



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2018

Turno de acceso general

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Referencia: RYC2018-024050-I
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Título:

A Digital Scholarship of the human past: the theoretical and applied exploration of innovative computational approaches to learn from long-term social dynamics

Resumen de la Memoria:

The human past is a powerful source of knowledge capable of informing critical thinking by adding a long-term perspective to the study of social dynamics. Climate change, conflict resolution or human-environment interactions are only some of the current debates that can benefit from understanding how past societies adapted to their own challenges.

Recent methodological trends have improved the ways we study the past by proposing novel approaches to classical research questions based on digital technologies. not only on the historical and archaeological disciplines but also on the way educational sciences present their findings.

The research career of the candidate centres on the exploration of the boundaries between this field of knowledge. His work explores how new digital technologies can be used to improve:

- our understanding of the human past and the relations between societies and the environment where they lived
- educational approaches to exploit this knowledge in order to promote critical thinking

The candidate works on these two research lines by applying an interdisciplinary approach combining computational methods, archaeology and educational sciences. This framework has been successfully used to explore topics as diverse as the interpretation of heritage generated by conflict, the relation of early farming communities to landscape or the use of video games to teach the daily life of Neanderthals. He has combined this applied research with theoretical explorations on how the new Digital Scholarship shapes the way we study and present the past to the current society.

The candidate has pursued this unconventional career by participating and leading several projects funded by competitive calls. The outputs of his activities have been published on a large number of high-impact publications across the different disciplines as it is required by interdisciplinary research. The candidate combines this strong track record with an extensive activity of leadership and mentoring of younger scholars; additionally, the impact of the candidate's work has also extended beyond academia through talks, books and the publication of two educational video games.

Resumen del Currículum Vitae:

I am a Lecturer at the University of Edinburgh. My main task at this position is to explore and teach new digital approaches to interpret and present the heritage generated by past human activity.

After obtaining a combined BSc and MSc in Computer Science at the University Pompeu Fabra, I pursued my doctoral research at the University of Barcelona. Here, I applied my computational background to develop cutting-edge digital education methods to interpret and present conflict-related heritage. My thesis explored an innovative concept of landscape integrating historical sources, archaeological evidence and spatial analysis through interactive pedagogical methods.

Since 2009 I used my unique interdisciplinary profile to push forward a research agenda on Digital Scholarship at the Barcelona Supercomputing Centre. I created a research team through the attraction of external funding such as Consolider SimulPast (2010-2017). This project explored how digital methods could help us learn from long-term complex socio-ecological dynamics. The group I led studied the adaptive capabilities of past and present societies to environmental transformation.

During this period I became the Principal Investigator of SimulPlay (2014-2016). In this project funded by the RecerCaixa program I led an interdisciplinary team of 7 researchers exploring new educational approaches to explain archaeological knowledge to the public. My team developed here pioneering research on Digital Education to assess under what extent video games can be used to promote scientific thinking.

The group I led at BSC was also involved in the ERC Advanced Grant proposal EPNet (PI José Remesal, Universitat de Barcelona) which was successfully funded in 2014. This project allowed me to apply my skills to large-scale dynamics within the Roman empire. My findings revealed surprising patterns of market economy, including intense trade through the Atlantic Ocean.

In 2016 I was appointed as a permanent Lecturer in Archaeology at the University of Edinburgh. In this new role I led last year a pilot



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project funded by the Challenge Investment Fund on cultural adaptation at the Shetland archipelago. This initiative aimed at integrating environmental and archaeological evidence to show how cultural adaptive processes are influenced by environmental change. In 2018 I also coordinated the creation of a video game on human evolution linked to the World Heritage site of Atapuerca. The project was funded by the BBVA foundation and had as a main goal the breaking of the boundaries between education and science using video games.

During the last 5 years I have published over 30 research papers in top international peer-reviewed journals, 10 peer-reviewed proceedings, 10 chapter books and 11 outreach books. This track record of 69 works (34 as first author), and 93 conference/workshop presentations (30 as a invited/keynote speaker, 12 as organiser) has generated a large impact on several fields given the strong interdisciplinary component of my research as seen in the number of citations on Google Scholar: 453 (399 on the last 5 years), Scopus (174 based on 26 indexed documents) and Web of Science (141 based on 20 indexed articles).



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Turno de acceso general

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Título:

Dialogic Leadership in schools: an approach for community development which builds upon principles of dialogue, solidarity and its impact for academic success

Resumen de la Memoria:

When I finished my undergraduate studies in 2000, I started to collaborate in some European projects in CREA, Community of Research for Excellence for All. I decided to be enrolled in a Masters programme to advance into scientific knowledge that can support transformative changes through education. In the period 2004 to 2006 I was the coordinator of scientific tasks developed in the CREA office located then at the Scientific Park of Barcelona. After that, one of the main milestones in my career was the participation in the INCLUD-ED project of the 6th Framework Programme (2006-2011, 3.36 million EUR), the only research in Social Sciences and Humanities included in the list that the European Commission published with the 10 successful scientific investigations (EC, 2011) directed by Prof. Flecha. The intellectual debates have been at the core of my academic career and I have participated in Seminars with renowned authors in education. My intellectual experience and research background led me to a successful research application to one of the most recognised grants in the EU as a Marie Curie Fellow of the 7th Framework Programme of Research, to develop the TEACH-IN project (2014-2016, Project reference: 628982, 299.558) focused on teacher leadership and transformation. The research was developed in the Faculty of Education at the University of Cambridge and it opened new insights to further investigate the role of educational leadership in school improvement. Since then, I have continued researching the dynamics of change linked to educational leadership.

Resumen del Currículum Vitae:

During my career, I have researched on education processes that contribute to social transformation. Taking this into account, I have worked on the analysis of how teacher leadership influences the improvement of schools, promoting dynamics of change with diverse members of the community (families, students). This was one of the interests I developed after my participation in the INCLUD-ED project, where I had the chance to focus into the core elements explaining the impact of successful educational actions in diverse social domains. By doing this, I reviewed the evidence with regards to educational leadership practices addressed to community participation. As a result, the analysis of emerging forms of teacher leadership became crucial to understand those dynamics of change in diverse school settings, particularly in Learning Communities. From my experience in the Learning Communities project, I was focused on the identification of teacher leadership practices to develop an understanding about how they are created, developed and sustained over the years. Leadership literature incorporates contributions by raising awareness to build and strength a school-home collaboration. My postdoctoral research as Marie Curie Fellow in the Leadership for Learning at the University of Cambridge implied a step forward into this research topic in leadership research. The dialogic leadership approach has been at the core of my work during my postdoctoral research and allowed me to advance into this field until now, enriching my knowledge with the current debates and contributions about the social impact of research.