEE World Congress on Computational Intelligence, July 24-29, 2016, Vancouver, Canada.
Invited tutorial: Big Data: Technologies and Computational Intelligence approaches
35. **COMPLEXIS 2017/IoTBDS 2017:** 2nd International Conference on Complexity, Future Information Systems and Risk/2nd International Conference on Internet of Things, Big Data and Security, April 24-26, Porto, Portugal,
Invited talk: Big Data, Smart data and Imbalanced Classification: Preprocessing, Models and Challenges
36. **IEEE FuzzIEEE 2017:** IEEE International Conference on Fuzzy Systems. July 9-12, 2017, Naples, Italy
Invited tutorial: Fuzzy Models for Data Science and Big data
37. **ICPRS2017:** 8th International Conference on Pattern Recognition Systems, 11-13 July, 2017, Madrid Spain
Invited tutorial: Fuzzy Models for Data Science and Big data

38. **SFLA2017-EVIA 2017:** Summer Schools AEPIA and EUSFLAT Associations July 20, Santiago de Compostela, Spain
Invited talk: Fuzzy Systems in Data Science and Big Data
39. **IEEE CIT-2017:** 17th IEEE International Conference on Computer and Information Technology (IEEE CIT-2017), 21-23 August, 2017, Helsinki, Finland.
Invited talk: Quality data for quality decisions: Big data preprocessing
40. **SUM 2017:** 11th International Conference on Scalable Uncertainty Management, October 4-6, 2017, Granada, Spain
Invited talk: Fuzzy Models for Uncertainty with Big Data
41. **BAFI 2018:** Third Conference on Business Analytics in Finance and Industry. January 17-19, 2018, Santiago de Chile, Chile.
Invited talk: A tour on Imbalanced Big Data Classification and Applications
42. **LOPAL2018:** International Conference on Learning and Optimization Algorithms: Theory and Applications, May 2-5 2018, Rabat, Morocco.
Invited talk: The bridge between Big Data and Smart Data. Big data Preprocessing
43. **WCCI 2018:** IEEE World Congress on Computational Intelligence, July 08- 14, 2018, Río de Janeiro, 2018.
Invited talk: Evolutionary Fuzzy Systems for data science and big data: Why and what for?
44. **EASP 2018:** I Jornada Andaluza sobre Big Data en Salud, EASP (Escuela Andaluza de Salud Pública), September 6, 2018
Invited talk: Big Data. El poder de los datos
45. **Genomics 2018:** IV European Conference Genomics of Complex Diseases: New Challenges, October 4-5, 2018.
Invited talk: Imbalanced Big Data Classification: Models and Application

VIII. Awards and Honors

- ECCAI Fellow 2009 (He has been elected a fellow of the European Coordinating Committee for AI in recognition of his research and service to the community).
- 2009 Outstanding Associate Editor IEEE Transactions on Fuzzy Systems
- 2010 Spanish National Award on Computer Science ARITMEL to the "Spanish Engineer on Computer Science". This award is promoted by the Computer Sciences Spanish Scientific Society (SCIE) (Premio Nacional de Informática ARITMEL 2010).
- 2010 International Award: International Cajastur "Mamdani Prize" for Soft Computing (Fourth Edition, November, 2010). This award is promoted by Cajastur and the Foundation for the Advancement of Soft Computing, through the European Centre for Soft Computing.
- IFSA Fellow 2013 (He has been elected a fellow of the International Fuzzy Systems Association in recognition of his research in fuzzy sets and systems).
- AEPIA Award 2013 (He received the recognition by Spanish Association on Artificial Intelligence to a scientific career in Artificial Intelligence (September 2013)).
- 2014 HiCi: Appointment as "highly Cited Researcher" by Thomson Reuters in the areas "Computer Sciences" and "Engineering" <http://highlycited.com>
- 2013 Social Council from the University of Granada Award to the Research Group "Soft Computing and Intelligent Information Systems" (F. Herrera, Head of the research group).
- 2014 University of Jaen Award "Natural de Jaén". ("Natural de Jaén award to outstanding individuals for his career in one of the areas of knowledge, arts and culture." He received the recognition by University of Jaen due to the numerous scientific achievements in his field of knowledge).
- 2014 XV Andalucía Research Prize Maimónides for the area of experimental sciences (by the regional government of Andalucía).
- 2017 Andalucía Medal (by the regional government of Andalucía).
- 2017 Excellence Research Award UGR-Caja Rural (Engineering Area, University of Granada).
- 2017 IDEAL Jaen Award. Research modality. (Jaén)
- 2018 Prize "Granada: Ciudad de la Ciencia y la Innovación", 1^a Edition, June 2018.
- 2018 Nomination Academic, Royal Academy of Engineering.

Appointment as Honorary Professor at international universities

- Honorary Professor in the School of Computer Science, The University of Nottingham, UK, August 2013-July 2018.
- Visiting Professor in the School of Innovation, Design and Engineering, Mälardalens University, Sweden, July 2013-June 2018
- Visiting Researcher in the Faculty of Computer Science, King Abdulaziz University, Jeddah, Saudi Arabia, -November 2014 - Present

Papers/Conference contributions awards:

- IEEE Transactions on Fuzzy System Outstanding 2008 Paper Award (bestowed in 2011), IEEE Computational Intelligence Society, for the following paper:
Francisco Herrera, Enrique Herrera-Viedma and Luis Martinez Lopez "A fuzzy linguistic methodology to deal with unbalanced linguistic term sets," published in IEEE Transactions on Fuzzy Systems, vol. 16, no. 2, pp. 354-370, April 2008.
- 2010 Award to the Top Cited Article 2005 – 2010 of the Journal Engineering Applications of Artificial Intelligence for the paper:
Rafael Alcalá, Jorge Casillas, Oscar Cordón, Antonio González, Francisco Herrera. A Genetic Weighted Rule Derivation and Rule Selection Process for Fuzzy Control of HVAC Systems. Engineering Applications of Artificial Intelligence 18:3 (2005) 279-296.
- 2011 Best paper Award University of Granada, Engineering Area (Best Paper Award 2008-09) for the following paper:
Francisco Herrera, Enrique Herrera-Viedma and Luis Martinez Lopez. "fuzzy linguistic methodology to deal with unbalanced linguistic term sets," IEEE Transactions on Fuzzy Systems, vol. 16, no. 2, pp. 354-370, April 2008.
- 2011 Lotfi A. Zadeh Prize (Best Paper Award 2009-10), International Fuzzy Systems Association, for the following paper:
A. Fernandez, M.J. del Jesus, F. Herrera, Hierarchical Fuzzy Rule Based Classification Systems with Genetic Rule Selection for Imbalanced Data-Sets. International Journal of Approximate Reasoning 50 (2009) 561-577.
- 2013 AEPIA best methodological paper at MAEB: Spanish Congress on Metaheuristics, Evolutionary and Bioinspired Algorithms, with the contribution:
Diana Martín, Alejandro Rosete, Jesús Alcalá-Fdez, Francisco Herrera. MOPNAR: Algoritmo Evolutivo Multi-Objetivo para Extraer Reglas de Asociación Cuantitativas Positivas y Negativas, Amparo Alonso-Betanzos et al. (Eds.), Actas Multiconferencia CAEPIA'13 (MAEB), September 2013, 882-891.
- 2013 Best paper Award University of Granada, Engineering Area (Best Paper Award 2010) for the following paper:
S. García, A. Fernández, J. Luengo, F. Herrera. Advanced nonparametric tests for multiple comparisons in the design of experiments in computational intelligence and data mining: Experimental Analysis of Power. *Information Sciences* 180 (2010) 2044–2064.
- 2014 Best paper Award University of Granada, Engineering Area (Best Paper Award 2011) for the following paper:
J. Alcalá-Fdez, A. Fernandez, J. Luengo, J. Derrac, S. García, L. Sánchez, F. Herrera. KEEL Data-Mining Software Tool: Data Set Repository, Integration of Algorithms and Experimental Analysis Framework. *Journal of Multiple-Valued Logic and Soft Computing* 17:2-3 (2011) 255-287.
- IEEE Transactions on Fuzzy System Outstanding 2012 Paper Award (bestowed in 2015), IEEE Computational Intelligence Society, for the following paper:
Rosa M. Rodríguez, Luis Martínez and Francisco 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.
- IFSA-EUSFLAT 2015 Best Application Paper Award, for the following paper:
J. Derrac, F. Chiclana, S. García, F. Herrera. "An Interval Valued K-Nearest Neighbors Classifier". Proc. IFSA-EUSFLAT 2015 Conference, Gijón (Asturias), Spain, June 29 - July 3, 2015.
- 2015 Best paper Award University of Granada, Engineering Area (Best Paper Award 2012) for the following paper: Rosa M. Rodríguez, Luis Martínez and Francisco 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.
- 2016 Best paper Award University of Granada, Engineering Area (Best Paper Award 2013) for the following paper:
V. López, A. Fernández, S. García, V. Palade, F. Herrera. An Insight into Classification with Imbalanced Data: Empirical Results and Current Trends on Using Data Intrinsic Characteristics. *Information Sciences* 250 (2013) 113-141.
- Security Forum Award I+D+i 2017
Project: University of Granada: Real-time video firearms detection system (R. Olmos, S. Tabik, F. Herrera)

Conference Competition awards:

- 2010 Winning Entry Certificate. CEC 2010 High-dimensional **Numerical Optimisation Competition**. IEEE Computational Intelligence Society 2010, IEEE Conference on Evolutionary Computation, Barcelona, July 18-23, 2010, with the contribution: Daniel Molina, Manuel Lozano, Francisco Herrera. MASWChains: Memetic Algorithm Based on Local Search Chains for Large Scale Continuous Global Optimization Proc. IEEE CEC 2010. WCCI 2010 IEEE World Congress on Computational Intelligence. Pages: 3153 - 3160.
- 2010 Award ICPR Landscape Contest. ICPR 2010 Contest for **Classifier Domains of Dominance**. Champion of the Offline Test and Champion of the Real-Time test, with the contribution:
J. Derrac, S. García, F. Herrera. IFS-CoCo in the Landscape Contest: Description and results. Proceedings of Twentieth Conference of the International Association for Pattern Recognition (ICPR'2010), Estambul (Turkey), D. Ünay, Z. Cataltepe, and S. Aksoy (Eds.), LNCS vol. 6388, Springer, 210, pp. 56-65.
- 2014 Award ECBDL'14 big data competition. ECBDL'14: Evolutionary Computation for Big Data and Big Learning Workshop, GECCO-2014, July 13th, Vancouver, Canada. Ranked first in the ECBDL'14 **big data competition** with the team EFDAMIS. I. Triguero, S. del Rio, V. López, J.M. Benítez, F. Herrera. A Big data algorithm for imbalanced Big data including Random Forest, Evolutionary Feature Weighting and Oversampling for the problem "Contact map prediction".
- 2018 Winning Entry Certificate. CEC 2018 High-dimensional **Numerical Optimisation Competition**. IEEE Computational Intelligence Society 2018, IEEE Conference on Evolutionary Computation, Riio Janeiro, July 08-14, 2018, with the contribution:
Daniel Molina, A. LaTorre, Francisco Herrera. SHADE with Iterative Local Search for Large-Scale Global Optimization Proc. IEEE CEC 2018. WCCI 2018 IEEE World Congress on Computational Intelligence. DOI: 10.1109/CEC.2018.8477755

Ph students awards:

- 2009 IFSA Ph Student Award: Julián Luengo received the Best Student Paper Award for the work presented at 2009 IFSA World Congress/ EUSFLAT Conference (July 2009), for the contribution:
Julián Luengo (student), Francisco Herrera (supervisor). On the use of Measures of Separability of Clases to Characterise the Domain of Competence of a Fuzzy Rule Based Classification System. Proc. 2009 IFSA Congress and EUSFLAT Conference. Pages: 1027-1032.
- 2011 ISDA Ph Student Award: José Antonio Sáez received the Best Special Session Student Paper Award at the ISDA 2011 (November 2011) "11th International Conference on. Intelligent Systems Design and Applications", for the contribution:
José A. Sáez (student), Julián Luengo (co-supervisor) and Francisco Herrera (co-supervisor), "Fuzzy Rule Based Classification Systems versus Crisp Robust Learners Trained in Presence of Class Noise's Effects: a Case of Study," in Proceedings of the 2011 11th International Conference on Intelligent Systems Design and Applications, pp. 1229-1234.
- 2011 AEPIA Student Master Award: Isaac Triguero received the AEPIA Best Student Master Award (Spanish Association for the Artificial Intelligence, First edition, November 2011) for the work: Prototype generation. IPADE: Iterative Prototype Adjustment for Nearest Neighbor Classification. (Co-advisors: Salvador García, Francisco Herrera).
- 212 ESTYLF Ph Student Award: Victoria López received the Best Student Paper Award (Application modality) for the contribution presented at the ESTYLF 2012 "XVI Spanish Conference on Fuzzy Logic and Technologies", February, 2012. Victoria López (Ph student), Alberto Fernández, María José del Jesús, Francisco Herrera, "Un sistema de clasificación basado en reglas difusas jerárquico con programación genética para problemas de clasificación altamente no balanceados", in Proceedings of ESTYLF 2012, pp. 313-318.
- 212 MAEB Ph Student Award: Isaac Triguero received the Best Student Paper Award for the contribution presented at the MAEB2012 "VIII Spanish Conference on Metaheuristics, Bioinspired and Evolutionary Algorithms", February, 2012. Isaac Triguero, Joaquín Derrac, Salvador García y Francisco Herrera. Evolución Diferencial para Reducción de Prototipos y Ponderación de Características, Proceedings of MAEB 2012, pp. 267-274.
- 2013 EUSFLAT Phd Award, Second Position: Dr. José Antonio Sanz for the Phd thesis:
Linguistic Fuzzy Rule-based Classification Systems Using Interval-valued Fuzzy Sets and Tuning of the Ignorance Degree. Supervisors: A. Fernández-Hilario, H. Bustince, F. Herrera.
- 2015 AEPIA Phd Thesis Project Award: Daniel Peralta for the Phd project:
Minería de Datos en Computación de Altas Prestaciones para Identificación en Grandes Bases de Datos de Huellas Dactilares
- 2016 AEPIA Phd Thesis Project Award: Sergio Ramírez for the Phd project:
Big Data Preprocessing: Algorithms for Data Reduction and Online Learning

IX. Profiles and International Rankings



Highly Cited Researchers (Clarivate Analytics).

He belongs to the list of the HiCi in the areas of Engineering and Computer Sciences:
<http://highlycited.com/>



Profiles and h-Index: An author's *h* score is the number of papers that have *h* or more citations each.

h Index (ISI Web of Science): 85 (>28.000 citations) (Apr 2018)

ISI ResearchID Profile

<http://www.researcherid.com/rid/C-6856-2008>

h Index (Scholar Google profile): 121 (>59.000 citations) (Apr 2018)

Scholar Google Research Profile

<http://scholar.google.es/citations?user=HULIk-QAAAAJ&hl=es>

The next picture shows the publications and citations data from Scholar Google:



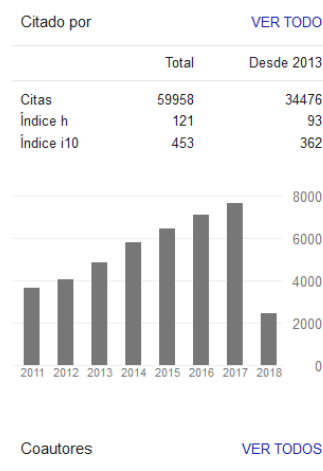
Francisco Herrera

SEGUIR

Professor of Computer Science and Artificial Intelligence, [Granada University](#)
 Dirección de correo verificada de deccai.ugr.es - [Página principal](#)

[Artificial Intelligence](#) [Computational Intelligence](#) [Data mining](#) [Evolutionary Algorithms](#)
[Big Data Analytics](#)

TÍTULO	CITADO POR	AÑO
A 2-tuple fuzzy linguistic representation model for computing with words F Herrera, L Martínez Fuzzy Systems, IEEE Transactions on 8 (6), 746-752	2006	2000
Linguistic decision analysis: steps for solving decision problems under linguistic information F Herrera, E Herrera-Viedma Fuzzy Sets and systems 115 (1), 67-82	1476	2000
Tackling real-coded genetic algorithms: Operators and tools for behavioural analysis F Herrera, M Lozano, JL Verdegay Artificial Intelligence Review 12 (4), 265-319	1349	1998
A practical tutorial on the use of nonparametric statistical tests as a methodology for comparing evolutionary and swarm intelligence algorithms	1322	2011



X. Other Scientific Activities (Technical Committees and Conference Organization)

- **Member** of the "Fuzzy Systems Technical Committee" of the IEEE Computational Intelligence Society from June 2007 to June 2012.
- **Member** of the "Emergent Technologies Technical Committee" of the IEEE Computational Intelligence Society from January 2007.
- **Member** of the "Genetic Fuzzy Systems" Task Force, Fuzzy Systems Technical Committee (FSTC), IEEE Computational Intelligence Society (CIS) from June 2005 to June 2007. Coordinator from June 2007 to November 2009.
- **Member of the Program Committees** of numerous conferences in the fields of Artificial Intelligence, Soft Computing, data mining, intelligent information systems,
- **Conference Organization:**
 1. **General Chair** of the Spanish National Conference on Artificial Intelligence (CAEPIA2018), 23-26 October, 2018, Granada, Spain.
 2. **Honorary Co-Chair** of the 19th International Conference on Intelligent Data Engineering and Automated Learning (IDEAL 2018), 21-23 November, 2018, Madrid, Spain.
 3. **General Co-Chair** of the IEEE Big Data Congress, July 2-7, 2018, San Francisco, USA.
 4. **Programme Co-chair** of the 2017 IEEE International Conference on Fuzzy Systems. July 9-12, 2017, Naples, Italy
 5. **General Co-Chair** of the 2nd IEEE International Conference on Smart Data (SmartData-2017), 15-18 Dec. 2016, Chengdu, China
 6. **General Co-Chair** of the 9th IEEE International Conference on Big Data Science and Engineering (IEEE BigDataSE-15), 20-22 August 2015, Helsinki, Finland.
 7. **Best Paper Award Chair** of the 2015 IEEE Symposium Series on Computational Intelligence 7 – 10 December 2015, Cape Town, South Africa.
 8. **Programme Co-chair** of the 2013 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2013), July 07-10, 2013, Hyderabad, India.

9. **Publicity Co-chair** of the 2013 IEEE Symposium Series on Computational Intelligence (IEEE SSCI 2013), April 15-19, 2013, Singapore.
10. **Program Chair** of the Seventh International Conference on Knowledge, Management, Services and Cloud Computing (KMO 2012), July 11-13, Salamanca, Spain.
11. **Programme Co-chair** of the Spanish Conference on Fuzzy Logic and Technologies, ESTYLF 2012, February 1-3, Valladolid, Spain.
12. **Publicity Co-chair** of the 2011 IEEE International Conference on Fuzzy Systems – FUZZ-IEEE 2011, June 27-30, 2011, Taipei, Taiwan.
13. **Technical Co-chair** of the IEEE Congress on Evolutionary Computation - CEC 2010, July 18-23, Barcelona, Spain.
14. **Area chair** of the 13TH International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems, IPMU 2010, 28 June - 02 July 2010 Westfallenhallen, Dortmund, Germany. Area: Decision Analysis.
15. **Programme Co-Chair** of 23rd International Conference on Industrial, Engineering & Other Applications of Applied Intelligent Systems, IEA/AIE 2010, Córdoba, Spain, June 1 - June 4, 2010.
16. **President of the Organization Committee** of XV Spanish Conference on Fuzzy Logic and Technologies, ESTYLF'2010, Huelva, Spain, February 3-6, 2010.
17. **General Co-Chair** of the 1th World Congress on Nature and Biologically Inspired Computing (NABIC'09), Coimbatore, India, December 9 –December 11, 2009.
18. **Programme Co-Chair** of the 9th International Conference on Intelligent Systems Design and Applications, Pisa, Italy, November 30 – December 2, 2009.
19. **Programme Co-chair** of the 8th International Conference on Hybrid Intelligent Systems (HIS2008), Barcelona, Spain, September 10-12, 2008.
20. **Area chair** of the IEEE International Conference on Fuzzy Systems - FUZZ-IEEE 2007, July 23 - 26 2007, London, England. Area: Soft Computing and Hybrid Systems (Adaptive, hierarchical, evolutionary, neural and nature-inspired systems).
21. **Programme Co-chair** of the 1^a Jornadas de Algoritmos Evolutivos y Metaheurísticas (JAEM'2007), (First Spanish workshop on Evolutionary Algorithms and Metaheuristics). 11-14 Septiembre de 2007. (2^o Congreso Español de Informática, CEDI2007), Zaragoza, España.
22. **Conference Co-chair** of the First International Workshop on Genetic Fuzzy Systems, Granada, Spain, March 17-19, 2005.
23. **Conference Co-chair** of the IV Congreso Español de Metaheurísticas, Algoritmos Evolutivos y Bioinspirados, 14-16 September, 2005, Granada. (Spanish Conference on Metaheuristics, Evolutionary and Bioinspired Algorithms).
24. **Conference Co-chair** of the 2nd ACIDCA'2005 International Conference on Machine Intelligence. Tozeur, Tunisia, November 5-7, 2005.
25. **Member of the organizing committee.** Workshop: "Aprendizaje y Minería de Datos". 12-15 Noviembre, Sevilla (en el Marco de la Conferencia Iberoamericana de Inteligencia Artificial, IBERAMIA 2002). (First Spanish Workshop on Learning and Data Mining).
26. **Technical Program Chair of the** Seventh Online World Conference on Soft Computing in Industrial Applications, September 2002, Granada.
27. **Member of the organizing committee.** Primer Congreso Español de Algoritmos Evolutivos y Bioinspirados, February 2002, Merida, Spai. (First Spanish Conference on Evolutionary and Bioinspired Algorithms).
28. **President of the organizing committee.** EUROFUSE Workshop on Preference Modeling, April 2001, Granada, Spain.
29. **Member of the organizing committee.** Primer y Segundo Seminario Español de Computación Evolutiva (SCETA'97 y SCETA'99). November 1997, Torremolinos, Spain, November 1999, Murcia, Spain. (First and Second Spanish Workshop on Evolutionary Computation).
30. **Member of the organizing committee.** Sixth International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems (IPMU96), July 1996, Granada.
31. **Member of the organizing committee.** Primer Congreso Español de Tecnologías y Lógica Fuzzy (First Spanish Conference on Fuzzy Logic and Technologies), June 1991, Granada, Spain.

APPENDIX A: PhD Thesis Supervisor (43)

Enrique Herrera-Viedma

Linguistic models in group decision making

Co-advisor: J.L. Verdegay

University of Granada, June 1996

Manuel Lozano

Using fuzzy tools for improving genetic algorithms behaviour

University of Granada, October 1996

Oscar Cordon

A methodology for genetic learning of fuzzy rule based systems

University of Granada, October 1997

Luis Martínez

A new model for representing linguistic information based on 2-tuple for aggregating linguistic preferences

University of Granada, October 1999

María José del Jesus

Genetic fuzzy systems for classification

University of Granada, November 1999

Francisco Chiclana

Integrating preference presentation models in multi-expert decision making

Co-advisor: E. Herrera-Viedma

University of Granada, March 2000

Antonio Peregrín

Integration of implication operators and defuzzification methods in fuzzy rule based systems.

University of Granada, September 2000

Pedro Villar

Evolutionary learning of fuzzy partition in linguistic fuzzy models.

Co-advisor: O. Cordon

University of Vigo, December 2000

Igor Zwir

Hierarchical fuzzy rule based models and their learning methodologies

Co-advisor: O. Cordon

University of Granada, January 2001

Jorge Casillas

Cooperative learning for linguistic modelling: interpretability and precision

Co-advisor: O. Cordon

University of Granada, July 2001

Ana María Sánchez

Balance between diversity and precision with multiple descendant based crossover operators in real coded genetic algorithms.

Co-advisor: M. Lozano

University of Vigo, July 2002.

José Ramón Cano de Amo

Data reduction based on evolutionary instance selection for data mining.

Co-advisor: M. Lozano

University of Granada, October 2004

Sergio Alonso

Group Decision Making with Incomplete Fuzzy Preference Relations

Co-advisors: E. Herrera-Viedma, F. Chiclana

University of Granada, May 2006.

Jesús Alcalá

Flexible linguistic modelling using 2-tuple linguistic representation

Co-advisor: R. Alcalá

University of Granada, Septiembre 2006.

Daniel Molina

Memetic algorithms with application of adaptive local search for continuous optimization.

Co-advisor: M. Lozano

University of Granada, October 2007.

Francisco A. Márquez

Cooperation among inference components, defuzzification methods and fuzzy rule based system learning methods.

Co-advisor: A. Peregrín

University of Huelva, November 2007.

Pedro José Sánchez

Models for combining heterogeneous preferences in decision making: Tools and applications

Co-advisor: L. Martínez

University of Granada. December 2007.

Pedro González

Evolutionary learning of fuzzy rules for subgroup discovery

Co-advisor: M.J. del Jesus

University of Granada. January 2008

Salvador García

New challenges for the evolutionary instance selection: scalability, learning with imbalanced data sets and efficacy characterization

University of Granada, December 2008.

Alberto Fernández

Linguistic fuzzy rule based classification systems for imbalanced data sets.

Co-advisor: M.J. del Jesus

University of Granada, March 2010.

Francisco Berlanga

Genetic Programming for designing compact and interpretable fuzzy rule based systems.

Co-advisor: M.J. del Jesus

University of Granada, June 2010.

María José Gacto

Evolutionary multi-objective optimization of interpretability and complexity measures for linguistic fuzzy systems.

Co-advisor: R. Alcalá

University of Granada, October 2010.

Julian Luengo

Soft Computing based learning and Data Analysis: Missing Values and Data Complexity

University of Granada, January 2011.

José Antonio Sanz

Fuzzy rule based classification systems using interval fuzzy valued and ignorance tuning.

Co-advisors: H. Bustince, A. Fernández

University of Pamplona, July 2011.

Manuel Jesús Cobo Martín

SciMAT: Software tool for science mapping. An evaluation methodology

Co-advisors: A.G. López-Herrera, E. Herrera-Viedma

University of Granada, October 2011

Mikel Galar

Ensembles of Classifiers for Multi-class Classification Problems: One-vs-One, Imbalanced Data-sets and Difficult Classes.

Co-advisors: E. Barrenechea, A. Fernández

University of Pamplona, July 2012.

José García-Torres

Dataset Shift in Classification: Terminology, Benchmarks and Methods

University of Granada, March 2013

Joaquin Derrac

Advanced Models for Nearest Neighbor Classification Based on Soft Computing Techniques

Co-advisor: S. García

University of Granada, March 2013

Michela Fazzolari

Study and design of Multi-Objective Evolutionary Fuzzy Systems for improving the interpretability-accuracy trade-off Linguistic Fuzzy Rule-Based Systems when dealing with high-dimensional and large scale problems.

Co-advisor: R. Alcalá

University of Granada, November, 2013.

Victoria López

Fuzzy Rule Based Systems for Imbalanced Classification. New Strategies for solving intrinsic data sets problems.

Co-advisor: A. Fernández

University of Granada, April 2014.

Isaac Triguero

Real Coding Evolutionary Algorithms for Prototype Generation supervised and semi-supervised learning based on instances.

Co-advisor: S. García

University of Granada, April 2014.

Enislay Ramentol

New Editing Methods for Unbalanced Classification based on Rough Sets Theory

Co-advisor: R. Bello

University of Granada, June 2014.

Dánel Sánchez

Algorithms for Multi-instance learning

Co-advisor: R. Bello, C. Cornelis

University of Granada, June 2014.

Diana Martín

Evolutionary Algorithms for Extracting Quantitative Association Rules

Co-advisor: J. Alcalá-Fdez

University of Granada, June 2014

José Antonio Sáez

Estudios para Clasificación con Datos con Ruido

Co-advisor: J. Luengo

University of Granada, October 2014

Bejamin Lacroix

Region-based Memetic Algorithms for Global and Multimodal Continuous Optimisation.

Co-advisor: D. Molina

University of Granada, January 2015.

Francisco Charte

New hybrid Computational Intelligence methods for Multi-label Classification.

Co-advisor: MJ del Jesus, A.J. Rivera

University of Granada, May 2015.

Lala Septem Riza

Machine Learning in R: Software Libraries, Standard Representations, and Big Data

Co-advisor: J.M. Benítez

University of Granada, July 2015.

Bartosz Krawczyk

Forming and Pruning One-class Classifier Ensembles

Co-advisor: Michał Woźniak

Wrocław University of Technology, Poland, October 2015

Daniel Peralta

Data Mining in High Performance Computing for Fingerprint Identification in Databases

Co-advisor: J.M. Benítez

University of Granada, September 2016.

Pablo Gutiérrez.

Identificación y Clasificación Biométrica a Gran Escala Basada en Huellas Dactilares y GPU

Co-advisor: M. Lastra

University of Granada, Abril, 2017.

Sergio Ramírez.

Distributed data reduction algorithms for Big Data

Co-advisor: S. Garcia

University of Granada, February, 2018.

Cong-Cong Li

Personalized individual semantics in computing with words for supporting linguistic group decision making

Co-advisor: Yucheng Dong

University of Granada, October, 2018.

APPENDIX B: It contains the last 7 years journal publications. Period 2013-2018: 164 papers

1. A. Fernandez, S. Garcia, N.V. Chawla, F. Herrera. **SMOTE for Learning from Imbalanced Data: Progress and Challenges. Marking the 15-year Anniversary.** Journal of Artificial Intelligence Research 61 (2018) 863-905
2. I Cordon, S García, A Fernández, F Herrera. imbalance: Oversampling Algorithms for Imbalanced Classification in R. Knowledge-Based Systems 161, 329-341

3. X Wu, H Liao, Z Xu, A Hafezalkotob, F Herrera **Probabilistic Linguistic MULTIMOORA: A Multi-Criteria Decision Making Method Based on the Probabilistic Linguistic Expectation Function and the Improved Borda Rule.** IEEE Transactions on Fuzzy Systems 26:6 (2018) 3688-3702
4. Z Fu, X Wu, H Liao, F Herrera. **Underground mining method selection with the hesitant fuzzy linguistic gained and lost dominance score method.** IEEE Access 6, 66442-66458
5. S. Ramírez-Gallego, H. Mouriño-Talín, D. Martínez-Rego, V. Bolón-Canedo, J.M. Benítez, A. Alonso-Betanzos, F. Herrera. **An Information Theory-Based Feature Selection Framework for Big Data under Apache Spark.** IEEE Transactions on Systems, Man, and Cybernetics: Systems 48 (9), 1441-1453, 2018
6. Daniel Molina, Antonio LaTorre, Francisco Herrera. An Insight into Bio-inspired and Evolutionary Algorithms for Global Optimization: Review, Analysis, and Lessons Learnt over a Decade of Competitions. Cognitive Computing, 10 (4), pp 517–544
7. X Gou, Z Xu, H Liao, F Herrera. **Multiple Criteria Decision Making based on Distance and Similarity Measures under Double Hierarchy Hesitant Fuzzy Linguistic environment.** Computers & Industrial Engineering 126 (2018), 516-530.
8. D.G. Cañizares, A. Fernandez, F. Herrera, A. Antunes, R. Molina-Ruiz, G. Agüero-Chapin. **Surveying Alignment-free Features for Ortholog Detection in Related Yeast Proteomes by using Supervised Big Data Classifiers.** BMC Bioinformatics 19 (1), 166, 2018
9. A Rosales-Perez, S Garcia, H Terashima-Marin, CAC Coello, F Herrera. MC2ESVM: Multiclass Classification Based on Cooperative Evolution of Support Vector Machines, IEEE Computational Intelligence Magazine 13:2 (2018) 18-29.
10. D Martín, M Martínez-Ballesteros, D García-Gil, J Alcalá-Fdez, F Herrera, J. Riquelme. MRQAR: a generic MapReduce framework to discover Quantitative Association Rules in Big Data problems. Knowledge-Based Systems 153 (2018) 176–192.
11. R. Montes, A.M. Sánchez, P. Villar, F. Herrera. **Teranga Go!: Carpooling Collaborative Consumption Community with multi-criteria hesitant fuzzy linguistic term set opinions to build confidence and trust.** Applied Soft Computing 67 (2018) 941-952 (2018, in press.
12. S. Vluymans, A. Fernandez, C. Cornelis, Y. Saeys, F. Herrera. **Dynamic Affinity-based Classification of Multi-Class Imbalanced Data with One-vs-One Decomposition: a Fuzzy Rough Set Approach.** Knowledge and Information Systems, 58:1 (2018) 55–84,. 2018
13. H. Liao, Z. Xu, E. Herrera-Viedma, F. Herrera. **Hesitant fuzzy linguistic term set and its application in decision making: A state-of-the-art survey.** International Journal of Fuzzy Systems 20:7 (2018) 2084–2110.
14. D García-Gil, S Ramírez-Gallego, S García, F Herrera. **Principal Components Analysis Random Discretization Ensemble for Big Data.** Knowledge-Based Systems, 150, 166-174, 2018
15. H.C. Liao, X.M. Mi, Z.S. Xu, J.P. Xu, F. Herrera. **Intuitionistic fuzzy analytic network process.** IEEE Transactions on Fuzzy Systems, 26:5 (2018) 2578-2590.
16. F.J. Baldan, S. Ramirez-Gallego, C. Bergmeir, J.M. Benitez-Sanchez, F. Herrera. **A Forecasting Methodology for Workload Forecasting in Cloud Systems.** IEEE Transactions on Cloud Computing 8(4) (2018) 929-941.
17. A. Valdivia, M.V. Luzón, E. Cambria, F. Herrera. **Consensus Vote Models for Detecting and Filtering Neutrality in Sentiment Analysis.** Information Fusion 44 (2018) 126–135.
18. S. Ramírez-Gallego, S. García, F. Herrera. **Online entropy-based discretization for data streaming classification.** Future Generation Computer Systems 86 (2018) 59-70.
19. F. Charte, A.J. Rivera, D. Charte, M.J. del Jesus, F. Herrera. **Tips, guidelines and tools for managing multi-label datasets: the mldr. datasets R package and the Cometa data repository.** Neurocomputing 289 (2018) 68-85.
20. Z.L. Zhang, X.G. Luo, S. González, S. García, F. Herrera. **DRCW-ASEG: One-versus-One distance-based relative competence weighting with adaptive synthetic example generation for multi-class imbalanced datasets.** Neurocomputing 285 (2018) 176-187.
21. C.C. Li, R.M. Rodríguez, L. Martínez, Y. 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.
22. S. García, Z.L.Zhang , A. Altalhi, S. Alshomrani, F. Herrera. **Dynamic ensemble selection for multi-class imbalanced datasets.** Information Sciences, 445-446 (2018) 22–37
23. D. Charte, F. Charte, S. García, M.J. del Jesus, F. Herrera. **A practical tutorial on autoencoders for nonlinear feature fusion: Taxonomy, models, software and guidelines.** Information Fusion 44 (2018) 78–96
24. C.J. Carmona, M.J. del Jesus, F. Herrera. **A Unifying Analysis for the Supervised Descriptive Rule Discovery via the Weighted Relative Accuracy.** Knowledge-Based Systems 139 (2018) 89-100.
25. C.C. Li, R.M. Rodríguez, F. Herrera, L. Martínez, Y. Dong. **Consistency of hesitant fuzzy linguistic preference relations: An interval consistency index.** Information Sciences 432 (2018) 347–361.

26. G. Acampora, F. Herrera, G. Tortora, A. Vitiello. **A multi-objective evolutionary approach to training set selection for support vector machine**. Knowledge-Based Systems 147 (2018) 94-108.
27. S. Vluymans, C. Cornelis, F. Herrera, Y. Saeys. **Multi-Label Classification using a Fuzzy Rough Neighborhood Consensus**. Information Sciences 433-434 (2018) 96-114.
28. I. Chaturvedi, E. Cambria, R.E. Welsch, F. Herrera. **Distinguishing Between Facts and Opinions for Sentiment Analysis: Survey and Challenges**. Information Fusion 44 (2018) 65-77
29. F. Padillo, J.M. Luna, F. Herrera, S. Ventura. **Mining Association Rules on Big Data through MapReduce Genetic Programming**. Integrated Computer-Aided Engineering 44 (2018) 65-77.
30. S. Ramírez-Gallego, S. García, J.M. Benítez, F. Herrera. **A distributed evolutionary multivariate discretizer for Big Data processing on Apache Spark**. Swarm and Evolutionary Computation 38 (2018) 240-250.
31. M. Chen, F. Herrera, K. Hwang. **Cognitive Computing: Human-Centered Computing with Cognitive Intelligence on Clouds**. IEEE Access 99 (2918)
32. R.M. Rodriguez, Y. Xu, L. Martinez, F. Herrera. **Exploring Consistency for Hesitant Preference Relations in Decision Making: Discussing Concepts, Meaning and Taxonomy**. Journal of Multiple-Valued Logic and Soft Computing 30:2-3 (2018) 129-154
33. S. Ramírez-Gallego, A. Fernández, S. García, M. Chen, F. Herrera. **Big Data: Tutorial and Guidelines on Information and Process Fusion for Analytics Algorithms with MapReduce**. Information Fusion 42 (2018) 51-61.
34. D. Peralta, I. Triguero, S. García, Y. Saeys, J.M. Benítez, F. Herrera. **On the use of convolutional neural networks for robust classification of multiple fingerprint captures**. International Journal of Intelligent Systems 33:1 (2018) 213-230.
35. R. Olmos, S. Tabik, F. Herrera. **Automatic Handgun Detection Alarm in Videos Using Deep Learning**. Neurocomputing 275 (2018) 66-72.
36. J. Luengo, S.O. Shim, S. Alshomrani, A. Altalhi, F. Herrera. **CNC-NOS: Class Noise Cleaning by Ensemble Filtering and Noise Scoring**. Knowledge-Based Systems 140 (2018) 27-49.
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