A Look at Basics of Distributed Computing

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The Hong Kong Polytechnic University

Abstract
The talk will present concepts and basics of distributed computing which are important (at least from the presenter's point of view), and should be known and mastered. Those include:
(a) a characterization of distributed computing (which is too much often confused with parallel computing);
(b) the notion of a synchronous system and its associated notions of a local algorithm and message adversaries;
(c) the notion of an asynchronous shared memory system and its associated notions of universality and progress conditions; and
(d) the notion of an asynchronous message-passing system with its associated broadcast and agreement abstractions, its impossibility results, and approaches to circumvent them. Hence, the talk can be seen as a guided tour to key elements that constitute basics of distributed computing.


About the Speaker
Michel Raynal has been a Professor of Informatics since 1981 (Sup Telecom Brest 1981-83, and then University of Rennes 1). Since 2017 he is also Chair Professor at Polytechnic University of Hong Kong. He is a senior member of the prestigious "Institut Universitaire de France" and "Academia Europaea". In 1983 he founded one of the very first research groups on Distributed Algorithms at INRIA. Michel Raynal's interests include distributed algorithms, distributed computability, distributed computing systems and dependability. His main interest lies in the fundamental principles that underlie the design and the construction of distributed computing. He has been Principal Investigator of a number of research grants in these areas, and has been invited by many universities all over the world to give lectures and tutorials on distributed algorithms and fault-tolerant distributed computing systems. Michel Raynal belongs to the editorial board of several international journals. He published more than 150 papers in international journals (from JACM to IEEE Computer), and more than 300 papers in international conferences. He has also written eleven books devoted to parallelism, distributed algorithms and systems (published by MIT Press, Wiley, Morgan & Claypool and Springer). His last two books are "Concurrent Programming: Algorithms, Principles and Foundations" (Springer), and "Distributed Algorithms for Message-passing Systems" (Springer). His h-index is 57, and his i10-index is 254.

All are welcome!

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