



## CURRICULUM VITAE (CVA)

**IMPORTANT – The Curriculum Vitae cannot exceed 4 . Instructions to fill this document are available in the website.**

### Part A. PERSONAL INFORMATION

CV date 16/1/2022

PART A: PERSONAL INFORMATION			
First name	Nicolás		
Family name	García Pedrajas		
Gender (*)	Hombre		
Social Security, Passport, ID number			
e-mail	npedrajas@uco.es	URL Web	
Open Research and Contributor ID (ORCID)(*)		0000-0002-4488-6849	

(\*) Mandatory

#### A.1. Current position

Position	Catedrático de Universidad		
Initial date	14/4/2016		
Institution	Universidad de Córdoba		
Departament/Center	<a href="#">Dpto. De Informática y Análisis Numérico</a>		
Country	España	Teleph. number	957211032
Key words	Machine learning; evolutionary computation; data mining		

#### A.2. Previous positions (research activity interruptions, art. 45.2.c))

#### A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licenciado en Informática	Universidad de Málaga	1993
Doctor Ingeniero en Informática	Universidad de Málaga	2001

### Part B. CV SUMMARY (max. 5000 characters, including spaces)

My research has been mainly dedicated to the area of Machine Learning, especially in the subject of evolutionary computation and all aspects related to the recognition of patterns and classification, and in applied research in the field of Bioinformatics, especially in the automatic prediction of the structure of genes.

The work done during these years has led to 58 publications in journals, as well as acting as an editor in 3 special issues of journals included in the JCR. Among them are publications of the prestige of Machine Learning, Artificial Intelligence, Journal of Machine Learning Research, IEEE Trans. Neural Networks, IEEE Trans. Pattern Analysis and Machine Intelligence, Pattern Recognition, Neural Networks, Data Mining & Knowledge Discovery, IEEE Trans. Evolutionary Computation, Information Sciences, Journal of Artificial Intelligence Research and Bioinformatics.

It is also noteworthy that all the published works have reached a total number of citations above 3,000. This constitutes a considerable number if we take into account that many of them have been published very recently.

This research activity has also included collaboration as a reviewer in the vast majority of publications of recognized prestige in the area, such as those cited above.

The recognition of my scientific work has been corroborated with the presence as plenary speaker at the international conference “11th International Conference on Intelligent Data Engineering and Automated Learning” (IDEAL'2010) held in Glasgow (United Kingdom). Collaboration with other national research groups has been encouraged, manifested by the fact that currently there are research projects in collaboration with researchers from the University of Córdoba, the University of Burgos and the Consejo Superior de Investigaciones Científicas.

International collaboration has been one of my concerns, with different short stays and three long-term stays within the teacher mobility program. A first stay of 6 months at the University of Paisley (United Kingdom) where a fruitful collaboration with Prof. Colin Fyfe was started, a second stay of 4 months at the University of the West of Scotland (United Kingdom), and a third stay in the University of Glasgow collaborating with the Terrier group of the Prof. Ounis. I have also established collaborations with other organizations in order to put in value the theoretical knowledge acquired. In this field, the most outstanding collaboration has been with the European Space Operations Center of the European Space Agency. In a joint work we collaborate in the modeling of the thermal subsystem of the space probe Venus Express in orbit around the planet Venus.

The international projection has been completed with the organization of the 23rd edition of the IEA-AIE 2010 international congress that was held in Cordoba in June 2010. In the same way I have participated in evaluation processes of research projects for ANEP and for FONCyT of the Ministry of Science and Technology of Argentina.

## **Part C. RELEVANT MERITS**

### **C.1. Publications (including books)**

**N. García-Pedrajas**, G. Cerruela-García, “Cooperative coevolution for multi-label instance selection” *Knowledge-Based Systems*, vol. 234, 25 December 2021, 107569 (Q1)

**N. García-Pedrajas**, J. A. Romero del Castillo, G. Cerruela-García, “Fast simultaneous instance and feature selection for datasets with many features”, *Pattern Recognition*, vol. 111, March 2021, 107723 (Q1)

A. de Haro-García, J. Pérez-Parras, G. Cerruela-García, **N. García-Pedrajas**, “A graph-based method for combining feature selectors”, *IEEE Trans. on Cybernetics*, in press. (Q1)

J. Pérez-Rodríguez, A. de Haro-García, J. A. Romero del Castillo, **N. García-Pedrajas**, “A general framework for boosting feature subset selection algorithms”, *Information Fusion*, vol. 44, November 2018, 147-175. (Q1)

G. Cerruela-García, A. de Haro-García, J. Pérez-Parras, **N. García-Pedrajas**, “Improving the combination of results in the ensembles of prototype selectors”, *Neural Networks*, vol. 118, October 2019, 175-191. (Q1)

A. de Haro-García, G. Cerruela-García, **N. García-Pedrajas**, “Instance selection based on boosting for instance based learners”, *Pattern Recognition*, vol. 96, 2019, 106959. (Q1)

A. de Haro-García, G. Cerruela-García, **N. García-Pedrajas**, “Ensembles of feature selectors for Class-Imbalanced datasets”, *Information Sciences*, vol. 540, 2020, 89-116. (Q1)

A. de Haro-García, G. Cerruela-García, **N. García-Pedrajas**, “Ensembles of Feature Selectors for dealing with Class-Imbalanced Datasets: A proposal and comparative study”, *Information Sciences*, in press (Q1).

G. Cerruela-García, A. de Haro-García, J. Pérez-Parras Toledano and **N. García-Pedrajas** (2019) “Improving the combination of results in the ensembles of prototype selectors,” *Neural Networks* **118**:175–191. (Q1)

- J. Pérez-Parras Toledano, **N. García-Pedrajas** and G. Cerruela-García (2019) "Multilabel and missing label methods for binary quantitative structure-activity relationship models: An application for the prediction of adverse drug reactions," *J. of Chemical Information and Modeling*, in press. (Q1)
- A. de Haro-García, G. Cerruela-García and **N. García-Pedrajas** (2019) "Instance selection based on boosting for instance-based learners," *Pattern Recognition* **96**:106959.
- J. Pérez-Rodríguez, A. de Haro-García, J. A Romero del Castillo and **N. García-Pedrajas** (2018) "A general framework for boosting feature subset selection algorithms," *Information Fusion* **44**:147 – 175. (Q1)
- N. García-Pedrajas**, J. A. Romero del Castillo and G Cerruela-García (2017) "A Proposal for Local Values for -Nearest Neighbor Rule," *IEEE Transactions on Neural Networks and Learning Systems* **28**(2):470 – 475. (Q1)
- J. Pérez-Rodríguez and **N. García-Pedrajas** (2016) "Stepwise approach for combining many sources of evidence for site-recognition in genomic sequences," *BMC Bioinformatics* **17**(1):117. (Q1)
- J. Pérez-Rodríguez, A. G. Arroyo-Peña, **N. García-Pedrajas** (2015) "Simultaneous instance and feature selection and weighting using evolutionary computation: Proposal and study," *Applied Soft Computing* **37**:416 – 443. (Q1)
- J. Pérez-Rodríguez, A. G. Arroyo-Peña and **N. García-Pedrajas** (2014) "Improving translation initiation site and stop codon recognition by using more than two classes," *Bioinformatics* **30**:2702 – 2708. (Q1)
- N. García-Pedrajas** and A. de Haro-García (2014) "Boosting instance selection algorithms," *Knowledge-Based Systems* **67**:342 – 360. (Q1)
- N. García-Pedrajas**, A. de Haro-García and J. Pérez-Rodríguez (2014) "A scalable memetic algorithm for simultaneous instance and feature selection," *Evolutionary Computation* **22**:1 – 45. (Q1)
- N. García-Pedrajas**, J. Pérez-Rodríguez and A. de Haro-García (2013) "OligoS: Scalable instance selection for class-imbalanced data sets," *IEEE Transactions on Systems, Man, and Cybernetics—Part B: Cybernetics* **43**(1):332 – 346. (Q1)
- N. García-Pedrajas**, A. de Haro-García, and J. Pérez-Rodríguez (2013) "A scalable approach to simultaneous evolutionary instance and feature selection," *Information Sciences* **228**:150 – 174. (Q1)
- C. García-Osorio, A. de Haro-García and **N. García-Pedrajas** (2010) "Democratic instance selection: a linear complexity instance selection algorithm based on classifier ensemble concepts," *Artificial Intelligence* **174**:410 – 441. (Q1)

## C.2. Research projects and grants

### Principal Investigator of the following projects

1. Title: "NUEVA APROXIMACIÓN A LA CONSTRUCCIÓN DE ENJAMBRES PARA APRENDIZAJE MULTI-ETIQUETA: APLICACIÓN A LA QUEMINFORMÁTICA Y LA BIOINFORMÁTICA"
  - Financing entity: Ministerio de Ciencia e Innovación. Budget: 86.515 €
  - Term: 1/7/2020 – 31/6/2023.
  - Number of researches: 5

2. Title: “an improved Approach for the data partitioning MethOd for sCaling up data mining and LEarning algorithmS. Application to the prediction of biological activity (DAMOCLES)” (TIN2015-66108-P)
  - Financing entity: Ministerio de Economía y Competitividad. Budget: 72.237 €
  - Term: 1/1/2016 – 31/12/2018.
  - Number of researchers: 7.
3. Title: Desarrollo De Un Marco General Para El Escalado De Algoritmos De Minería De Datos Con Especial Atención A Problemas Desequilibrados. Aplicación Al Reconocimiento De Genes (TIN2011-22967)
  - Financing entity: Ministerio de Ciencia e Innovación. Budget: 132.495 €
  - Term: 1/1/2012 – 31/12/2014.
  - Number of researchers: 5.
3. Title: Democratización De Algoritmos: Una Nueva Aproximación Para El Escalado Masivo De Métodos De Aprendizaje Y Minería De Datos (P09-TIC-4623)
  - Financing entity: Junta de Andalucía. Budget: 251.543,68 €
  - Term: 3/2/2010 – 2/2/2014.
  - Number of researchers: 10.
4. Title: Constructing Ensembles Of Classifiers By Means Of A New Approach For Boosting. Application To Bioinformatics Recognition Problems (TIN2008-03151)
  - Financing entity: Ministerio de Educación y Ciencia. Budget: 70.180 €
  - Term: 1/1/2009 – 31/12/2011.
  - Number of researchers: 7.
5. Title: Predicción De La Estructura De Los Genes En Secuencias Genómicas Mediante Técnicas De Computación Evolutiva (P07-TIC-2682)
  - Financing entity: Junta de Andalucía. Budget: 291.012 €
  - Term: 1/2/2008 – 31/1/2012.
  - Number of researchers: 6.

### **C.5. Thesis supervision**

1. A. de Haro García, “Scaling Data Mining Algorithms. Application to Instance and Feature Selection”, University of Granada, 29/September/2011. Apto Cum Laude. European Mention.
2. J. Pérez Rodríguez, “Gene Prediction by Using Advanced Techniques of Computational Intelligence”, University of Granada, 25/February/2015, Sobresaliente Cum Laude. International Mention.

### **C.6. Stays in research centers**

University of Paisley, School of Computing, United Kingdom. From 1<sup>st</sup> March 2005 to 31<sup>st</sup> August 2005.

University of the West of Scotland, United Kingdom. From 1<sup>st</sup> May 2009 to 31<sup>st</sup> August 2009.

University of Glasgow, United Kingdom. From 1<sup>st</sup> May 2016 to 31<sup>st</sup> August 2016.