

HCW 2020 Keynote Speaker

Edge Intelligence Empowering IoT Data Analytics

Albert Y. Zomaya

*Centre for Distributed & High Performance Computing
School of Computer Science
University of Sydney
Australia*



Abstract: Along with the many developments in computing and communication technologies and the surge of mobile devices, a brand new paradigm, Edge Computing (EC), has gained a lot of momentum in recent times. In parallel, Artificial Intelligence (AI) applications have been thriving fuelled by breakthroughs in deep learning and the emergence of new hardware architectures. Billions of bytes of data, generated at the network edge which is composed of a multitude of heterogeneous devices, put great demands on data processing and structural optimization which led to a genuine demand for the integration of EC and AI leading to what is known today as Edge Intelligence (EI).

In this talk, I will discuss how EI is rapidly increasing the convergence between humans, things, and AI. I will briefly review some of our designs for the development of EI and present how to rethink decisions that are made by “black box” AI approaches when implementing analytics on data generated by the Internet of Things (IoT). This does not provide a clear explanation of how a method works and why it behaves in a certain way. Lack of explanation might not be an issue for those IoT applications which have less privacy constraints, but it can be a barrier to the adoption of such systems in highly regulated domains. I will argue that explainable Edge AI is the key to social acceptance of an even wider deployment of IoT applications.

About the speaker: Albert Y. ZOMAYA is currently the *Chair Professor of High Performance Computing & Networking* in the School of Computer Science, University of Sydney. He is also the Director of the Centre for Distributed and High Performance Computing. He published more than 600 scientific papers and articles and is author, co-author or editor of more than 25 books.

He is the Founding Editor in Chief of the *IEEE Transactions on Sustainable Computing* and the Editor in Chief of the *ACM Computing Surveys* and previously he served as Editor in Chief for the *IEEE Transactions on Computers* (2011-2014). He delivered more than 190 keynote addresses, invited seminars, and media briefings and has been actively involved, in a variety of capacities, in the organization of more than 700 conferences.

Professor Zomaya is the recipient of many awards, such as, the *IEEE Computer Society Technical Achievement Award* (2014), the *ACM MSWIM Reginald A. Fessenden Award* (2017), and the *New South Wales Premier’s Prize of Excellence in Engineering and Information and Communications Technology* (2019). He is a Chartered Engineer, a Fellow of AAAS, IEEE, IET (UK), an Elected Member of Academia Europaea, and an IEEE Computer Society’s Golden Core member. Professor Zomaya’s research interests lie in parallel and distributed computing, networking, and complex systems.