

**Part A. PERSONAL INFORMATION**

**CV date**

26/03/2021

First and Family name	José Raúl Romero Salguero	
Researcher codes	Open Researcher and Contributor ID (ORCID**)	0000-0002-4550-6385
	SCOPUS Author ID (*)	
	WoS Researcher ID (*)	

(\*) Optional

(\*\*) Mandatory

**A.1. Current position**

Name of University/Institution	Universidad de Córdoba		
Department	Informática y Análisis Numérico		
Address and Country	Edificio Marie Curie, planta baja Campus de Rabanales, Universidad de Córdoba 14071 Córdoba		
Phone number	957212660	E-mail	jromero@uco.es
Current position	Associate Professor (Titular Universidad)	From	14/11/2017
Key words	Data science; Machine learning; Evolutionary computation; Artificial intelligence for software engineering;		

**A.2. Education**

PhD, Licensed, Graduate	University	Year
PhD in Software Engineering and Artificial Intelligence	Universidad de Málaga	2007
Master degree in New Technologies applied to Education	Universidad de Málaga	2007
MSc in Computer Science	Universidad de Málaga	2003

**A.3. General indicators of quality of scientific production (see instructions)**

Publications (incl. journals, conferences and proceedings, book chapters)	106	Research projects	16
Intl. journals, JCR-indexed, Q1-journals	28, 24, 13	6-year terms (sexenios)	2 (2006-2011) (2012-2017)
No. Cites	1696	PhD theses (defended, ongoing)	3, 3
H-index (GScholar)	21	Industrial contracts (participant, PI)	1, 2
Crown Index	3.047		

**Part B. CV SUMMARY (max. 3500 characters, including spaces)**

Dr. Romero has a PhD from the University of Málaga (2007). He began working in the Department of Computer Science and Numerical Analysis at the University of Cordoba in January 2006. Accredited since 2012, he is currently an Associate Professor at the University since November 2017.

He has published over 100 articles, including 28 in international journals (56% of journals indexed in Q1), over 60 articles in conferences (several rated CORE A/A+, including ICSE, IEEE EDOC, IEEE CEC or GECCO) and 5 book chapters. He has an h-index of 21 (Google Scholar) and a Crown-index of 3.047. Dr. Romero has participated in 16 competitive research projects (6 Spanish projects, 2 regional projects and 8 research networks). He has also coordinated 2 industrial contracts by Art. 83 (1 still active) and is currently participating in another contract with the Spanish Army.

In terms of scientific events, he participates annually in the PC of more than 20 Spanish and international conferences in the areas of artificial intelligence and software engineering, in some of which he has served as PC Chair. Between 2015 and 2018 he organised the Search Guided Software Engineering (SBSE) Track at the Spanish Software Engineering and Databases Conference (JISBD), in addition to other events related to the SBSE area, such as the Track of SBSE at the IEEE CEC 2016 conference. He has also been program chair of the Model-driven Software Development Track (DSDM) several times since 2014, including 2019 and 2021. Previously, he worked (1999-2003) as a software engineer and IT consultant in companies such as PricewaterhouseCoopers Consulting. He is an expert member of the standardisation committee AEN/CTN 71/SC7 ("Software and Systems Engineering") of AENOR (Spanish Standardisation Agency) and also collaborates with the European Association of Data Science (EuADS).

His current research interests include the composition of workflows in the field of automated machine learning (AutoML), the interoperability and representation of scientific workflows, the development of explainable techniques in data science that involve the human in the decision-making process of knowledge extraction (human-in-the-loop), as well as its applications to software analytics, predictive maintenance and bibliometrics. To this end, it actively collaborates with Spanish and international researchers from the University of the West of England (United Kingdom) and the Chalmers University of Technology (Sweden).

To date, he has completed the supervision of 3 PhD theses in the areas of data mining (2) and search-based software engineering (1), the latter having been awarded the National prize for Young Researchers in 2019. Other 3 theses in progress are about the automation of data science techniques for workflow composition, the representation and interoperability of scientific workflows applying software engineering techniques, and the development of explainable methods of data science for bibliometric applications. He has also supervised 12 master theses and more than 40 bachelor theses.

In terms of administrative and management positions, between 2014 and 2018 Dr. Romero was Deputy Director of Research and External Relations at the School of Engineering Sciences (Escuela Politécnica Superior de Córdoba) of the University of Córdoba, and member of the Conference of Deans of Computer Science Schools (CODDII).

## **Part C. RELEVANT MERITS** (*sorted by typology*)

### **C.1. Publications**

Barbudo, Rafael; Ramírez-Quesada, Aurora; Servant, Francisco; Romero-Salguero, José Raúl. 2021. *GEML: A grammar-based evolutionary machine learning approach for design-pattern detection*. Journal of Systems and Software, 2021. Springer. Vol. 175.

Ramírez-Quesada, Aurora; Barbudo, Rafael; Romero-Salguero, José Raúl. 2021. *An experimental comparison of metaheuristic frameworks for multi-objective optimization*. Expert Systems, Wiley.

Ramírez-Quesada, Aurora; Romero-Salguero, José Raúl; García-Martínez, Carlos; Ventura, Sebastián. 2019. *JCLEC-MO: a Java suite for solving many-objective engineering problems*. Engineering Applications of Artificial Intelligence, Elsevier. 81:14-28.

Ramírez-Quesada, Aurora; Romero-Salguero, José Raúl; Simons, Christopher. 2019. *A Systematic Review of Interaction in Search-Based Software Engineering*. IEEE Transactions of Software Engineering, IEEE. 45(8):760-781.

Ramírez-Quesada, Aurora; Romero-Salguero, José Raúl; Ventura, Sebastián. 2018. *Interactive Multi-Objective Evolutionary Optimization of Software Architectures*. Information Sciences, Elsevier. 463-464:92-109.

Salado-Cid, Rubén; Ramírez-Quesada, Aurora; Romero-Salguero, José Raúl. 2017. *On the need of opening the Big Data landscape to everyone: challenges and new trends*. Chapter in: “*Digital marketplaces unleashed*”. Editors: C. Linnhoff-Popien, R. Schneider, M. Zaddach. Springer-Verlag. ISBN: 978-3662492741

Ramírez-Quesada, Aurora; Parejo-Maestre, José Antonio; Romero-Salguero, José Raúl; Segura-Rueda, Sergio; Ruiz-Cortés, Antonio. 2017. *Evolutionary composition of QoS-aware web services: A many-objective perspective*. Expert Systems with Applications. 72:357-370.

Ramírez-Quesada, Aurora; Romero-Salguero, José Raúl; Ventura, Sebastián. 2016. *A comparative study of many-objective evolutionary algorithms for the discovery of software architectures*. Empirical Software Engineering. 21(6):2546-2600.

Ramírez-Quesada, Aurora; Romero-Salguero, José Raúl; Ventura, Sebastián. 2015. *An approach for the evolutionary discovery of software architectures*. Information Sciences. 305: 234-255.

Luna-Ariza, José María; Romero-Morales, Cristóbal; Romero-Salguero, José Raúl; Ventura, Sebastián. 2015. *An Evolutionary Algorithm for the Discovery of Rare Class Association Rules in Learning Management Systems*. Applied Intelligence. 42(3):501-513.

Luna-Ariza, José María; Romero-Morales, Cristóbal; Romero-Salguero, José Raúl; Ventura, Sebastián. 2014. *On the Use of Genetic Programming for Mining Comprehensible Rules in Subgroup Discovery*. IEEE Transactions on Cybernetics. 44: 2329-2341.

Olmo-Ortiz, Juan Luis; Romero-Salguero, José Raúl; Ventura, Sebastián. 2014. *Swarm-based metaheuristics in automatic programming: a survey*. WIREs Data Mining and Knowledge Discovery, 4(6):445-469.

## **C.2. Research projects**

RED2018-102472-T. Red de investigación en Ingeniería de Software basada en Búsqueda. Medina-Bulo, M. Inmaculada (Universidad de Cádiz). 1/01/2020 - 31/12/2021. 10.000 EUR. Research network.

TIN2017-83445-P. EMERaID: EMERging trends in Data analysis. Ventura-Soto, Emilio (Universidad de Córdoba). 01/01/2018 - 31/12/2020. 57.111 EUR. National project.

TIN2015-71841-REDT. Red de Excelencia en Ingeniería de Software basada en Búsqueda. Medina-Bulo, M. Inmaculada (Universidad de Cádiz). 11/11/2015 - 10/11/2017. 20.000 EUR. National project.

TIN2014-55252-P. Data mining with more flexible representations. Ventura-Soto, Sebastián (Universidad de Córdoba). 01/01/2015-31/12/2017. 69.900 EUR. National project.

TIN2011-22408. New Problems in Knowledge Discovery: A Genetic Programming Approach. Ventura-Soto, Sebastián (Universidad de Córdoba). 2012-2014. 63.525 EUR. National project.

TIN2011-15009-E. Red Telemática en Tecnologías para el Desarrollo Industrial de Software. Vara-Mesa, Juan Manuel (Universidad Rey Juan Carlos). 20/01/2012 - 20/01/2013. 10.000 EUR. Research network.

## **C.3. Contracts, technological or transfer merits**

*As Principal Investigator:*

“Aplicación de la ciencia de datos para la mejora de la seguridad vial, movilidad y gestión de flotas de vehículos”. Company: Gestorías asociadas Gesthispania S.L. Principal Investigators:

Romero-Salguero, José Raúl. Ventura-Soto, Sebastián. Starting date: 20/01/2020 (1 year). 37,645 EUR.

“Asesoría y mentorización a Telefónica”. Company: Telefónica S.A. Principal Investigator: Romero-Salguero, José Raúl. Starting date: 8/03/2016 (6 months); 10,980 EUR.

*As Project Member:*

“MANPREDIC: Mantenimiento predictivo para plataformas terrestres”. Institution: Spanish Ministry of Defense. Principal Investigator: Ventura-Soto, Sebastián. Starting date: 1/12/2019 (2 years). 478,957 EUR.

#### **C.4. Patents**

N/A

#### **C.5. Technical-scientific committees**

Expert member of the National Technical Committee for Standardisation AEN/CNT 71/SC7 ("Software and Systems Engineering") of AENOR since December 2008.

Evaluator of the National Agency for Evaluation and Prospective Studies (ANEP) of the Ministry of Science and Innovation. Since 2008 to date.

#### **C.6. PhD Theses**

##### Completed:

- Dr. Aurora Ramírez Quesada. *“Metaheuristic models to the development of intelligent systems for the decision support in software construction”*, Universidad de Córdoba. 24/09/2018.
  - Awarded the National Prize for Young Researchers by the Spanish Computer Science Society and BBVA in 2019.
  - Awarded the “Frances Allen” Prize by the Spanish Association of Artificial Intelligence to the Best Spanish PhD Thesis in AI between 2017-2018.
- Dr. José María Luna Ariza, *“New challenges in association rule mining: an approach based on genetic programming”*, University of Granada. 17/01/2014.
- Dr. Juan Luis Olmo Ortiz, *“Automatic programming based on ant colony for classification. Applications”*, University of Córdoba. 14/03/2013.

##### In progress:

- D. José de la Torre . *“Applying machine learning techniques for the automation of systematic scientific literature reviews”*. Started in 2020 (part-time thesis).  
*keywords:* data science; explainable artificial intelligence (XAI); bibliometrics; systematic literature review (SLR)
- D. Rafael Barbudo Cid. *“Automation for the democratisation of data science”*. Started in 2018.  
*keywords:* data science; automated machine learning (AutoML); evolutionary computation (EC); grammar-guided genetic programming (G3P).
- D. Rubén Salado-Cid. *“Workflow management systems for the definition of evolutionary algorithms-based applications”*. Started in 2015 (part-time thesis).  
*keywords:* data science; model-driven engineering (MDE); workflow management systems (WfMS); evolutionary computation (EC).