**MINISTERIO
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AGENCIA
ESTATAL DE
INVESTIGACIÓN

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2018

Turno de acceso general

Nombre: CECILIA CANALES, JOSE MARIA
Referencia: RYC2018-025580-I
Área Temática: **Tecnologías de la información y de las comunicaciones**
Correo Electrónico: chemacecilia@gmail.com

Título:

Holistic development of novel applications powered by the High Performance Computing and Artificial Intelligence convergence

Resumen de la Memoria:

Dr. José M. Cecilia received his BSc. degree in Computer Science from the University of Murcia (Spain, 2005), his MSc. degree in Computational Software Techniques in Engineering, Option: Grid Computing from the Cranfield University (United Kingdom, 2007), and his PhD. degree in Computer Architecture from the University of Murcia (Spain, 2011) where was supervised by Prof. Dr. José M. García and Dr. Manuel Ujaldón. Dr. Cecilia was predoctoral researcher at Manchester Metropolitan University (United Kingdom, 2010) under the supervision of Dr. Andy Nisbet and Prof. Dr. Martyn Amos, and visiting professor at the Impact group under the supervision of Prof. Dr.Wen-Mei Hwu at University of Illinois (Urbana, IL, USA), both research stays were supported by the HIPEAC collaboration grant.

Dr. Cecilia is a well-established researcher in the high performance computing (HPC) area, specifically for the applications he has developed. His publication portfolio is composed of 36 research papers in JCR-Ranked journals (15 Q1 and 14 Q2), and 37 contributions on high-quality international conferences in the area (including ParCo, IJCNN, ICPP or GTC). His research work has attracted 780 citations (source: Google Scholar) up to now, reporting an h-index of 13. Dr. Cecilia s research career has been focused on bridging the gaps between hardware and software by developing novel applications that overcome current technological barriers. Particularly, he has developed applications within the convergence between emergent HPC and Artificial Intelligence, following an application-driven approach where hardware and algorithmic innovations have been always considered as a whole to offer novel solutions to real problems.

The field of application Dr. Cecilia has expanded his research are:

- Atomistic simulations by developing efficient tools for speeding-up the drug discovery and the interdiffusion of alloys,

- Civil engineering by designing novel AI methods to deal with optimization problems of structural design,

- Big data analytics by defining novel hardware and software infrastructures to efficiently analyze information from the smart world.

Moreover, he has participated in 10 national projects, being Principal Investigator (PI) in three of them, thus managing a total budget of 359.993 . In addition, he has also participated in 6 International projects, 3 COST Actions, and 4 research contracts with different companies, in all of them as a PI, with a total budget of 82.783 . Finally, Dr. Cecilia has supervised five PhD students obtaining the maximum score. All in all, Dr. Cecilia has demonstrated in his research career that he is able to develop a multidisciplinary research in different contexts and generate real knowledge that can be translated in high quality publications and transfer technology models to really make an impact in the society.

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Resumen del Currículum Vitae:

EDUCATION
2008 2011   European PhD in Computer Engineering. University of Murcia (UMU).
2007 2008   MSc. Information technologies and advanced telematics. UMU.
2006 2007   MSc. in MSc Computational Software Techniques in Engineering Option: Grid Computing. Cranfield University (UK).
2002 2005   BSc. in Computer Engineering. UMU.

POSITIONS
2015   Associate Professor. UCAM.
2011 2015   Assistant Professor. UCAM.
PhD research stay in 2013 at University of Illinois, USA (Funded by HiPEAC).
2011 2012   Lecturer Professor. UCAM.
2009 2011   PhD Fellow granted by the Fundación Séneca. UMU.
PhD research stay in 2010 at MMU, UK (Funded by HiPEAC and Esteban Romero foundation).
2007 2009   System administrator. UMU

RESEARCH PRODUCTION AND PROJECTS
H-index (Google Scholar / Scopus):   13/110
Citations (Google Scholar / Scopus):   780/464
Publications in indexed journals: 36
Publications in peer-reviewed proceedings: 37
Book chapters: 4
European projects: 4
National projects: 10 (3 x Principal Investigator)
Contracts with companies: 4
Invited talks and seminars   12

SUPERVISION OF PHD STUDENTS
2015   2018   Isabel M. Timón.
2015   2018   Baldomero Imbernón.
2012   2016   Antonio Llanes.
2013   2016   Mario Hernández.
2010   2014   Ginés D. Guerrero

TEACHING ACTIVITIES (UCAM)
4 degrees (Computer Science, Civil Engineering, Nursery and Physiotherapy) and 3 Masters since 2011, teaching 32 ECTS per year as average (Total: 256 ECTS aprox). Some lectures:

2014   Present   Applied informatics. Civil Engineering degree.
2014   Present   Biostatistics. Physiotherapy and Nursing degrees, Master of high performance sports.
2011   2014   Computer organization (On campus and online versions). Computer Science Degree.
2011   Present   Parallel Programming (On campus and online versions). Computer Science Degree.
2011   Present   Introduction to Operative Systems (On campus and online versions). Computer Science Degree.

SCIENTIFIC COMMITTIES
Editor in:
2018   Present   International Journal of High Performance Computing Applications (IJHPCA)
2018   Present   Bioinformatics

Steering and organizing committee:
2014   Present   International Work-Conference on Bioinformatics and Biomedical Engineering (IWBBIO)
2017   Present   BIO-HPC workshop co-organizer
2017   2018   Workshop chair of International Conference on Parallel Processing (ICPP)
2017   Present   6 times track chair in MAS conference.

INVITED TALKS and Seminars (12).
GTC Europe 18 (Munich, Germany),
International workshop EU-China on scientific computing,
Summer school (UMU, Albacete, Alicante)

COMMISSIONS OF TRUST
PhD committee member in the thesis defences of Dr. José Antonio Serra Pérez (2015), Dr. José Gaspar Cano Esquibel (2014), Dr. Vicente Morell Giménez (2014). All in the HPC-GPU research fields.
2016   Present   Technical National Commission Expert (ANEP), Spain.

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

2008   Present Affiliated Member, HIPEAC.
2014   Present Affiliated Member, NESUS.
2015   Present Affiliated Member, CHIPSET.
2008   Present Member, CAPAP-H.

ADMINISTRATIVE DUTIES
2019   2019   PI in PdC Seneca.
2018   2021   PI in WaterOT project.
2016   2019   PI in HETERLISTIC project.

2015	2018	PI in 4 company contracts
2011	Present	Graduate Student Advisor, UCAM
2014	Present	PhD programme secretary

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AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2018

Turno de acceso general

Nombre: LIBERAL OLLETA, IÑIGO
Referencia: RYC2018-024123-I
Área Temática: **Tecnologías de la información y de las comunicaciones**
Correo Electrónico: inigo.liberal@unavarra.es

Título:

Near-zero-index photonic technologies and quantum antennas

Resumen de la Memoria:

My research lines cover a broad range of activities, cutting across antenna theory and design, quantum optics, nanophotonics, metamaterials and plasmonics, which could be tied together within the framework of light-matter interactions.

In 2008 I was a visiting student at Delft University of Technology (The Netherlands), where I worked on the design of ultra-wideband antenna arrays for direction-of-arrival estimation. After obtaining my Telecommunication Engineering degree I started working at the Antenna Group at the Public University of Navarre on the design, fabrication and testing of metamaterial antennas. In 2010, after being the recipient on a FPI scholarship, I started my PhD thesis, focusing on the application of glass-coated amorphous ferromagnetic wires in antenna systems. Our theoretical and experimental studies served to explain their absorption spectra, and we carried out the design and proof-of-concept demonstrations of contact-less mechanical stress sensors and reconfigurable absorbers.

During this period, I was a visiting researcher at the Institute of Material Science of Madrid (Spain), Aalto University (Finland) and the University of Arizona (US). In 2012, during my stay at the University of Arizona, I investigated physical bounds on electromagnetic scattering. I derived novel upper bounds establishing fundamental limits of antenna and nanophotonic systems. Later, this theory was applied to develop a technology of superbackscattering antenna arrays and nanoparticles.

Upon defending my PhD, in 2013 I carried out a postdoctoral research stay at University of Arizona, where I worked on optical forces and nanoparticle lasers. Our works clarified the sign of the force density in metamaterials, discover the near-field attractive behavior of the curl-spin force, and we designed the first Huygen s source nanoparticle laser.

In 2014 I joined Prof. Nader Engheta s group at the University of Pennsylvania (Philadelphia, US). There, I worked on near-zero-index (NZI) technologies, introducing groundbreaking concepts such as geometry-invariant resonant cavities and photonic doping. During this postdoctoral period, I also cooperated with Cherie Kagan s group in the optical characterization of nanostructures, including rods composed by a mixture of paramagnetic and plasmonic nanocrystals, as well as clusters of plasmonic nanoparticles. In 2017, I was awarded a Juan de la Cierva Incorporation Fellowship and joined the Public University of Navarre. There, I continued with research on NZI technologies, and their application in engineering quantum and thermal emission of light. I currently cooperate with Prof. Josh Caldwell (Vandebilt University) and Prof. Yue Li (Tsinguah University) for the technological implementation of NZI concepts in the thermal infrared and with integrated circuit components. I have recently started a multidisciplinary research line on quantum antennas (with the aim of using antenna concepts to design nonclassical light sources), where we have already push forward innovative ideas such as quantum antenna arrays, isotropic single-photon sources, and single-photon bandwidth-control via reactive interactions.

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Resumen del Currículum Vitae:

POSITIONS: Current: Juan de la Cierva-Incorporación Fellow at the Public University of Navarre. Previous: Posdoctoral Fellow at the University of Pennsylvania (Philadelphia, US, Prof. Nader Engheta s group).

PUBLICATIONS: 45 publications in peer-reviewed journals and one book chapter (first author 37/45, first quartile Q1 33/45), including high-impact journals: Science (1 article + 1 perspective), Nature Photonics (1), Nature Nanotechnology (1), Nature Communications (1), Proceedings of the National Academy of Sciences (2), Science Advances (2); as well as technical journals such as IEEE Transactions on Antennas and Propagation (7) and IEEE Transactions on Microwave Theory and Techniques (3). Our work was highlighted on the cover of Nature Photonics and Optics & Photonic News. 48 publications in international (43) and national (5) conferences, including 13 invited talks. I have given four invited seminars about my research in top institutions (Donostia International Physics Center, Universidad Autónoma de Madrid, Universidad Autònoma de Barcelona).

SHORT RESEARCH STAYS: Prof. Richard W. Ziolkowski s group at University of Arizona (US, 2013-3 months, 2012-4 months). Prof. Sergei Tretyakov s group at Aalto University (Finland, 2011-4 months). Prof. Manuel Vázquez at Institute of Material Science Madrid (Spain, 2010-15 days).

R&D PROJECTS AND MANAGEMENT: I have participated in 15 research projects (9 with industrial partners) and 3 technology transfer contracts. I was the principal investigator of a postdoctoral starting package by La Caixa. My proposal to European Research Council Starting Grant (ERC-Stg) in the 2017 call (Proposal Nº 803502) received the maximal evaluation A and was placed on the reserve list.

AWARDS: Best photonics paper at Metamaterials 2018, Best theory paper at Metamaterials 2017, Young Scientist Award at EMTS 2016. In 2014, I obtained the accreditation as Profesor Contratado Doctor from ANECA.

SERVICES: Reviewer of leading peer-reviewed journals (journals in Nature, IEEE, OSA, and APS groups). Reviewer and session chair of international conferences: Metamaterials, Antenna and Propagation Symposium (APS-URSI). Session organizer at EuCAP 2019.

OUTREACH: We have been invited to write two popular science articles (1 perspective in Science, 1 review at Optics & Photonics News) based on our research. Our work has been highlighted in numerous press releases. I have been in charge of the science news section at the local radio Eguzki Irratia (monthly section of 20 minutes) during the 2017-2018 and 2018-2019 seasons.

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2018

Turno de acceso general

Nombre: NAVARIDAS PALMA, JAVIER
Referencia: RYC2018-024829-I
Área Temática: **Tecnologías de la información y de las comunicaciones**
Correo Electrónico: navalife@yahoo.es

Título:

Sistemas de Computo y Comunicaciones Extremos

Resumen de la Memoria:

La sociedad actual tiene una gran dependencia de los sistemas de información y computo como la principal vía para incrementar la productividad y competitividad tanto en entornos industriales y científicos como, principalmente, en el sector servicios (finanzas, medios de comunicación, TICs, etc.). Debido a esta necesidad, nos dirigimos hacia la creación de instalaciones de cómputo y datos de tamaño cada vez mayor, cuyo diseño supone ingentes desafíos técnicos. Este proyecto se dedicará a investigar nuevas tecnologías de cómputo y comunicaciones que permitan aumentar las capacidades de los centros de procesamiento y datos. El objetivo principal será diseñar arquitecturas que permitan reducir el consumo energético así como incrementar el número de nodos interconectados.
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Resumen del Currículum Vitae:

El Dr. Javier Navaridas es un Senior Research Fellow en la Escuela de Ciencias de la Computación de la Universidad de Manchester. Anteriormente, Javier investigó con el Grupo de Sistemas Inteligentes (ISG) de la Universidad del País Vasco (UPV / EHU), donde obtuvo una beca de doctorado de 4 años y una beca postdoctoral de 1 año.

Su tesis doctoral recibió un Premio Extraordinario de Doctorado, lo que distingue a Javier como uno de los mejores estudiantes de su promoción; sólo 16 tesis de las 306 publicadas obtuvieron este reconocimiento (~ 5%). Posteriormente, Javier recibió una prestigiosa beca Newton de la Royal Society (7% de tasa de éxito).

Como lo demuestra su extensa lista de publicaciones (24 revistas y 36 conferencias internacionales), Javier tiene una amplia experiencia investigando todos los aspectos del diseño de redes de interconexión, incluyendo la evaluación de rendimiento, la eficiencia energética, el control de congestión, la tolerancia a fallos, las topologías y la teoría de grafos, la microarquitectura de los enrutadores y el modelado de sistemas. Javier también tiene experiencia con una amplia Gama de tecnologías de red como Infiniband, Ethernet, interconexiones ópticas, interconexiones asíncronas e incluso con el desarrollo de protocolos de red diseñadas ad hoc.

Javier está bien establecido dentro de la comunidad de arquitectura de computadoras al revisar regularmente los trabajos de las principales revistas, así como evaluar propuestas de proyecto para los consejos de investigación. También ha ocupado diferentes puestos de responsabilidad en conferencias y eventos (comité de organización de PPoPP, EMiT y HiPEAC, comité de programa de MSPDS, y Europar). En este momento lidera un pequeño grupo de investigación compuesto por 2 estudiantes de doctorado y 1 investigador asociado. Ademas Javier lidera el paquete de trabajo sobre la red de interconexión del proyecto ExaNeSt y tambien tiene un papel crítico en el desarrollo de la Infraestructura de comunicaciones del proyecto EuroEXA.

Javier también ha participado en diversas actividades de divulgación, como su intervención en la escuela de Invierno ECI en Buenos aires, u otras charlas invitadas.

Javier es campeón del área de Arquitectura de Computadores de la Escuela de ciencias de la computación de la Universidad de Manchester donde ha adquirido una amplia experiencia docente en asignaturas relacionadas con esta área. Igualmente, Javier tiene amplia experiencia en la supervisión de estudiantes en distintas etapas de su carrera; desde proyectos de fin de carrera, hasta estudiantes de doctorado.

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2018

Turno de acceso general

Nombre: MARTINEZ CLIMENT, ANDREU
Referencia: RYC2018-024346-I
Área Temática: **Tecnologías de la información y de las comunicaciones**
Correo Electrónico: bamarcli@gmail.com

Título:

Cardiac Electrophysiology Biomedical Engineering

Resumen de la Memoria:

Beginnings of the research career and Predoctoral stage

> 2004 Ministry of Science Collaborating fellow at Polytechnic University of Valencia
> 2005 Erasmus at Klinikum University of Magdeburg, Germany
> 2006 Degree on Telecommunications Engineering
> 2007 Assistant researcher at Klinikum University of Magdeburg. Research stages at Politecnico di Milano, Italy, Lund University, Sweden, and Cleveland Clinic, USA.
> 2008-2011 Competitive FPI scholarship at Polytechnic University of Valencia

- o 4 papers as first author, 6 papers as collaborating author

Post-doctoral stage at the Polytechnic University of Valencia

> 2011-2012 Post-doctoral funding at the Polytechnic University of Valencia

- o First research line as person in charge: "Mathematical modeling of cardiac arrhythmias"
- o First papers as last author
- o Start the supervision of two PhD students
- o Research stage at Michigan University, USA

Post-doctoral stage at the Gregorio Marañón Health Research Institute

> 2012-2019 Development of New Research line on Cardiac Electrophysiology

- o 2012-2014 funded by the Research Network in Cardiovascular Diseases
- o 2015-2016 funded by the Cell Therapy Network
- o 2016-2018 award with a Juan de la Cierva Incorporation grant
- o 2018-present Deputy director of CIBERCV

During these 7 years I have developed my leadership skills by setting up and coordinating a translational laboratory in which we developed equipment, signal processing tools and research models to understand cardiac electrophysiology. This laboratory includes different interconnected work unit, from in in-vitro to humans:

> In-vitro unit

- o Development of optical mapping technology for cardiac tissue engineering
- o Publications on Biomaterials (IF 8.8)
- o Explora project of MINECO
- o PhD supervision of Lidia Gomez (will defend in 2020)

> Preclinical research unit

- o Development of bioreactors for isolated whole heart experiments
- o Publications on Circulation Research (IF 15) and European Heart Journal (IF 23)
- o Invited talks in international symposiums
- o Grant from Qatar Foundation
- o Member of international Working Groups
- o PhD supervision of Ismael Hernandez (will defend in 2019)

> Clinical research unit

- o Clinical validation of electrocardiographic imaging technology
- o PhD supervision of Miguel Rodrigo (already defended)
- o Publications on IEEE Trans Med Imaging (IF 6)

> In-silico research unit

- o Development of mathematical models of complex behavior of cardiovascular biological systems
- o PhD supervision of Alejandro Liberos (Already defended)
- o PhD supervision of Ana Sanchez de la Nava (Will defend in 2021)
- o Young investigation Award Computing in Cardiology

Transfer to the productive sector

o   Patent: WO2016/038237. Novel catheter to map atrial fibrillation. Licensed to MICROPORT. Proof of concept project with 300k
o   Patent WO2016/038237. Novel medical device for electrocardiographic imaging. Licensed to our start-up CORIFY Health Care
o   3 projects as principal investigator:
   Project Caixaimpulse 2017. 70.000
   Project FIPSE 2018. 30.000
   Project EIT Health H2020 AFFINE 2019. 750.000

Transfer to society
        Chairperson of #CienciaenelParlamento ,scientific advice office of the Spanish parliament
        Permanent participation in divulgate activities

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Resumen del Currículum Vitae:

Telecommunications engineering and PhD in electronic engineering. My research is focus in understanding the electrophysiological communication. Development of new registration techniques, analysis methods and research models (in-silico, in-vitro, ex vivo and in-vivo). Our innovations are applied to fields such as the diagnosis and treatment of cardiovascular conduction disorders (e.g. atrial fibrillation, tissue engineering).

1)   Scientific contributions.
        35 JCR papers - mean impact factor of 6,12. 23 Q1 papers. 9 D1 papers. 6 papers as first author, 8 papers as last author and/or corresponding author. 6 book chapters. 180 contributions to meetings.
        Top papers with impact factor of 23.425
        H-index: 16. Total citations: 936
        19 invited talks in international meetings (e.g. European Society of Cardiology)
        Participation in 31 competitive research projects (5 as principal investigator, one of the H2020 as PI)
        2 PhDs supervised (other 3 under development), 8 Master Thesis and 13 Final Degree Works supervised
        2 international patents licensed (1 to a multinational company, 1 to our own start-up CORIFY)
        1 spin-off (CORIFY Health Care S.L. is in the process of investment of 6.5 million of euros)
2)   International Participation.
        Principal Investigator of EIT-Health H2020 project (750k). Partner 3 H2020 and 1 ERANET consortiums.
        Secretary of the Transnational Alliance for Regenerative Therapies in Cardiovascular Syndromes
        Member of the nucleus of the European Society of Cardiology Working Group CARE
        Co-director of the Annual International Symposium on Cardiovascular Regeneration and Repair
        Evaluator of international commities: Medical Research Council (MRC), UEFISCDI (Executive Agency for Research, Development and Innovation Funding), PhD programs Department of Computer Science- Oxford University, reviewer in more than 15 Q1 journals, co-editor of a Q1 journal
        24 JCR publications (70%) with international co-authors (e.g. USA, Germany, UK, etc.)
        International Experience:
-        2015-2016 Otto von-Guericke Universitats Klinikum, Magdeburg, Germany
-        2017 Leizpig Herz-Zentrum, Germany
-        2017 Cleveland Clinic, USA
-        2010 Michigan University, USA
3)   Other curricular merits.
        2017-X. Deputy director Centro Nacional de Investigación en Red en Enfermedades Cardiovasculares
        2018-X. Founder and president of #CienciaenelParlamento. Institution that in Spain is in charge of the Scientific and Technological Assessment to the National Parliament (www.cienciaenelparlamento.org)
        26 participation in divulgate activities (e.g. Nature News , Investigación y Ciencia , The conversation)
        Webmaster of tacticsalliance.org and cienciaenelparlamento.org. Twitter divulgate accounts (@amcliment -1080 followers, @cienciamento 7800 followers, @personalizeAF 250 followers)
        Member of the Ethical Committee for Animal Research of Instituto de Investigación Gregorio Marañon.
        Awarded with the Juan de la Cierva Incorporación Grant 2015
        7 awards for best contributions as first author, 3 as supervisor
        Associated professor - 950 hours/9 years (UC3M, UPV) mean value of students polls 9,42/10

Nombre: IGLESIAS GUITIAN, JOSE ANTONIO
Referencia: RYC2018-025385-I
Área Temática: **Tecnologías de la información y de las comunicaciones**
Correo Electrónico: jantonio.iglesias@gmail.com

Título:

Advanced Rendering for Scientific Visualization and Simulation

Resumen de la Memoria:

.:: Professional Background ::.

José A. Iglesias-Guitián is a researcher (h-index 13) in Visual Computing and Computer Graphics. He works at the Computer Vision Center and is Assoc. Researcher and Professor at the Univ. Autònoma de Barcelona. Last year he co-organized the ACM SIGGRAPH Workshop on Computer Graphics for Autonomous Driving Applications and was member of the ACM I3D Program Committee. This year he is also part of the organization for High Performance Graphics 2019. Previously, he worked for near two years at The Walt Disney Company and Disney Research. From last fall he is also expert evaluator for ANEP.
He has been recipient of *three* Marie Curie grants: i) one on-going as Assoc. Researcher at CVC/UAB (EU-H2020); ii) previously as Experienced Researcher at the Univ. of Zaragoza (EU-FP7 Industry-Academia); iii) before that, he was a researcher for more than 5 years at the Visual Computing Group at CRS4 (Italy). Funded by a Marie Curie EU-FP6 grant he obtained his Ph.D. Degree in Electronic and Computer Engineering from the Univ. of Cagliari (2011). In the beginning, he received a M.Sc. in Computer Science from the Univ. of a Coruña UDC (Spain, 2006) and worked in VideaLAB, a computer graphics laboratory in the School of Civil Engineering at UDC.

.:: Research Interests ::.

The current research of Dr. Iglesias-Guitián is focused on advanced rendering techniques for scientific visualization and physically-based rendering applied to virtual traffic simulation scenarios. This research relies on his previous experience covering various topics in graphics: i) he worked for Disney Research in image-based interactive and offline denoising for Monte Carlo ray tracing and in temporal anti-aliasing filters for rasterization pipelines; ii) supported by 2 EU Marie Curie grants he consolidated a research line in GPU volume rendering, level-of-detail and compression techniques for volumetric data; iii) real-time interaction with novel VR environments and novel 3D display technologies; iv) other multidisciplinary works involving graphics: medical imaging, cultural heritage, virtual characters, etc. His work has been published at major international conferences and journals in his field (i.e. ACM SIGGRAPH, IEEE SciVis, Eurographics). He is PC member and reviewer for international conferences and journals.

.:: Summary of achievements ::.

14 journal articles (Q1: 9/14) in the top#3 list of referenced journals in Computer Graphics. 3 Marie Curie EU grants. Co-inventor for 3 US patents, 1 Disney Inventor Award (2016). Co-authored 10 articles and presented 12 times at international conferences and 5 invited talks. Projects: 5 EU, 1 UK, 2 MINECO (>200k Co-IP). Assoc. Professor Certificates by ANECA. Eurographics/ACM member.

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Resumen del Currículum Vitae:

The main scientific contributions of the applicant researcher focus on the Visual Computing field, and they are spanned over different domains, i.e. advanced rendering, scientific visualization, image reconstruction or virtual reality.

PROFESSIONAL BACKGROUND
2017 - curr. Marie Curie Researcher. Computer Vision Center
2018 - curr. Part-time Assoc. Professor, UAB, Spain
2014 - 2016 Assoc. Researcher. Disney Research (The Walt Disney Company UK)
2012 - 2014 Marie Curie Experienced Researcher. Univ. of Zaragoza, Spain
2010 - 2012 Expert Researcher. Visual Computing Group. CRS4, Italy
2007 - 2010 Marie Curie Early Stage Researcher. Visual Computing Group. CRS4, Italy
2004 - 2007 Researcher and SW Eng. School of Civil Engineering. UDC, Spain

EDUCATION
2008 - 2011 Ph.D. Degree in Electronic and Computer Engineering, Univ. of Cagliari, Italy
1998 - 2006 M.Sc. in Computer Science, Univ. of A Coruña (UDC), Spain

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Turno de acceso general

AWARDED FELLOWSHIPS
2017 - 2020 EU Marie Curie COFUND H2020 Expert Researcher (score: 90.50%)
2012 - 2014 EU Marie Curie Industry-Academy FP7 Fellow as Experienced Researcher
2007 - 2010 EU Marie Curie Fellow of the 3D Anatomical Human RTN

SCIENTIFIC PUBLICATIONS & PATENTS
Google Scholar h-index: 13. Total citations 612 (383 from 2014). Most cited paper: 179 cit.
14 journal papers (Q1: 9/14, 1st+2nd author: 8/14) and 10 conf. papers and 10 conf. presentations (all international).
3 industrial patents (all in the US).
2 book chapters and 2 Eurographics tutorials +5 invited talks.

PARTICIPATION IN R+D PROJECTS
As Co-PI for CVC: (1) Audi Electronics Venture GmbH, (1) Unity Technologies, (1) MINECO
CVC/UAB: P-Sphere - 4RENA EU-H2020
The Walt Disney Company UK: InnovateUK
Univ. of Zaragoza: EU-FP7 MC-IAPP GOLEM, MIMESIS, LIGHTSLICE
CRS4: EU-FP7 MC-ITN DIVA, EU-FP7 INDIGO, EU-FP6 MC-RTN 3DAH

FUNDING (LAST 2 YEARS)
2018 Co-PI for CVC project with Audi Electronic Venture GmbH (~66K   )
2018 Co-PI for MINECO project (DANA with CVC, UAB ~117K   )
2018 PI for NVidia GPU Grant Program (hardware ~5k $)
2017 Co-PI for CVC project with Unity Technologies (~15K $)

STUDENT SUPERVISION
2017 J. Llerena. UAB. PhD Advisor. Under supervision.
2013 C. Aliaga. Univ. of Zaragoza. Master thesis co-supervision. Grad. with honors.

PROFESSIONAL REVIEWING SERVICE
Eurographics (EG), ACM SIG. I3D, IJCV, The Visual Computer, ACM SIG. Asia, Computer Graphics Forum, Computer and Graphics, IEEE Vis, Spring Conf. on Computer Graphics, EG Italian Chapter (STAG), EG Spanish Chapter (CEIG), EG/IEEE Eurovis, Pacific Graphics.

ORGANISATION OF SCIENTIFIC MEETINGS
2018 Co-organizer of ACM SIGGRAPH Work. on Computer Graphics for Autonomous Driving Applications, Vancouver (CA)
2014 EG Spanish Chapter CEIG 2014
2013 Eurographics Symposium on Rendering 2013

MEMBERSHIPS OF COMMITTEES
2019 High Performance Graphics. OC.
2018, ACM I3D SIGGRAPH Symposium on Interactive 3D Graphics and Games. PC.
2018, 13th International Symposium on Visual Computing. PC.
2018, 2015, 2014 EG Italian Chapter STAG. PC.
2016, 2015 EG Spanish Chapter CEIG. PC.

MEMBERSHIPS OF SCIENTIFIC SOCIETIES
(2015-present) ACM SIGGRAPH. (2007-present) Eurographics. (2010-present) MCAA

OTHER MERITS
Associate Professor Certificates by ANECA. Expert Evaluator for AEI/ANEP
1 Disney Inventor Award (2016)

Further info at   www.j4lley.com

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**AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2018**

Turno de acceso general

Nombre: MARTIN SANCHEZ, JAVIER
Referencia: RYC2018-026196-I
Área Temática: **Tecnologías de la información y de las comunicaciones**
Correo Electrónico: javier.martin.nano@gmail.com

Título:

Development of strain-tunable photonic devices for quantum information and communication technologies

Resumen de la Memoria:

Dr. Javier Martín-Sánchez has a strong expertise in nanofabrication of quantum confined nanostructures and their optical characterization for applications on quantum photonic technologies. He is principal investigator leading his own research line in the development of novel strain-tunable photonic devices based on the elastic strain engineering of the optical properties of emerging two-dimensional nanomaterials.

Dr. Martín-Sánchez started his scientific career at the Microelectronic Institute of Madrid, where he obtained his PhD in 2009 (Autonomous University of Madrid UAM, Cum Laude) on the epitaxial growth and optical characterization of site-controlled III-V quantum dots as single-photon sources. In 2010 he was granted with a competitive FCT Portuguese postdoctoral fellowship at the University of Minho (Braga, Portugal). His research works were mainly focused on the fabrication and characterization of group-IV semiconductor nanocrystals for applications on photonic and non-volatile memory devices. In 2012 he was granted with a competitive JAE-DOC postdoctoral contract at the Institute of Optics Daza de Valdés (Madrid, Spain) where he continued his works on the optical studies of group-IV nanocrystals with special emphasis on Er-doped group-IV nanoparticles for on-chip integrated light amplifiers. In 2013 he joined the Nanoscale Semiconductors and Nanophotonics group led by Prof. Armando Rastelli at the Johannes Kepler University (Linz, Austria) where he developed a novel class of micro-machined piezoelectric devices capable of introducing deliberate in-plane deformation fields in nanomaterials for the first time. The device was employed to produce energy-tunable entangled photons, which represents a fundamental milestone on the roadmap towards the implementation of quantum photonic technologies. In 2016 he successfully started a new research line at the Johannes Kepler University in the field of strain effects on optically active two-dimensional materials as an independent senior postdoctoral researcher. In 2017 he was awarded a competitive Clarín-Marie-Curie-Cofund grant project Nano2DStrain (for incoming trained senior researchers from abroad) to continue his studies in the Quantum Nano-optics team (led by Dr. Pablo Alonso-González) at the University of Oviedo as principal investigator. His main research activities are focused on the study of strain effects on the optical properties of single-photon sources and light propagation at the nanoscale in two-dimensional materials.

Dr. Martín-Sánchez has obtained self-funding through 3 postdoctoral grants (+1 predoctoral fellowship) in competitive regime. He has established an extended number of strong and active international/national collaborations with leading research institutes worldwide, including the company Keysight Austria. He has published 42 publications in international peer-reviewed journals, 1 chapter book and 1 invited review manuscript as a recognized expert. (68.8 cites/year in the last 5 years, h-index=14, number of total citations=565   source: Google Scholar). He has presented more than 50 presentations in international conferences, 13 invited seminars (3 invited talks in conferences). He has co-supervised (or supervised) 3 PhD students (1PhD in realization), 2 PhD students short stays, 3 Master students, 6 Bachelor students (4 in realization).
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Resumen del Currículum Vitae:

(Dr. Javier Martín Sánchez, PhD in 2009). He has a strong expertise in nanofabrication of quantum confined nanostructures and their optical characterization for quantum photonic technologies. He is principal investigator leading his own research line in the development of novel tunable photonic devices by elastic strain engineering of the optical properties of emerging two-dimensional nanomaterials (Clarín-Marie-Curie-Cofund Nano2DStrain project) at the University of Oviedo, where he is collaborating with Dr. Pablo Alonso-González in the Quantum Nano-optics team .

He has performed an intensive postdoctoral research (total time: 9.3 years) in internationally recognized centres abroad for a total period of 6.75 years (3 months in Germany (Paul-Drude-Institut) + 2 years in Portugal (University of Minho) + 4.5 years in Austria (Johannes Kepler University)), and nationally recognized centres (2.6 years in Spain - IO-CSIC and University of Oviedo -). During this period, he has acquired in-depth managerial, supervision and experimental skills as independent researcher in quantum photonic technologies at a highly international competitive level.

He has obtained self-funding through 3 postdoctoral grants (+1 predoctoral fellowship) in competitive regime. He has participated in 15 (9 international) research projects, including 2 ERC starting grants, 1 FET-OPEN project and 1 project as principal investigator. Additionally, he has established an extended number of strong and active international/national collaborations with leading research institutes worldwide, including the company Keysight Austria.

Dr. Martín-Sánchez has published 42 publications in international peer-reviewed journals, and 1 chapter book, including high impact factor ones such as Nature (1), Nature Communications (2), Physical Review Letters (2), Nano Research (1), Advanced Optical Materials (1) or ACS Photonics (1), among others, and 1 invited review manuscript as a recognized expert. (68.8 cites/year in the last 5 years, h-index=14, number of total citations=565 source: Google Scholar). He has presented more than 50 presentations in international conferences, 13 invited seminars (3 invited talks in conferences).

He has co-supervised (or supervised) 3 PhD students (1PhD in realization), 2 PhD students short stays, 3 Master students, 6 Bachelor students (4 in realization) and research activities in the lab of 5 students. He has been lecturer on Semiconductor Physics (Johannes Kepler University), and several subjects in Physics (University of Oviedo). He is registered in the Spanish National Research Agency (AEI) database as an expert evaluator for national projects/calls. He is a member of the advisory panel of the Institute of Physics (IOP Nanotechnology journal). He has collaborated as external referee for a scientist position in nanofabrication at IST in Vienna (Austria) and as referee in many peer-reviewed journals of high impact factor such as 2DMaterials, ACS Applied Materials & Interfaces, Nanoscale or ACS Crystal Growth & Design. He has obtained the ANECA certificate to teach in Spanish Universities as profesor ayudante doctor , profesor Universidad privada and profesor contratado doctor .

Dr. Martín-Sánchez qualified as reserve candidate in the Ramón y Cajal call 2017.

Nombre: CARPENTER , PAUL
Referencia: RYC2018-025628-I
Área Temática: **Tecnologías de la información y de las comunicaciones**
Correo Electrónico: paul.carpenter@acm.org

Título:

Programming Models for High Performance Computing

Resumen de la Memoria:

Supercomputers are important across science, engineering and industry. Programming supercomputers is difficult, however, and optimized applications are complex, non-portable, and difficult to maintain. Also, interactive, real-time and urgent jobs require applications to adapt to dynamic resource availability, an uncomfortable fit to the dominant MPI programming model. My research in programming models and runtime systems will directly address these challenges.

My research trajectory began in 2003, as external consultant to ARM, Cambridge, where I was software representative in the 5-person interdisciplinary team that designed ARM Advanced SIMD, the hardware software interface for media/signal processing in >50% of all mobile phones worldwide. From 1997 to 2002, I was ARM s technical lead and project manager for multimedia codecs, and lead developer for the embedded music codec on almost all early portable audio players (>50 products). I am first author on 3 international granted and exploited patents.

I began my research in programming models in 2006, when, motivated by the complexity, non-portability and maintainability issues of the optimized software developed at ARM and targeted by Advanced SIMD, I started my PhD in stream programming models at Universitat Politècnica de Catalunya (UPC) in Barcelona. I graduated Excel·lent cum Laude in 2011.

RESEARCH: I have 42 peer-reviewed international publications, with 467 citations (Google Scholar), 335 citations since January 2015, and H-index of 10. I have 12 papers in CORE A/A* conferences and five Q1 journals publications. I am reviewer for Q1 journals and Submissions Chair for PACT2018

LEADERSHIP: Since 2014, I have consistently been BSC Principal Investigator (PI) of competitively-funded FP7/H2020 projects: EUROSERVER (12.2M budget), ExaNoDe (8.6M), and EuroEXA (20M), as well as Workpackage Lead in ExaNoDe, EuroLab-4-HPC and EuroEXA. I am also the Software and Technology Manager in EuroEXA, with technical responsibility for system software and applications (roughly half of the 20M project, with considerable hardware/software integration complexity across 16 partners). Since 2014 I have led the BSC Microserver architectures and systems software group, and been director/codirector of 9 PhD students (5 already graduated).

TECHNOLOGY TRANSFER: In 2013, I was one of four co-founders of Talaia Systems, which aimed to build high-performance computing systems using mobile SoCs, commercializing technology from the Mont-Blanc project. Talaia Systems was a finalist in Fundación Repsol Entrepreneurship Fund 2013. I am also Entrepreneurial Lead for PREDICT, a 15,000 competitively-funded project to develop a business plan for BSC s work in HPC failure prediction and holistic resiliency.

HPC STRATEGY: I am co-chair of Programming Environment in ETP4HPC, the industry-led forum for HPC research in Europe and EC s partner in the HPC Contractual Public Private Partnership (cPPP), which monitors and manages the European HPC research investment programme. I was also member of the editorial team of Rethink Big, an FP7 project that produced an industry-led European roadmap for hardware acceleration for big data. Finally, I was co-author of and expert contributor to the EuroLab-4-HPC roadmap, a long-term roadmap for academic HPC research excellence.

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Resumen del Currículum Vitae:

I am an established academic researcher active in parallel programming models and runtime systems for high-performance computing. My international research career comprises eight years in industrial research and development at ARM (Cambridge, UK), PhD in Computer Architecture from Universitat Politécnica de Catalunya, and seven years in academic research: three at UPC and four at Barcelona Supercomputing Center (BSC). I have experience with entrepreneurship, having founded my own consulting company and been co-founder of an attempted startup.

I have demonstrated my abilities to attract funding, lead and manage research in multiple research fields, and exploit inter-disciplinary opportunities. Since 2014, I have led BSC's Microserver architectures and systems software group and consistently been BSC Principal

Investigator (PI) for competitively funded FP7/H2020 projects. I am BSC PI, Workpackage (WP) leader and Software Technical Manager for EuroEXA, a 20 million EC H2020 project that started in September 2017, with technical responsibility for all software, including system software, programming environment and application porting. I am also PI and WP leader of ExaNoDe, an EC H2020 project with 568k and 113 PMs at BSC. I was also BSC PI of EUROSERVER, an EC FP7 project with 1.1M and 137 PMs at BSC. I am (co-)director of 9 PhD students (5 graduated), and manager of one postdoc. My research lines have led to 42 peer-reviewed papers, of which 5 in Q1 journals and 12 are in CORE A/A* conferences, including MICRO 2012, SC 2013 (Best Student Paper), HPCA 2017, and IEEE Transactions in Computers (Featured Article of the Month). I have 467 citations and H-index of 10. I am principal researcher on 3 international granted and exploited patents. I was presenter of 10+ invited talks and 4 dissemination videos, participant in 5 panel discussions and co-organizer of 4 workshops. I am peer reviewer for Q1 journals (IEEE Transactions on Parallel and Distributed Systems and IEEE Transactions on Computers) and CORE A conferences (IPDPS and Euro-Par) and Submissions Chair for PACT 2018 (CORE A).

My research program has developed out of my research and development experience at ARM, where I was technical lead and/or project manager on successful embedded software products and core member of the multi-disciplinary team that designed ARM Advanced SIMD Instruction Set Architecture (implemented in >50% of mobile phones worldwide). At UPC, I continued my history of commercialisation and entrepreneurship, as cofounder of Talaia Systems, which was finalist in Fundación Repsol Entrepreneurship Fund 2013.

I am co-chair of Programming Environment in ETP4HPC, EC s partner in the HPC Contractual Public-Private Partnership (cPPP), with substantial influence over 700M of research funding. I was also member of the editorial team of Rethink Big, an FP7 project that produced a big data hardware roadmap for the EC. Finally, I was Leader of the Research Work Package (WP) in EuroLab-4-HPC. This WP organized 20 international research stays across Europe, mentored 27 European researchers in technology transfer and business prototyping, and it prepared a roadmap for academic HPC research excellence, for which I am expert contributor and co-author.

**MINISTERIO
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**AGENCIA
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AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2018

Turno de acceso general

Nombre: FIORE , DARIO
Referencia: RYC2018-024293-I
Área Temática: **Tecnologías de la información y de las comunicaciones**
Correo Electrónico: dario.fiore@imdea.org

Título:

Cryptography for Ensuring Privacy and Integrity of Remote Computation

Resumen de la Memoria:

Due to phenomena like the ubiquity of the Internet and cloud computing, it is increasingly common to store and process data on third-party machines. In spite of its attractive aspects, this trend raises a number of security concerns, including:

How to ensure that the results computed by third parties are correct (integrity), and no unauthorized information is leaked (privacy)?

The current way to deal with these problems is to trust third parties under legislation guarantees. This approach assumes that third-party machines stay honest all time, even if they get hacked! This is unrealistic and contradicted by the numerous security incidents that are regularly reported. In contrast, my vision is that any computing device must be able to store and process data on untrusted machines without risking for privacy and integrity and without the need of trusting these machines.

My research aims to realize this vision by inventing a new generation of cryptographic protocols for computing securely on untrusted machines in a way that is cost-effective and suitable for future application scenarios. To achieve this goal, my work focuses on developing new design methodologies and cryptographic techniques that will scale up the performance of cryptographic primitives.

I conduct my research at the IMDEA Software Institute in Madrid, where I have a position as Assistant Research Professor. I obtained my PhD in 2010 from University of Catania, Italy. Before joining IMDEA in 2013, I held postdoc positions at the Ecole Normale Superieure of Paris (France), the New York University (USA), and the Max Planck Institute for Software Systems (Germany). During my PhD I was also a visiting student at the IBM T. J. Watson Research Center, NY (USA).

During my ten years of research activity I published 51 papers in highly prestigious international conferences and journals, including CRYPTO, Eurocrypt, the ACM Conference on Computer and Communications Security the IEEE Symposium on Security and Privacy, the Journal of Cryptology and the IEEE Transactions on Information Theory. My work has attracted over 1800 citations, with an h-index 23.
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Resumen del Currículum Vitae:

I am an Assistant Research Professor at the IMDEA Software Institute in Madrid. I obtained my PhD in 2010 from University of Catania, Italy. Before joining IMDEA in 2013, I held postdoc positions at the Ecole Normale Superieure of Paris (France), the New York University (USA), and the Max Planck Institute for Software Systems (Germany). During my PhD, I was also a visiting student at the New York University and the IBM T.J. Watson Research Center (USA).

My research interests are on theoretical and practical aspects of cryptography, and its applications to real-world systems. My research especially focused on advancing the efficiency of cryptographic protocols, with the ultimate goal of reducing the gap between theory and practice. During my ten years of research activity I published 51 papers in highly prestigious international conferences and journals, including CRYPTO, Eurocrypt, the ACM Conference on Computer and Communications Security the IEEE Symposium on Security and Privacy, the Journal of Cryptology and the IEEE Transactions on Information Theory. My work has attracted over 1800 citations, with an h-index 23, according to Google Scholar. I have given 10 invited talks at international workshops and summer schools, more than 20 invited seminars at universities and research institutes worldwide, and more than 15 presentations at international conferences.

I have been awarded a fellowship "Juan de la Cierva Incorporacion" (for years 2016-2017) from the Spanish "Ministerio de Economia y Competitividad", and a fellowship from the EU FP7 Marie Curie Action AMAROUT-II (2013). I won a PhD scholarship at University of Catania (2007-2009) from the Italian Ministry of Education. I am the recipient of the 2016 CNILINRIA Award for Privacy Protection, and I received a best paper award at the I Jornadas de Investigacion en Ciberseguridad (JNIC 2015).

Scientific Service. I have served (am serving) on the program committee of most important venues in Cryptography and Computer Security, such as the IACR conferences CRYPTO (2015, 2018), EUROCRYPT (2016), ASIACRYPT (2017), PKC (2011, 2015-2017, 2019), the ACM Conference on Computer Security (ACM CCS) (2015-2016, 2018-2019), the IEEE European Symposium on Security and Privacy (EuroS&P) (2016-2017). I am in the Editorial Boards of the IET Information Security Journal and the International Journal of Applied Cryptography. From 2014 to 2018, I served as Vice-chair and Management Committee member (representing Spain) of the COST Action IC1306

"Cryptography for Secure Digital Interaction". Overall, I was also able to attract funding for a total of 1M Euros from both Spanish and European agencies, and from industries, being the PI or co-PI of two European and two Spanish projects.

Teaching and supervising. I have received the Venia Docendi of the Universidad Politecnica de Madrid. I have so far taught 11 courses and seminars at UPM, Saarland University, New York University and University of Catania. I have supervised and co-supervised 2 PhD theses and 5 master theses, and I am currently supervising one PhD student (Anais Querol) and co-supervising another PhD student from another institution (Anca Nitulescu, Ecole Normale Superieure). I have also supervised 6 research internships.

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AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2018

Turno de acceso general

Nombre: GARRIDO ALCAZAR, JESUS ALBERTO
Referencia: RYC2018-025236-I
Área Temática: **Tecnologías de la información y de las comunicaciones**
Correo Electrónico: jgarridoalcazar@gmail.com

Título:

Distributed learning in the cerebellum for motor control

Resumen de la Memoria:

In the last 12 years since I finished my Computer Science Engineering degree I have focused my research career on the study of the brain and how it is capable of performing dexterous movements. However, in my way of achieving deeper understanding of neural systems I had the opportunity to improve my skills in quite different areas of expertise such as implementation of an open-source neural simulation framework (EDLUT spiking neural network simulator), design of cerebellum-like neural network models, inclusion of this design in a real-time robotic-task control loop, usage of biologically-inspired complex learning systems and experimental neuroscience.

In 2006 I joined to Eduardo Ros lab in the Department of Computer Architecture and Technology (at the University of Granada) where I spent five years. In 2009 I was awarded with a PhD National Fellowship (FPU) that ended with the achievement of his PhD degree with honors at the end of 2011, obtaining an extraordinary doctorate award from the University of Granada. During my stay in this department, I collaborated on several European projects (SENSOPAC and REALNET) supervised by Eduardo Ros. This experience has improved significantly my research skills and team abilities thanks to a fruitful international environment with project meetings and reviews resulting in several publications in high-impact factor journals in the fields of Artificial Intelligence and Cybernetics.

Right after finishing my PhD studies I was awarded with an ITN Marie-Curie Experienced Researcher fellowship to develop a postdoctoral period in the Department of Brain and Behavioral Sciences at the University of Pavia (Italy) under Egidio D Angelo s advise. There I had the opportunity to study how the cerebellar particular topology and the cellular properties make the cerebellum a powerful learning and temporal machine. This period in an experimental lab allowed me to strength my background in relevant topics for neuroscience such as breaking through experimental techniques (two-photon microscopy, in-vivo multiarray recording,), design of experiments, realistic modeling and experimental data analysis. This multidisciplinary background is evidenced from my publications in leading neuroscience journals.

Since September 2015, I work as a postdoctoral research associate at the Computational Neuroscience group at the University of Granada, under supervision of Eduardo Ros. There I have started and currently lead the research line on distributed plasticity with 6 researchers (4 postdocs and 2 PhD students) contributing to it. That research line is at the core of the participation of this group in the Human Brain Project and the CEREBROT national project. My research focuses on the learning properties of the cerebellum and how learning distributed along several synaptic sites highly improves the cerebellar function in motor tasks (such as eye-blink conditioning, ocular reflexes and limb movements). In addition to this, my research aims to prove how synaptic creation and pruning can enhance the information processing in the human cerebellum.
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Resumen del Currículum Vitae:

I hold Computer Science Engineering from the University of Granada, being awarded as one the 5 best national students. I started my research career in computational neuroscience and motor control at the Department of Computer Architecture and Technology (UGR) in 2006. In 2009 I was awarded with a FPU National Fellowship ending with the achievement of his PhD degree at the end of 2011, obtaining an extraordinary doctorate award.

In 2011 I was awarded with an ITN Marie-Curie Experienced Researcher fellowship at the Department of Brain and Behavioral Sciences of the University of Pavia (Italy) under Egidio D Angelo s advice. There I had the opportunity to study how its particular topology and cellular properties confer the cerebellum powerful learning and temporal capabilities.

Currently, my research focuses on the learning capabilities of the cerebellum and how the interaction between plasticity mechanisms distributed along several synaptic sites enhances the cerebellar function in motor and sensing tasks. Thus, I started the research line in distributed learning at the University of Granada (with 6 researchers currently contributing to this). This research line is at the core of the participation of the UGR in the Human Brain Project (Flagship project) and a national project (CEREBROT). In addition to this, I am principal investigator in a 5-year-long project funded by the University of Granada and a 2-year-long Marie Skłodowska-Curie Individual Fellowship (IF-EF) awarded by the European Commission.

I have had a remarkable scientific production of 24 publications in journals ranked in the JCR (17 of them in the first quartile of its category, 6 as the main author and 4 publications without the participation of any of my PhD supervisors). My publications have collected 410 citations (WOS-) and I have h-index 13. Finally, I have contributed more than 20 publications to the most recognized conferences in robotics (IROS), neuroengineering and neuroscience (including the Society for Neuroscience, Federation of European Neuroscience Societies, Computational Neuroscience Society, Gordon Conference on Cerebellum). I have also reviewed articles for 7 highly-ranked international JCR journals. Finally, I have led the development of an open-source large-scale spiking neural network simulator (EDLUT), being used currently in several worldwide laboratories.

Nombre: GARRIDO GALVEZ, MARIO
Referencia: RYC2018-025384-I
Área Temática: Tecnologías de la información y de las comunicaciones
Correo Electrónico: mgarridogalvez@gmail.com

Título:

Digital electronics for signal processing applications

Resumen de la Memoria:

My research is on digital electronics for signal processing applications. I mainly focus on applications where specific algorithms are calculated at high data rates (100 Msamples/s to 10 Gsamples/s) or demand a large number of operations per second (1 100 Giga Operations/s). Some such applications are communication systems, image processing, medical applications, molecular dynamics, fiber optics and radio astronomy. This is a field of high impact that many current applications can benefit from.

In order to achieve high performance, we make use of multiple optimization techniques: We study alternative descriptions of the algorithm that save operations. We design an efficient data management and scheduling of operations to optimize the use of resources. We optimize specific mathematical operations that are calculated intensively. And we adapt the design to the target platform (FPGA, GPU, etc.) to achieve the most from it. The result is an implementation of the algorithm that calculates it at high speed, while using a small amount of resources.

We focus on specific algorithms that are calculated repeatedly on a data flow or a large amount of data. Our optimization applies to both simple and complex algorithms, being the challenge to calculate them thousands or millions of times per second.

Alternative approaches make use of large hardware systems. Conversely, we optimize the use of resources, leading to a compact solution. This has impact in the cost, power consumption and size of the system.

My research focuses mainly on tree topics. First, a significant part of my research has been on studying how to implement the fast Fourier transform (FFT) and other related algorithms (2D-FFT, STFT, etc.). Second, we have studied how to handle the data management of large amounts of data efficiently. In this respect, we have determined how to calculate matrix transpositions, bit reversal, etc., efficiently in hardware. Third, we have studied how to implement mathematical operations efficiently. This includes operations such as complex multiplications, rotations or the linear regression.

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Resumen del Currículum Vitae:

I started my PhD in January 2005. For my PhD I got an FPU fellowship from the Spanish Ministry of Education. During my PhD I developed my own research line on FFT hardware architectures, which I have continued and expanded later.

In 2007 I visited Prof. Keshab K. Parhi, IEEE Fellow, who is probably the most renowned researcher in the field around the world. In 2008, I visited Prof. Peter Pirsch, IEEE Fellow, another important researcher in the field.

In 2009 I published my first jornal paper as first author. This work turned out to be a reference in the field and has 93 citations nowadays.

I finished my PhD in 2009 PhD with Cum Laude and European PhD. Prof. Oscar Gustafsson, who was member of my Thesis Committee, liked my Thesis and offered me a post-doc position in Linköping, where I moved in 2010.

In 2011 one of my papers got a nomination to the Best Paper Award.

In 2012 I got a position of Associate Professor (Profesor Titular) at Linköping University, what I am nowadays. I also got ELLIIT funding for my research, which provides me with yearly funds, having some analogy with a tenure track in the US.

In 2013 I got the Best Paper Award and I published a paper that has become a reference in the field with 158 citations in 6 years.

In 2014 I got an Invited paper and I started to collaborate with M. Kumm from the University of Kassel, where I did a stay.

In 2015 I did not make any achievement. The reason is that I was on a long sick leave.

In 2016 I published 5 journal papers. This is a large number taking into account that publishing 2 journals in a year is already a great achievement in our field. In 2016 I also became Associate Editor of the Journal of Signal Processing Systems.

In 2017 I did a second stay in Kassel, where we achieved the world's fastest FFT architectures so far. In 2017 I also became Docent, which is awarded in Sweden to researchers with significant contributions in their field and enables for being main supervisor of PhD students.

From 2017 we have focused on applying my research to key technologies, mainly 5G, radio astronomy, neural networks and fiber optics, where we have already obtained important results, as detailed in the "Memoria de la trayectoria investigadora".

In 2018 I was selected to be a Guest Editor for a Special section and to write a book chapter on my field.

In my 8.5 years in Linköping I have combined research and teaching at 60% and 40% of the time, respectively. The achievements in teaching have been to teach 22 courses for a total of more than 800 lecture hours, design 2 university courses and be course responsible in these courses.

Nowadays, I start to be known around the world for my research and the citations of my papers have increased significantly in the last years, with h factor of 15 at this moment. I am proud of having created a solid fundation of knowledge in the field.

I also have solid collaboration with relevant researchers in the field, as well as technology transfer in projects with companies.

My mid-term plan includes to continue publishing significant contributions and to apply the obtained knowledge to key technologies, as mentioned before. I also plan to return to Madrid and establish a research group there.

Nombre: PORTALES RICART, CRISTINA
Referencia: RYC2018-025009-I
Área Temática: **Tecnologías de la información y de las comunicaciones**
Correo Electrónico: criporri@gmail.com

Título:

Augmented Reality and Image Processing

Resumen de la Memoria:

Dr Cristina Portalés (IEEE Computer Society member) was the first person to present a doctoral thesis in Augmented Reality (AR) at the Polytechnic University of Valencia (UPV) in 2008, and one of the first to do so in Spain. She received the Outstanding Thesis Award, given by the UPV, and the EH Thompson Award (2010) - the first woman to receive this award as first author - given by the Remote Sensing and Photogrammetry Society (UK) for the best paper of one of her thesis projects. Recently, she received a star - recommendation for publication - by pioneer in AR Mark Billinghurst for one of her papers. She was a Juan de la Cierva post-doc fellow (2012-2015) at the Institute of Robotics and Information and Communication Technology (IRTIC) at the University of Valencia (UV, Spain), where she currently works as full PhD Senior Researcher.

She formerly graduated from the Technische Universität Wien (TU-Wien, Austria), specializing in photogrammetry, image processing and 3D modelling, under the supervision of pioneer in photogrammetry Karl Kraus. She obtained her first diploma degree with honours with the best academic record, and was awarded the San Isidoro prize. She was an ERASMUS, PROMOE and Leonardo da Vinci research fellow at the Institute of Photogrammetry and Remote Sensing of TU-Wien (1999-2002), a PhD research fellow at the Mixed Reality Laboratory of the University of Nottingham, UK (2005) and at the Interaction and Entertainment Research Centre of the Nanyang University of Singapore (2006). She worked at the Photogrammetry and Laser Scanning Research Group (GIFLE, 2008-2010) of the UPV, and at the Technological Institute of Optics, Colour and Imaging (AIDO, 2011-2012), being primarily involved in the technical management of the FP7 project SYDDARTA.

She is the author of 80+ scientific publications including international conferences, high-impact journals, books and certain chapters within books. She was invited to participate in S&T programme committees at international conferences (e.g. ISMAR, GECCO, ACE, ICCS) and scientific journals (e.g. Springer Journal of Digital Imaging, Elsevier Computers in Industry). Cristina co-organized the successful ACM SIGCHI Advances in Computer Entertainment Technology Conference in 2005 (CORE B). She is an expert evaluator of FP7 and H2020 proposals in the area of ICT. She was the invited expert by UV for the revision of the description of H2020 calls, Societal Challenges 6. She was also one of the invited Vice Chair for H2020 calls under the Excellence Science pillar. She is Deputy Editor-in-Chief of the scientific journal Multimodal Technologies and Interaction (MTI) - with Editor-in-Chief Mark Billinghurst - and Editor-in-Chief of the International Journal of Virtual and Augmented Reality (IJVAR). She co-edited the special issue 'Virtual Reality and Games' with pioneer in VR and inventor of CAVE Carolina Cruz-Neira. Since 2014, she has been the coordinator for the preparation of international (H2020) and national proposals under competitive calls of the ARTEC research group at IRTIC. To date, she has raised 1M+ for the group. She is the technical manager of the H2020 project SILKNOW (2.3M+). She is technical advisor to politicians in #CienciaenelParlamento, which has lead to the creation of an Office of Science within the Spanish Parliament.
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Resumen del Currículum Vitae:

Summary of publications:
   # of papers published in JCR journals: 23, from which:
      1 receiving EH Thompson award (best paper);
      1 receiving a star (recommendation for publication) by pioneer in AR Mark Billinghurst;
      10 as first author;
      7 in Q1
   # of papers published in other scientific journals: 16
   # of papers at conferences in the CORE ranking: 12
   # of papers at other conferences: 19
   # of book chapters: 10
   # of other publications: 3

Reviewer and S&T committees:
   # participations in S&T committees of conferences as reviewer: 13 (of which, 10 in CORE)
   # participations in S&T committees of conferences as organiser: 5 (of which, 3 in CORE)
   # of JCR journals where candidate has reviewed papers: 7 (e.g. Computers in Industry, ISPRS International Journal of Geo-Information;

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Journal of Digital Imaging)
  # of other journals where candidate has reviewed papers: 4
  # of reviewed book chapters: 5
  # of special issues acting as guest editor: 3
  # of journals in a leading role (EiC, editorial board, etc): 3

Talks:
  #CienciaenelParlamento: Presentation of scientific evidences to politicians in the Spanish Parliament (2018, Madrid)
  Invited talk as part of a Master at University UNITEC (2009, Honduras)
  Invited by Colour Lab at Opportunities and challenges in cultural heritage digitization (2016, Norway)
  Invited by the EC to present H2020-SILKNOW at Europe for Culture Workshop (2018, Brussels).
  Invited by Centro Mediterráneo de la Universidad de Granada (2009, Spain)
  Invited by RUVID at H2020 Future and Emergent Technologies. Research Networks (2015, 2018, Valencia)
  Invited by AMETIC at Opportunities for the Financing of Cultural and Creative Industries (2018, Madrid)
  Invited by OPER-UV at Update on H2020 and European R & D & I Programs: Opportunities for research and innovation ; 'Workshop on opportunities in H2020: lessons learned'; 'interdisciplinary collaboration at the University of Valencia: an opportunity in H2020' (2018, Valencia)

Intellectual property:
  SW: GuiAR: guía audiovisual para museos y entornos de patrimonio cultural, basada en la combinación de realidad aumentada y realidad aumentada indirecta . 2017-182031.
  DVD: Entornos multimedia de realidad aumentada en el campo del arte . V-4440.2010.

Awards:
  Bachelor diploma award (best student s records)
  Outstanding Doctoral Thesis Award, UPV
  EH Thompson Award (best paper), Remote Sensing and Photogrammetry Society

International stays:
  1999-2002. 3 years at the Vienna University of Technology (TU-Wien, Austria).
  2005. 5.5 months at Mixed Reality Laboratory, University of Nottingham (UK)
  2006. 6 months at Interaction and Entertainment Research Centre, Nanyang Technological University (Singapore)

Grants:
  1999-2000. ERASMUS. TU-Wien, UPV.
  2000-2001. PROMOE. TU-Wien, UPV.
  2001-2002. LEONARDO. TU-Wien, UPV.
  2002-2003. Collaboration grant. Forum UNESCO, UPV.
  2004. Collaboration grant, Projects of Teaching Innovation. UPV.
  2004-2008. Formación de Personal Investigador (FPI). UPV.
  2012-2015. Post-doc Juan de la Cierva, UV.

Responsibilities:
  Editor-in-chief IJVAR
  Deputy Editor-in-chief MTI
  Member Board IRTIC, UV
  Proposals coord, ARTEC, UV

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2018

Turno de acceso general

Nombre: KARTSAKLI KARTSAKLI, ELLI
Referencia: RYC2018-025100-I
Área Temática: **Tecnologías de la información y de las comunicaciones**
Correo Electrónico: elli.kartsakli@gmail.com

Título:

Protocols, mechanisms and architecture for mobile networks from 3G to 5G and beyond

Resumen de la Memoria:

In my research career, from the beginning of my PhD degree in 2005 until now, I have tackled different aspects of wireless communication protocols, algorithms, technologies and architectures, thus gaining a wide perspective of the wireless networks landscape from 3G to 5G and beyond. After 10 years in the academia, as a researcher at UPC, and more than 3 years in the telecom industry, as a senior researcher and head of R&D in the SME IQUADRAT Informàtica S.L., I have gained significant experience and skills in mathematical formulation and analysis (queuing theory, game theory, optimization, stochastic geometry), simulation, experimental validation and product design of wireless communication systems.

My research interests have been evolving, following the natural evolution of the mobile communications landscape. However, my key focus has always been on the design of efficient protocols, mechanisms and architectural approached towards enhanced service provisioning.

During my PhD thesis, I worked on the design of novel cross-layer approaches for the WLANs, proposing a distributed MAC protocol and an IEEE 802.11n-compatible scheme for multiuser capabilities.

I, then, focused on wireless sensor and body area networks (WSN/WBANs) for healthcare applications, proposing novel cooperative MAC protocols and supporting Network Coding for enhanced reliability. I was also very interested in the issue of energy efficiency and infrastructure sharing in LTE-A networks, studying the potential financial and performance gains from the cooperation of mobile operators through the joint use of infrastructure and the dynamic operation based on the actual traffic demand.

With the arrival of 5G and my involvement in several Horizon 2020 projects, I had the opportunity to tackle new challenges, regarding the modeling and analysis of ultra-dense deployments with stochastic geometry, D2D-based optimal caching in mmWave bands, multitenancy and network slicing concepts, and converged fiber-wireless fronthaul architectures with different functional splits.

Finally, as a technical coordinator of the IQUADRAT s R&D department, I am overviewing the design and implementation of a 5G testbed fully supporting Software Defined Networking (SDN), Network Function Virtualization (NFV) and Multi-Access Edge Computing (MEC) capabilities.

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Resumen del Currículum Vitae:

I am a senior research engineer in the wireless telecommunications sector. I was born in Athens (Greece) in 1980, and have been living in Barcelona (Spain) since 2005. I hold a 5-year Diploma in Electrical and Computer Engineering from the National Technical University of Athens (NTUA), Greece (2003), an M.Sc. in Mobile and Satellite Communications with distinction from the University of Surrey, UK (2004), and a Ph.D. in Signal Theory and Communications (Cum Laude) from the Technical University of Catalonia (UPC), Spain (2012). My thesis focused on the design/optimization of cross-layer MAC protocols for wireless networks.

I worked as a researcher in the Signal Theory and Communications (TSC) department of UPC (at EETAC) from 2005 to 2015, funded through a 4-year PhD scholarship from the Spanish Government (FPU 2005-2009) and 3 research projects: i) ITN-GREENET (264759), involved in project management and technical supervision on energy efficient schemes for cellular systems, ii) ENIAC ARTEMOS (270683-2), participating in deliverable preparations and research activities on RF transceiver design, and iii) AVECOM (P26/08 Spanish government), participating as a research engineer in the design, implementation and field testing of a multi-technology (WiFi, Bluetooth and Zigbee) platform for high-speed train to land communication, in collaboration with ADIF. During this time, I was an active researcher in the WiComTec group at UPC, participating in several national and European projects (2014SGR-1160, 2009SGR-1473, TEC2008-06817-C02-02, IAPP-Coolness, etc.).

From March 2014 to November 2015, I performed a 21 month secondment as a Marie-Curie Experienced Researcher at the SME VIDAVO S.A., specialized in pervasive healthcare provisioning in the context of the FP7-IAPP project WSN4QoL (286047). During this time, I participated in multiple transfer of knowledge activities between UPC and VIDAVO, focusing on the design of cloud-based MAC solutions

for reliable WSNs and WBANs, and the incorporation and testing of the proposed solutions in VIDAVO products.

In December 2015, I joined IQUADRAT Informàtica S.L., an SME in Barcelona specialized in IT solutions in the field of IoT and 5G communications. I am currently the head of the R&D department, overviewing the technical activities of the research team and participating in several Horizon 2020 projects (5G-PPP phase 2 5G-PHOS, ITN-5G STEP FWD, ITN-SPOTLIGHT, RISE-CASPER, IAPP-COMANDER, etc.). Through my participation in COMANDER (involving a 10 month secondment in AUTH university, Greece) and 5G-PHOS (as a WP leader and innovation co-manager) I have obtained a background in converged fiber-wireless communications for 5G fronthaul/backhaul communications, enabling me to co-lead the technical project coordination of the ITN 5G-STEP FWD project (722429). My current research interests include the design of 5G and beyond architectures and paradigms (network slicing and virtualization), currently co-supervising 3 IQUADRAT researchers pursuing a PhD towards this direction.

Regarding my teaching experience, I have undertaken tutorial sessions on an undergraduate course at EETAC/UPC during 2 semesters (2h/week), and since 2013 I have been giving annual 3-hour invited lectures at the Master in Biomedical Engineering at the Universidad de Barcelona (UB).

AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2018

Turno de acceso general

Nombre: JIMBOREAN , ALEXANDRA
Referencia: RYC2018-025200-I
Área Temática: **Tecnologías de la información y de las comunicaciones**
Correo Electrónico: alexandra.jimborean@it.uu.se

Título:

Compile-time code analysis and optimization

Resumen de la Memoria:

Track record:

I am Associate Professor at Uppsala University, Sweden, tenured in December 2018. Currently I am on a parental leave, since September 2018.

After a Bachelor in Romania and a Master in Austria both in Computer Science, I have pursued a PhD in compilers at the University of Strasbourg, France, (2009-2012), and received the prestigious Google Anita Borg Memorial scholarship in recognition of excellent research, offered to ~3% of the applicants. I continued as a post-doctoral fellow at Uppsala University, Sweden, where I became Assistant Professor in 2015, and Associate Professor in 2018, and conducted multiple research visits in Spain. Thus, I have gathered experience in five different countries (Romania, Austria, France, Spain and Sweden).

Internationally, I have ongoing collaborations with University of Murcia (Spain), NTNU (Norway), NUS (Singapore) and previous collaborators in France, Argentina, Finland, UK, etc. In all collaborations I am the only expert in low-level compiler methods. In the last nine years (three years as PhD candidate and six years as an independent researcher), I have supervised, advised and co-advised more than 30 undergraduate theses (bachelor, master), six PhD students and two post-docs. I built my own group of undergraduate and graduate students and I conduct research on compile-time optimizations for performance and energy-efficiency.

I have participated in eleven national, European and international projects, of which 5 as PI and one as co-PI. I am actively involved in conference and workshop organization, served on numerous program and steering committees (>20), and reviewed for international conferences and journals. In 2019 I have the honor to serve as Program Committee co-chair of the main conference in my research area (CGO), the highest recognition for a young researcher. I was requested for 19 invited talks in research centers both in academia and industry, such as SICS, Huawei, Ericsson, Intel. I have received over 30 distinctions, awards and grants, and attracted over 670,000 EUR in highly competitive calls. I have co-authored 29 publications including the most prestigious conferences and journals, of which 13 as first author and 9 as last author. In computer science, peer-reviewed international conferences are the preferred publishing venues. My work has 267 citations and an h-index of 11 (source: Google Scholar, 2019/01/29).

Research line:

My research focuses on compile-time code analysis and optimizations and all my publications (except for a popular science article) contribute to advancing the state of the art in this field: (1) static analysis to determine dependences between instructions, which entails pointer disambiguation, inter-procedural and inter-thread analysis, (2) automatic code optimizations and in particular automatic parallelization and instruction scheduling (reordering) using speculation, and (3) software-hardware co-designs that leverage the compiler techniques to customize software for the co-designed hardware. The goal of the compile-time optimizations that I design is to increase performance and/or energy-efficiency, without trading one for another.

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Resumen del Currículum Vitae:

* Number of advised doctoral theses (in progress): 6

* Number of supervised bachelor and master theses (some in progress): 24

* Publications: Please note that in computer science peer-reviewed international conferences are the preferred
publishing venues. Consequently, this reflects in lower impact factors even for the top ranked journals (Q1). In answer, Spanish agencies such as ANECA already consider top ranked conferences in the GII-GRIN-SCIE (GGS) Conference Rating equivalent to Q1/Q2 journals.

  - Books: 1 (PhD thesis manuscript)

- JCR articles: 6 (out of which 3 in JCR Q1, 1 featured article of the month and 1 article selected as top three best articles of 2017)

- Peer-Reviewed Intl. Conferences: 13 (out of which 8 GGS rating A, 1 GGS rating A++, including 3 publications in CGO, the main publishing venue in my main research area)

- Peer-Reviewed International Workshops: 5

- h-index: 11; i10-index: 11; Total number of citations: 267 citations (between 2011-2019, including my PhD thesis time-frame)

- In total, I have co-authored 29 research publications, of which 13 as first author and 9 as last author.

* Awards, prizes, and distinctions: 14, including best paper awards and featured articles in the top publishing venues in my research area.

* Grants and scholarships: 13, including grants for international collaborations and for outstanding young researchers.

* Research projects: 11, out of which 5 as PI (some in highly competitive calls, 13% acceptance rate, with grants of ~35.000 EUR, 280.000 EUR, 340.000 EUR as PI)

* Research visits: 5

* Indicators of international visibility: member of 2 steering committees and 9 organization committees in international conferences and venues (including the flagship conferences in my research area); participation in more than 24 program committees in international venues and reviewing for JCR journals; 19 invited talks in industrial and academic centers; selected as featured member of the month in ACM; actively collaborating with partners in Sweden (SICS, KTH - Stockholm), Norway (NTNU - Trondheim), Singapore (NUS - Singapore), France (Strasbourg, Intel Paris, Lyon), Spain (UM - Murcia; TreeLogic - Madrid) and numerous other partners in various consortiums.

* Transfer of technology to industry: collaborations with Huawei, licensed software.