

Random Walks, a Paradigm to design Distributed Algorithms for Dynamic Networks

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In this talk, we give an overview of the use of random walks as a traversal scheme to derive distributed control algorithms. Such algorithms are adaptive to dynamic networks as ad-hoc networks or peer-to-peer networks.

We will first present a way for complexity computation by using electric network theory. Secondly we will propose an algorithm solving the fault tolerant token circulation in decentralized environment. To finish, we give a solution to the main Random Walks drawback : Scalability. We will propose a network decomposition with random walk based agent.

Short CV :

Thibault Bernard received his PhD in Computer Science "Random walks and circulating word, adaptivity and fault tolerance in Distributed computing environments" at the University of Reims in 2006 under the direction of Prof. Alain Bui.

He is now an associate professor at the University of Reims. His main topics are distributed computing, Random walks, self stabilization and dynamic networks. He is focusing his research to design innovative algorithms for volatile networks as sensor networks, peer-to-peer networks or ad-hoc networks.