In Memoriam David Riaño, 1968–2022

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Dr. David Riaño Ramos passed away on November 24, 2022 at the age of 53 due to a cancer that was diagnosed a year and a half earlier. Although he chose to face the disease and leave without explaining it too much, we would like to remember him and pay tribute to him through this in memoriam note. We want to remember David Riaño as a renowned figure in the field of Artificial Intelligence (AI) in Medicine at an international level, as one of the promoters of the organisation of the Spanish community of researchers in this field and, of course, as an influential researcher in the field, but also as a friend.

David Riaño was born in Barcelona, and graduated in Computer Science from the Polytechnic University of Catalonia, also in Barcelona. He earned his Ph.D. in Computer Science, specialising in AI, at the same university. Later he obtained a position as Associate Professor at the Rovira i Virgili University of Tarragona, where he founded the research group on Artificial Intelligence and developed his scientific career. Among other academic duties developed, until 2021 he was the coordinator at the Rovira i Virgili University of the Master's Degree in Artificial Intelligence shared by the Polytechnic University of Catalonia, the Rovira i Virgili University and the University of Barcelona.

Eager to learn about the latest research in the field, he quickly became a regular at many Medical Informatics and AI in Medicine international conferences. David played an important role in the AI in Medicine community in Europe and internationally. He was a member of the Artificial Intelligence in Medicine (AIME) society board for many years (since 2015). Recently David was the chair of the AIME 2019 conference in Poznan (Poland), and he was involved in the organisation of AIME 2021 conference as doctoral consortium chair. He was many times involved in guiding the young generation of researchers by his role as student advisor in several AIME doctoral consortium events. He influenced in a very positive and constructive way many researchers in discussions during his attendance of so many AIME events.

David played a leading role in the International Workshop on Knowledge Representation for Health Care (KR4HC) since the start (2009). For many years and until the very last moment, he was the crucial force behind the organisation of KR4HC events. Usually those workshops resulted in a Springer LNAI Series book. Like with the Springer books, David was also the main driver of the publication "Ten years of knowledge representation for health care (2009–2018): Topics, trends, and challenges" [1]. David was also a well respected member of the editorial board of the Artificial Intelligence in Medicine (AIIM) journal.

In 2021, he was elected fellow of the International Academy of Health Sciences Informatics (IAHSI). The Academy, which is part of the International Medical Informatics Association (IMIA), serves as an honour society that recognises expertise in biomedical and health informatics internationally and is one of the highest honours in the field.

The influence of David at the national level has also been very important. He was one of the founder members of the Catalan Association for Artificial Intelligence (Associació Catalana d'Inteligència Artificial, ACIA), and was the vice-president of this association at the time of his death. He was also a member of the Spanish Association for Artificial Intelligence (Asociación Española para la Inteligencia Artificial, AEPIA), and of the Spanish Society of Medical Informatics (Sociedad Española de Informática de la Salud, SEIS). Undoubtedly, one of the most important contributions of David at the national level has been to promote the organisation of the Spanish community of researchers in the field of AI in Medicine. The first step was the organisation of the workshop of Spanish Research Groups in Artificial Intelligence in Biomedicine, which was held for the first time in 2018. This meeting was fundamental for the organisation of a number of research groups around the Spanish Thematic Network for Artificial Intelligence in Biomedicine (IABiomed-net), which was in place between 2020 and 2022, and which in turn has led to the constitution of the Spanish Society for Artificial Intelligence in Biomedicine (IABiomed). In all these milestones, David has not only been one of the main proponents but has also worked with enthusiasm and generosity.

David's research theme was knowledge representation in medicine, and more specifically topics related to the modelling of medical knowledge for the management of chronic patients and multimorbidity, and intelligent clinical data analysis. Below we briefly explain some of the works by David and colleagues, as a sample of his contributions in the AI in Medicine field.

David and colleagues [2] develop an ontology for elderly care, and exploit this ontology for managing care plans as State-Decision-Action diagrams, with the main goal to combine care plans for comorbid patients, and to personalise care plans.

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In [3] they introduce an ontology for the care of chronically ill patients. They use this ontology for two personalised processes. Firstly by giving only the clinical information that is relevant for health-care professionals to manage a specific patient, and secondly by automatically transforming intervention plans describing general treatments into individual intervention plans.

In [4] they propose an integrated care model formalising the treatment of chronic comorbid patients across primary, specialist and hospital care services. The model was tested on a complex task of multiple therapy combinations to manage the comorbidity of hypertension and chronic heart failure.

Usually treatment knowledge is about single diseases (e.g. guideline for diabetes). In order to deliver health-care to patients suffering from multimorbidity, it is necessary to combine single-disease knowledge sources. In [5] a classification of current technologies addressing this merging of multiple single-disease interventions is given, including an analysis of their maturity, strengths, and weaknesses.

The last paper we would like to mention was recently published [6]. This paper shows the medical impact of work guided by David, leading to new criteria for the classification of Acute Respiratory Distress Syndrome (ARDS).

David was a highly committed researcher, eager to make contributions with an impact in the field of Medicine, as evidenced by his numerous collaborations with medical professionals. But we cannot end this note without talking about David as a person. He was a person with many qualities, very nice, kind, open and positive. He was very imaginative and able to see things always from a different perspective, seeing opportunities and challenges in every situation, professionally and personally. Thus, he could turn his attendance at a scientific conference into a memorable vacation for him and his family, as when he surprised us all by explaining that he had travelled with his wife Susana and their three children in a motorhome from Spain to Estonia, where the KR4HC 2012 workshop took place. The community has lost an incredibly kind, good, and respected researcher and colleague in David. He will be sorely missed. Our deepest condolences to his family.

References

[1] Riaño D, Peleg M, ten Teije A. Ten years of knowledge representation for health care (2009-2018): topics, trends, and challenges. Artif Intell Med 2019;100. http://dx.doi.org/10.1016/j.artmed.2019.101713.

[2] Riaño D, Real F, Campana F, Ercolani S, Annicchiarico R. An ontology for the care of the elder at home. In: Combi C, Shahar Y, Abu-Hanna A, editors. Artificial intelligence in medicine, 12th conference on artificial intelligence in medicine, AIME 2009, Verona, Italy, July 18-22, 2009. proceedings. Lecture Notes in Computer Science, vol. 5651, 2009, p. 235–9. http://dx.doi.org/10.1007/978-3-642-02976-9_33.

[3] Riaño D, Real F, López-Vallverdú JA, Campana F, Ercolani S, Mecocci P, et al. An ontology-based personalization of health-care knowledge to support clinical decisions for chronically ill patients. J Biomed Inform 2012;45(3):429–46. http://dx.doi.org/10.1016/j.jbi.2011.12.008.

[4] Riaño D, Collado A. Model-based combination of treatments for the management of chronic comorbid patients. In: Peek N, Morales RM, Peleg M, editors. Artificial Intelligence In Medicine - 14th Conference On Artificial Intelligence In Medicine, AIME 2013, Murcia, Spain, May 29 - June 1, 2013. Proceedings. Lecture notes in computer science, 7885, Springer; 2013, p. 11–6. http://dx.doi.org/10.1007/978-3-642-38326-7_2.

[5] Riaño D, Ortega W. Computer technologies to integrate medical treatments to manage multimorbidity. J Biomed Inform 2017;75:1–13. http://dx.doi.org/10.1016/j.jbi.2017.09.009.

[6] Sayed M, Riaño D, Villar J. Novel criteria to classify ARDS severity using a machine learning approach. Crital Care 2021;25:150. http://dx.doi.org/10.1186/s13054-021-03566-w.

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