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A survey on game theory applications in wireless networks

Dimitris E. Charilas ... Athanasios D. Panagopoulos

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Abstract

While the Quality of Service (QoS) offered to users may be enhanced through innovative protocols and new technologies, future trends should take into account the efficiency of resource allocation and network/terminal cooperation as well. Game theory techniques have widely been applied to various engineering design problems in which the action of one component has impact on (and perhaps conflicts with) that of any other component. Therefore, game formulations are used, and a stable solution for the players is obtained through the concept of equilibrium. This survey collects applications of game theory in wireless networking and presents them in a layered perspective, emphasizing on which fields game theory could be effectively applied. To this end, several games are modeled and their key features are exposed.



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Keywords

Wireless Networks; Game theory; Payoff; Coalition; Nash equilibrium; Resource allocation; Power control; Call admission control; Routing; Cooperation incentives

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Dimitris E. Charilas is a Ph.D. candidate in the Department of Electrical Engineering of the National Technical University of Athens (NTUA). He received his MBA in Techno-Economic Systems in 2008 and his Diploma in Electrical Engineering from NTUA in 2006. He has worked as a Research Assistant in the Telecommunications Laboratory of the Institute of Communication and Computer Systems (ICCS-NTUA). He is currently with the Mobile Radiocommunications Laboratory of ICCS-NTUA. His research interests include mobile services, quality of service, wireless communications, resource allocation and game theory applications.





Dr. Athanasios D. Panagopoulos received the Diploma Degree in Electrical and Computer Engineering and the Dr. Engineering Degree from National Technical University of Athens (NTUA) in July 1997 and in April 2002 respectively. Since May 2008, he is Lecturer in the School of Electrical and Computer Engineering of NTUA. He has published more than 70 papers in peer reviewed international journals and transactions and more than 80 papers in conference proceedings. He has been involved in numerous R&D projects funded by European Union. His research interests include mobile computing technologies, radio communication systems design, wireless and satellite communications networks and the propagation effects on upper layer communication protocols. He is a Senior Member of IEEE.

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