**CURRICULUM VITAE (CVA)**

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

| **CV date** | 15/01/2022 |
|---|---|

## Part A. PERSONAL INFORMATION

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|---|---|---|---|
| First name | Pedro José | | |
| Family name | Clemente Martín | | |
| Gender (*) | Male | Birth date (dd/mm/yyyy) | |
| Social Security, Passport, ID number | | | |
| e-mail | pjclemente@unex.es | URL Web | |
| Open Research and Contributor ID (ORCID)(*) | | 0000-0001-5795-6343 | |

*(*) Mandatory*

### A.1. Current position

| | | | |
|---|---|---|---|
| Position | Associate Professor (Titular de Universidad) | | |
| Initial date | 01/11/2009 | | |
| Institution | Univrsidad de Extremadura | | |
| Departament/Center | Department of Informatics and Telematics Systems Engineering/ Politecnic School of Technology | | |
| Country | Spain | Teleph. number | 927257807 |
| Key words | Model-Driven Development, Service-Oriented Arquitecture,BigData | | |

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

### A.3. Education

| PhD, Licensed, Graduate | University/Country | Year |
|---|---|---|
| Phd. Computer Science | Universidad de Extremadura /Spain | 2007 |
| Computer Science Engineer | Universidad de Extremadura/Spain | 1998 |

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

Pedro J. Clemente received the BSC in Computer Science from the University of Extremadura (Spain) in 1998, and he obtained his PhD degree in Computer Science from the University of Extremadura in 2007. Currently he is Associate Professor (Titular de Universidad) of Languages and Systems at University of Extremadura since 2009. Previously I was Associate Professor (Titular de Escuela Universitaria) at Universidad de Extremadura from 2003 to 2009.

He is member of Quercus Software Engineering Group, where he has developed the research interest lines including model-driven development, service-oriented architectures, IoT, machine learning and big data applied to Smart Cities and Smart Farms. He has involved in several research projects and has published the results of his research in international journals, conference proceedings and book chapters. Currently, he has **three six-year periods of research granted by ANEP** corresponding to the 2003-2008, 2009-2014 and 2015-2020 sections, as well as **a six-year period of transfer and innovation (2005-2013) granted by CNAI**.

He developed the Ph.D. working on model-driven software development, Model Driven Architecture (MDA) and aspect-oriented programming led by Juan Hernández Núñez where developed a proposal to add non-functional properties from UML profiles to Corba Component Model components. Later on, he started to work on Architecture Driven Modernization (ADM) for carry out software modernization processes following a set of steps where models were first class elements. From these works he led two Ph.D.. First one, Roberto Rodríguez Echeverría, focus on model-driven engineering applied on a process of modernization of Web Applications to Rich Internet Applications (RIA) where reverse engineering driven by models were applied carry out the modernization processes. Second one, Encarna Sosa Sánchez, focusing on a model-driven modernization from web applications to service-oriented architectures, where several model transformations and semantic algorithms are able to align web services obtained from the legacy web application with business processes tasks defined at BPMN models. Additionally, in the context of RIA we studied how early evaluation of technical debt impact on software maintainability.
At the same time, he started to work on Ambiental Intelligence, Smart Cities, Complex Event Processing and IoT. Thus, data management and complex event processing was applied for monitoring water in real time. Next, model-driven development was applied suitably to model and manage open data for big data processing by means of complex event processing engines. These works were related to design and manage cyber-physical systems from models. Thus, in these research areas he has published 15 JCR indexed, 10 in (Q1/Q2) in journals such as Journal of Systems and Software or Personal and Ubiquitous Computing Journal. In addition, he has published in international workshops and conferences such as International Euromicro, Software Engineering and knowledge Engineering (SEKE), Symposium on Applied Computing (SAC) or International Conference on Web Engineering (ICWE). In addition, I have organized and participated in the program committee of various conferences.
**Regarding the leadership capacity**, Pedro J. Clemente has also participated in multiple R&D&I projects, regional (IB20058 - Principal Research), IB18034, 2PR03B007, IPR98A041.), national (RTI2018-098652-B-I00, TIN2015-69957-R, TIN2011-27340, TIN2008-02985, TIN2005-09405-C02-02, TIC02-04309-C02-01 and TIC99-1083-C02-02) and international (0445_4IE_4_P). He has participated on several excellence networks on Model Driven Software Development (TIN2016-81836-REDT, TIN2014-53555-REDT and TIN2008-00889-E/TIN) and the excellence network on Architectures and Service-Oriented Development ( TIN2010-09669-E, TIN2008-04847-E).
He is the head of Cátedra Telefonica at University of Extremadura to IoT and digital transformation for agro-stock sector since 2016.
**Regarding technology transfer**, he has participated on 24 collaboration contracts with companies such as Homeria Open Solutions S.L., Telefónica, Indra, Fremap or Gamma Solutions S.L. Note that, he is the Principal Research on the contracts related to Telefonica (2016-2021) (~€210k) and Homeria Open Solutions (~€27K).
On the other hand, focusing on **management achievements**, note that he was Quality Commission Coordinator of the Computer Engineering specialized on Software Engineering Degree at University of Extremadura from 2012 to February 2018. Finally, he is the head of the Department of Computer and Telematic Systems Engineering at the University of Extremadura since 2018.

**Part C. RELEVANT MERITS** *(sorted by typology)*
**C.1. Publications** *(see instructions)*

1. José A. Barriga, **Pedro J. Clemente**, Miguel A. Pérez Toledano, Juan Hernández. *SimulateIoT-FIWARE: Domain Specific Language to Design, Code Generation and Execute IoT Simulation Environments on FIWARE* in IEEE Access, DOI: 10.1109/ACCESS.2022.3142894, 2022. Quality signals: JCR (2020) Q2: Impact Factor: 3.367.

2. José A. Barriga, **Pedro J. Clemente**, Encarna Sosa Sánchez, Álvaro E. Prieto. *SimulateIoT: Domain Specific Language to design, code generation and execute IoT simulation environments* in IEEE Access, vol. 9, pp.92531-92552, 2021, doi: 10.1109/ACCESS.2021.3092528. Quality signals: JCR (2020) Q2: Impact Factor: 3.367.
3. Fernández-Sellers, M., Siesto, G., Lozano-Tello, A., & **Clemente, P. J**. (2021). *Finding a suitable sensing time period for crop identification using heuristic techniques with multi-temporal satellite images*. International Journal of Remote Sensing, 1-18. doi https://doi.org/10.1080/01431161.2021.1975846. ISSN. 0143-1161. Quality signals: JCR (2020) Q2: Impact Factor: 3.151
4. Encarna Sosa Sánchez, **Pedro J. Clemente**, José M. Conejero, Álvaro E. Prieto. "Business Process Execution From the Alignment Between Business Processes and Web Services: A Semantic and Model-Driven Modernization Process" in IEEE Access, vol. 8, pp. 93346-93368, 2020, doi: 10.1109/ACCESS.2020.2993883. Indicios de Calidad: JCR Q1: Impact Factor: 3.745.
5. Encarna Sosa-Sánchez, **Pedro J Clemente**, Álvaro E Prieto, Carmen Ortiz-Caraballo. *Aligning business processes with the services layer using a semantic approach.* IEEE Access. Vol. 7. 2018. 2904 – 2927. DOI. 10.1109/ACCESS.2018.2886639. Quality signals: JCR Q1 (2018) 15/155 – COMPUTER SCIENCE, INFORMATION SYSTEMS - Impact Factor: 4.098
6. **Pedro J. Clemente**; Adolfo Lozano-Tello. *Model Driven Development Applied to Complex Event Processing for Near Real-Time Open Data.* Sensors. Volume 18, Number 12. http://www.mdpi.com/1424-8220/18/12/4125 , 2018. DOI. 10.3390/s18124125 Indicios de Calidad: JCR Q1 (2018) 15/61 – INSTRUMENTS & INSTRUMENTATION - Impact Factor: 3.031
7. José María Conejero; Roberto Rodríguez-Echeverría; Juan Hernández; **Pedro J. Clemente;** Carmen Ortiz-Caraballo; Elena Jurado; Fernando Sánchez-Figueroa. *Early Evaluation of Technical Debt Impact on Maintainability.* Journal of Systems and Software. Elsevier. Volume 142, August 2018, Pages 92–114. Indicios de Calidad: JCR Q1 (2017) 19/101 COMPUTER SCIENCE, SOFTWARE ENGINEERING - Impact Factor: 2.2788
8. Encarna Sosa Sánchez; **Pedro J. Clemente;** Álvaro E. Prieto; José M. Conejero; Roberto Rodríguez Echeverría. *MigraSOA: Migrando aplicaciones web legadas hacia arquitecturas orientadas a servicios (SOA).* IEEE Latin America Transactions, Volume: 15, Issue: 7, Pages: 1306 - 1311, DOI: 10.1109/TLA.2017.7959351, July 2017. Quality signals : JCR Q4. Impact Factor: 0,631. (JCR 2016)
9. José M. Conejero; Juan Hernández; **Pedro J. Clemente**; Roberto Rodríguez Echeverría; Juan C. Preciado; Fernando Sánchez Figueroa.Automatic *Configuration of Video-Surveillance Applications: a Model-Driven Experience.* IEEE Latin America Transactions. Vol13-Num8, Agosto 2015. Quality signals: JCR Q4, Impact Factor 0.326 (JCR 2014)
10. José M. Conejero, Fernando Sánchez-Figueroa, Juan Carlos Preciado, Marino Linaje, **Pedro J. Clemente**, Roberto Rodríguez. *Re-engineering legacy Web applications into RIAs by aligning modernization requirements, patterns and RIA features.* Journal of Systems and Software, Vol. 86, No. 2, pp. 2981—2994, 2013. DOI: 10.1016/j.jss.2013.04.053. I Quality signals: JCR Q2. Impact Factor 1.245.
11. **Pedro J. Clemente Martín**, Juan M. Hernández Núñez, José M. Conejero Manzano, Guadalupe Ortiz Bellot. Managing crosscutting concerns in component based systems using a model driven. development approach. Journal of Systems and Software, Vol. 84, pp. 1032--1056, 2011. [JCR(2011)=1,117], Q2(42/99)

**C.2. Congress**

1. Roberto Rodriguez-Echeverria, Víctor M. Pavón, Fernando Macías, Jose Maria Conejero, **Pedro J. Clemente** and Fernando Sánchez-Figueroa. *IFML-based Model-*

*Driven Front-End Modernization.* 23rd International Conference on Information Systems Developments. Varazdin (Croatia), September 2014. ISBN: 978-953-6071-43-2. Quality signals: Conference Ranking. CORE A

2. Encarna Sosa, **Pedro J. Clemente Martín**, Miguel A. Sánchez Cabrera,José M. Conejero Manzano,Roberto Rodríguez Echeverría, and Fernando Sánchez Figueroa. Service discovery using a semantic algorithm in a SOA modernization process from legacy web applications. IEEE Tenth Wold Congress On Services. SERVICES 2014. IEEE Press. 27 June- 2 July, 2014. ISBN: 978-1-4799-5068-3, pages 470-477. Anchorage, Alaska. CORE B. DOI: http://dx.doi.org/10.1109/SERVICES.2014.90
3. Roberto Rodríguez-Echeverría, Víctor M. Pavón, Fernando Macías, José María Conejero, **Pedro J. Clemente**, Fernando Sánchez Figueroa. *Generating a Conceptual Representation of a Legacy Web Application.* 14th International Conference on Web Information Systems Engineering. Nanjing (China). October 2013. ISSN 0302-9743. ISBN 978-3-642-41153-3. DOI: 10.1007/978-3-642-41154-0. Quality signals: Conference ranking. CORE A

**C.3. Research projects**

1. Model2Industry4.0: Diseño, generación de código y simulación de artefactos para proyectos Industria 4.0 e IoT. IB20058**IP: Pedro Clemente (UEx).** Cuantía: 149.997,10€. En curso. 01/01/2021 hasta: 31/12/2024
2. RTI2018-098652-B-I00. Employml: Aplicando Aprendizaje Automatico para Descubrir Relaciones en las Trayectorias Educativas y Laborales de los Ciudadanos, Ministerio de Ciencia, Innovación y Universidades, IP: F. Sánchez-Figueroa (UEx). En curso. 01/06/2019 hasta 30/05/2022. Cuantía: 115.555,00 €.
3. Tin2015-69957-R . People As A Service: Habilitando los dispositivos moviles como proveedores de servicio en sistemas ciber-fisicos, Ministerio de Economía y Competitividad, IP: Juan M. Murillo ( UEx). En curso. 01/01/2016 hasta 31/12/2018. Cuantía: 110.000,00 €.
4. TIN2011-27340. MIGRARIA: Migración de aplicaciones Web heredadas a Rich Internet Applications Ministerio de Economía y Competitividad, IP: F. Sánchez-Figueroa (UEx). 01/01/2012 hasta 31/12/2014. Cuantía: 138.908,00 €.

**C.4. Contracts, technological or transfer merits**

1. Cátedra Telefónica Móviles España: “Internet de las Cosas para el sector Agroganadero. Entidad financiadora” y “Transformación digital del sector agro-ganadero”: Telefónica Móviles España. **IP: Pedro J. Clemente** (UEx). De 01/01/2016 a 31/12/2021. Cuantía: 210.000 €
2. Elaboración y Visualización de Software de monitorización y Control de Sistemas de Potabilización de Agua Inteligentes (SMARTIC). Entidad Financiadora: Homeria Open Solutions, S.L. **IP: Pedro J. Clemente** (UEx). Cuantía: 27.650,0 €. De 01/09/2013 a 01/03/2015
3. Nueva Factoría del Futuro Segura, Inteligente y Sostenible de desmilitarización y Tecnologías de Defensa”, (SIXTREMS) – Proyecto INNTERCONECTA. Entidad financiadora: CDTI - Sociedad de Prevención de Fremap. IP: Juan Hernandez (UEx). Cuantía: 85.000 €. De 03/04/2013 a 31/12/201
4. ITECBAN SAAS PoYMEF. Proyecto Feder-Interconnecta. Entidad financiadora: CDTI – Indra Software Labs S.L. IP: Fernando Sánchez Figueroa. Cuantía 203.680 €. De 03/04/2013 a 31/12/2014.