



Part A. PERSONAL INFORMATION

CV date

08/10/2019

First and Family name	Sergio A. Cuenca Asensi		
Social Security, Passport, ID number		Age	
Researcher codes	WoS Researcher ID (*)	F-8800-2013	
	SCOPUS Author ID(*)	24758050600	
	Open Researcher and Contributor ID (ORCID) **	0000-0002-5830-6104	

(*) At least one of these is mandatory

(**) Mandatory

A.1. Current position

Name of University/Institution	University of Alicante		
Department	Computer Technology / University of Alicante Polytechnic School		
Address and Country	C. San Vicente del Raspeig s/n, 03690 San Vicente, Alicante, Spain		
Phone number		E-mail	
Current position	Full Professor	From	20/08/2019
Key words	Fault Tolerance Systems, Embedded Systems, Codesign, Reconfigurable Computing, Radiation Hardening, soft errors Neuroprostheses, Single-Event Effects		

A.2. Education

Diploma	University	Year
degree in Physics (electricity and electronics)	University of Granada	21/10/1989
Ph.D. degree (extraordinary doct. award)	Universidad Miguel Hernández de Elche	13/05/2002

A.3. JCR articles, h Index, thesis supervised...

Six-year research periods ("sexenios"):	3, last one (2012-2018)
Supervised PhD (since 2009):	6 (2 more in progress)
Total citations:	WoS/Publons: 198 , Scopus: 325 , GS: 540
Average citation/year (2015-2019):	WoS/Publons: 41 , Scopus: 56 , GS: 85
h-index:	WoS/Publons: 8 , Scopus: 10 , GS: 13
i10-index:	WoS/Publons: 10 , GS: 23
Total publications in first quartile (Q1)	12 out of 29
Total publications in second quartile (Q2)	5 out of 29

Acronyms: **WoS:** Web of Science/Publons, **Scopus**, **GS:** Google Scholar

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

The research topics of the applicant are Fault Tolerance, Embedded Systems, Reconfigurable Computing and its application to Computer Vision. In all the fields my goal is to combine the scientific research and the transfer of knowledge, looking for collaborations with complementary researchers. In addition, I work actively in the training of early-stage researchers and in the management of the research in several university related institutions.

Sergio Cuenca has co-authored **60** and **71** papers indexed by WoS/Publons and Scopus respectively. **33** of them are papers in **international journals indexed in JCR (Q1:12, Q2:8,).** The most cited paper has **23** and **31** cites in WoS/Publons and Scopus respectively.



He is editor of **5 conference proceedings** including **3 editions** of the Spanish conference on Reconfigurable computing and Applications (JCRA). He has co-authored **3 chapters** on research books and **55** publications in peer-reviewed international conferences. He received two nominations for best communication at the national conferences JCRA2010 and JCER2009, which won the award for second and first best article respectively. In addition, a communication presented at the FPL2010 conference was nominated for the Michael Servit award.

The applicant has participated in **16 R+D+i** projects of public calls (1 International, 7 nationals, 2 locals, 6 different universities), of them he was **Main Researcher (IP) in 5 R+D+i** projects (including the previous project RENASER3) with a financing of 321.545€. Regarding the transfer of research results, he has **directed** 4 research contracts under Article 83 of the LOU, and more than **10 minor contracts** as project reviewer for certification companies (EQA, SGS, GLOBAL Certification,...)

Dr. Cuenca have done **4 short research internships** (20 days each) in prestigious research centers abroad, 3 of them financed by the Ministry of Education and Culture and the forth by the Habana project from the University of Alicante. Specifically, Universidad Tecnológica de la Habana (Cuba) and Universidade Federal do Rio Grande do Sul – UFRGS (Brazil). He has supervised **7 PhD doctoral theses** (2 more in progress). **2** of them was carried out in **co-tutela international** and co-advised with the reputed international researcher Dr. Fernanda Kastensmidt from UFRGS (Brazil). One of those theses (E. Chielle) was awarded with the McCluskey **Best 2016 Latin American PhD thesis** from the IEEE TTTC's council. Another thesis (F. Restrepo) was awarded with the **Extraordinary Doctorate Award**.

With respect to academic and research management activities, the applicant was the main **promotor of the first Spanish conference on Reconfigurable Computing** (JCRA), and was the steering committee **chairman during 15 editions**. He was **director of the Official Master degree** on Information Technologies during 3 years, which was funding for external visitors by the Ministry of Education and Culture. In addition, he was **head for 3 years** of the "Instituto Universitario de investigación en informática", which group more than 100 doctors in the fields of computer science and engineering. In addition, he was member of the Board of Directors of the Spanish Society of Architecture and Computer Technology (SARTECO) during 2 years and Spanish collaborator of Zero Robotics (**NASA & MIT** international competition involving satellites-robots) since 2018 (<http://zerorobotics.mit.edu>).

Dr. Cuenca has taught **10** undergraduate subjects in Computer Engineering, Robotics Engineering and Telecommunications Engineering. He was also teacher in 2 Doctorate Programs and 2 Official Master. Moreover, he has taught several courses as **invited teacher** in **2 Official Masters** with Quality Certificate of the Ministry of Education and **6 postgraduated courses** in the **Spanish Council for Scientific Research (CSIC)**.

Part C. RELEVANT MERITS

C.1. Publications (including books)

1. L.M. Reyneri, A. Serrano-Cases, Y. Morilla, S. Cuenca-Asensi, A. Martínez-Álvarez, "A Compact Model to Evaluate the Effects of High Level C++ Code Hardening in Radiation Environments" *Electronics* **2019**, 8,653,doi:[10.3390/electronics8060653](https://doi.org/10.3390/electronics8060653), JCR quartile: **(Q2)**
2. A. Serrano-Cases, Y. Morilla, P. Martín-Holgado, S. Cuenca-Asensi and A. Martínez-Álvarez, "Nonintrusive Automatic Compiler-Guided Reliability Improvement of Embedded Applications Under Proton Irradiation," in *IEEE Transactions on Nuclear Science*, vol. 66, no. 7, pp. 1500-1509, July **2019**. doi: [10.1109/TNS.2019.2912323](https://doi.org/10.1109/TNS.2019.2912323), JCR quartile: **(Q1)**
3. J. Isaza-González, Felipe Restrepo-Calle, A. Martínez-Álvarez, S. Cuenca-Asensi, "SHARC: An efficient metric for selective protection of software against soft errors", *Microelectronics Reliability*, vols. 88–90, **2018**, pp. 903-908, doi:[10.1016/j.microrel.2018.07.008](https://doi.org/10.1016/j.microrel.2018.07.008), JCR quartile: **(Q3)**

4. Saval-Calvo, M.; Medina-Valdés, L.; Castillo-Secilla, J.M.; Cuenca-Asensi, S.; Martínez-Álvarez, A.; Villagrà, J. A Review of the Bayesian Occupancy Filter. *Sensors* **2017**, *17*, 344. doi:[10.3390/s17020344](https://doi.org/10.3390/s17020344), JCR quartile: (Q1)
5. L. Medina; M. Diez-Ochoa; R. Correal; S. Cuenca-Asensi; A. Serrano; J. Godoy; A. Martínez-Alvarez; J. Villagra A Comparison of FPGA and GPGPU Designs for Bayesian Occupancy Filters, , *Sensors*, vol 17, 24 pages, **2017**, enlace doi:[10.3390/s17112599](https://doi.org/10.3390/s17112599) JCR quartile: (Q1)
6. A. Martínez-Álvarez, F. Restrepo-Calle, S. Cuenca-Asensi, L. M. Reyneri, A. Lindoso and L. Entrena, "A Hardware-Software Approach for On-Line Soft Error Mitigation in Interrupt-Driven Applications," in *IEEE Transactions on Dependable and Secure Computing*, vol. 13, no. 4, pp. 502-508, **2016**. doi: [10.1109/TDSC.2014.2382593](https://doi.org/10.1109/TDSC.2014.2382593), JCR quartile: (Q2)
7. Antonio Martínez-Álvarez, Rubén Crespo-Cano, Ariadna Díaz-Tahoces, Sergio Cuenca-Asensi, José Manuel Ferrández Vicente, Eduardo Fernández, "Automatic Tuning of a Retina Model for a Cortical Visual Neuroprosthesis Using a Multi-Objective Optimization Genetic Algorithm", *International Journal of Neural Systems*, vol. 26, num. 7, **2016**, doi: [10.1142/S0129065716500210](https://doi.org/10.1142/S0129065716500210), JCR quartile: (Q1)
8. Antonio Martínez-Álvarez, Sergio Cuenca-Asensi, Andrés Ortiz, Jorge Calvo-Zaragoza, Luis Alberto Vivas Tejuelo, "Tuning compilations by multi-objective optimization: Application to Apache web server", *Applied Soft Computing*, vol. 29, **2015**, pp. 461-470, doi:[10.1016/j.asoc.2015.01.029](https://doi.org/10.1016/j.asoc.2015.01.029). JCR quartile: (Q1)
9. Parra, L.; Lindoso, A; Portela, M.; Entrena, L.; Restrepo-Calle, F.; Cuenca-Asensi, S.; Martínez-Alvarez, A, "Efficient Mitigation of Data and Control Flow Errors in Microprocessors", *IEEE Transactions on Nuclear Science*, vol.61, no.4, pp.1590,1596, Aug. 2014, <http://dx.doi.org/10.1109/TNS.2014.2310492>, JCR quartile: (Q1)
10. Antonio Martínez-Álvarez, Jorge Calvo-Zaragoza, Sergio Cuenca-Asensi, Andrés Ortiz, Antonio Jimeno-Morenilla, *Multi-objective adaptive evolutionary strategy for tuning compilations*, *Neurocomputing*, Volume 123, 10 January **2014**, Pages 381-389, <http://dx.doi.org/10.1016/j.neucom.2013.07.036> JCR quartile: (Q1)
11. Antonio Martínez-Álvarez, Felipe Restrepo-Calle, Luis Alberto Vivas Tejuelo, Sergio Cuenca-Asensi, *Fault tolerant embedded systems design by multi-objective optimization*, *Expert Systems with Applications*, Volume 40, Issue 17, 1 December **2013**, Pages 6813-6822, <http://dx.doi.org/10.1016/j.eswa.2013.06.060>. JCR quartile: (Q1)
12. Antonio Martínez-Álvarez, Andrés Olmedo-Payá, Sergio Cuenca-Asensi, José Manuel Ferrández, Eduardo Fernández, "RetinaStudio: A bioinspired framework to encode visual information", *Neurocomputing*, Volume 114, 19 August **2013**, Pages 45-53, <http://dx.doi.org/10.1016/j.neucom.2012.07.035>. JCR quartile: (Q1)

C.2. Research projects and grants

1. ESP2015-68245-C4-1-P, "Early Evaluation of Radiation Effects Through Simulation and Virtualization. Strategies of Mitigation in Advanced Microprocessor Architectures (RENASER3)", Spanish Ministry of Economy and Competitiveness, Coordinated research project, **Main researchers: Sergio Cuenca Asensi**, Antonio Martínez-Álvarez (Univ. of Alicante). Global coordinator: Luis Entrena Arrontes. 2016-2019, 35.574,00€.
2. PHB2012-0158-PC, "Development of hybrid fault tolerance techniques for embedded microprocessors", Spanish Ministry of Education and Culture, Inter-university cooperation with Brazil, 42.639€, 01/03/2013-31/12/2016, **Main researcher: Sergio Cuenca Asensi**.
3. TEC2010-22095-C03-01, "Integral Analysis of Digital Circuits and Systems for Aerospace Applications (RENASER+). Subproject Design and Verification of Robust Digital Systems", Ministry of Science and Innovation, 01/01/2011-30/09/2014, 155900€, Main researcher: Miguel Aguirre Echanove (Univ. de Sevilla).
4. TSI-020100-2011-373, "Pradvea: Advanced Data Processing in Autonomous Vehicles", Ministry of Industry, Energy and Tourism, Plan Avanza 2, 27.832€, 05/05/2011-31/08/2013, **Main researcher: Sergio Cuenca Asensi**.
5. RTC-2015-3942-4, "TCAP-Auto: Familia de Tarjetas Compactas de Altas Prestaciones para Aplicaciones de Automoción" Ministry of Science and Competitiveness– Retos-

Colaboración, 206.000€, 05/05/2015-31/08/2018, **Main researcher: Sergio Cuenca Asensi.**

6. ESP2007-65914-C03-03, "Radiation effects on aerospace systems, research on emulation (RENASER)", Spanish Ministry of Education and Science, 108000€, 01/07/2009-03/08/2010, Main researcher: Jonathan Tombs (Universidad de Sevilla)

C.3. Contracts

1. Título: Desarrollo de un core IP para sistemas de inspección visual automáticos embebidos. Contracted by: SIDSA, S.A. ref: SIDSA1-03I, 24.000€, 24/07/2003-24/02/2004, Main researcher: **Sergio Cuenca Asensi**
2. Título: Procesamiento de imagen con FPGAs. Contracted by: Grenouille Vision Systems, S.L. ref: GRENOUILLE1-10PA, 4.000€, 24/01/20010-27/01/2010, , Main researcher: **Sergio Cuenca Asensi**
3. Título: Procesadores empotrados en hardware reconfigurable. Contracted by: Seven Solutions S.L., ref: SEVENSOLUTIONS1-10PA, 693€ , 15/11/2010-15/11/2010. , Main researcher: **Sergio Cuenca Asensi**

C.4. Patents

1. Inventors: Sergio Cuenca Asensi, Antonio Martínez Álvarez, Felipe Restrepo Calle, Title: "*PicoHard*", Type of patent: Computer program, Application No: A-345-13, Country of priority: Spain, date 23/05/2013

C.5 PhD (since 2009)

1. Use of approximate triple modular redundancy for fault tolerance in digital circuits. Iuri Cunha Gomes, University of Alicante. **Co-Tutela internacional**. Sobresaliente. 2019
2. Aportaciones a la tolerancia a fallos en microprocesadores bajo efectos de la radiación. José Isaza Gonzalez. University of Alicante. Sobresaliente cum-laude. 2018
3. Selective Software-Implemented Hardware Fault Tolerance techniques to detect soft errors in processors with reduced overhead. Eduardo Chielle, Sobresaliente, **Co-tutela internacional**. Award **McCluskey Best thesis Latinoamericana 2016** from IEEE TTTC's council. 2015
4. 2014 Modelo y estrategias de partición de componentes hardware/software en el co-diseño de sistemas embebidos. Humberto Diaz-Pando, Sobresaliente cum Laude, Programa doctorado con Mención de Calidad. 2014
5. Modelo no determinista para la autoverificación de integridad de componentes de software Yulier Nuñez Musa, Sobresaliente cum Laude, Programa doctorado con Mención de Calidad. 2013
6. Codiseño de sistemas hardware/ software tolerantes a fallos inducidos por radiación. Felipe Restrepo Calle, Sobresaliente cum Laude, Programa doctorado con Mención de Calidad. **Extraordinary doctorate award**. 2011

C.7 (e. g., Institutional responsibilities, memberships of scientific societies...)

1. Director of "Instituto Universitario de investigación en informática" for 3 years, 2012-2015.
2. Director of Official Master degree on Information Technologies for 3 years, 2009-2012.
3. Member of the Board of Directors of the Spanish Society of Architecture and Computer Technology (SARTECO) two years.