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Internet-of-things, cyber-physical systems demarcation and contribution to the big data realm

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The hype of the Internet of Things (IoT) versus Cyber-physical Systems advent, as a relationship of competition, complementarity or else overlapping technologies, is bringing lots of attention, curiosity and treasure (ROI) hunting. The polls, predictions and market studies projections are giving very high figures of IoT enabled devices soon operational on the consumer electronics arena (currently, materializing at high pace) and of billions of dollars of investments and returns enticing researchers, developers and investors alike. On the other hand, the Big Data domain and how it is expected to get fatter with input from the foreseen large deployments of IoT systems is expected to put more stress, burden and challenge on data analytics researchers, who need to provide smarter and smarter expert systems and data miners that need to filter out data and infer trends, patterns, and projections as accurate as possible. In this presentation, we start from real million US$ worth research projects, one just completed (on ubiquitous-heath monitoring), and one currently active (on air quality diagnostics using autonomous environmentally-power harvesting sensing platforms), and the third just started, on wireless networks of column sensors-supported structural health monitoring for early warning systems. These three projects incorporate and rely for specific critical situation on the Internet of Things, as a necessity, not as a fantasy. Thus, we give a high-level view of the technologies enabling IoT systems and define the scope of when IoT enabling is vital for an application/project. We emphasize the interplay of IoT and cyber-physical systems by defining boundaries of each and overlapping thereof. Finally, we assess and define the essence of IoT systems into the Big Data.

Biography

Adel Ben Mnaouer is an Associate Professor at the School of Engineering, Canadian University Dubai, UAE. He is a Senior Member of IEEE Communication Society. He has over 18 years of teaching experience at both undergraduate and graduate level. His research portfolio includes 3 QNRF funded projects worth US$ 3 million. He contributed to 2 US patents, over 74 refereed journal and conference publications and has supervised PhD and Masters for completion in CS and CE. He is active in TPCs and Organization committees of Major IEEE Communications, IEEE Computer, and IFIP/IEEE conferences. He holds a PhD in ECE from Yokohama National University (1997), a Master of Eng. degree in EE from Fukui University (1993), Japan, and a Bachelor of Computer Science from the l'Ecole SUP'COM Tunisia. He was listed in the Marquis Who's Who in Engineering in 2000, and is a recipient of the Japanese Monbusho Scholarship for Graduate Studies.

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