Τμήμα Μηχανικών Η/Υ & Πληροφορικής - Σεμινάρια 2021-2022

ΔΙΑΛΕΞΗ

" Exploring Graphs with Time Constraints by Mobile Robots"

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Θα μεταδοθεί διαδικτυακά μέσω MS Teams
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Περίληψη – Abstract

Imagine a graph with weights on its edges and nodes. A node weight represents a deadline for this node and an edge weight represents the time a robot needs to traverse this edge. A robot needs to visit each node of the graph before its deadline. Can we decide within polynomial time whether such a `successful' exploration can be achieved?

We survey this area of research presenting some positive results for special graph topologies and also negative results for more general graph topologies. We compare the computational complexity of this problem with the complexity of the problem where each node must be visited not just once but periodically and the maximum allowed time-period between any two consecutive visits of the same node should not exceed its deadline.

We also present some results when more than one robots can collectively explore the graph and conclude with mentioning a few results when some robots may crash.

The above exploration-scheduling problems find applications in diverse areas like mobile monitoring and facility service and maintenance but even digital-signal processing.

Euripides Markou received his B.Sc. (in Physics) from the University of Ioannina and his Ph.D. (in Theoretical Computer Science) from the National Technical University of Athens. He has been a postdoctoral researcher at the Universite du Quebec en Outaouais, Gatineau, Canada, at the National and Kapodistrian University of Athens, at the Laboratoire Bordelais de Recherche en Informatique (LaBRI), Bordeaux, France and at McMaster University, Hamilton, Canada, before joining the Department of Computer Science and Biomedical Informatics at the University of Thessaly, where he now holds an associate professor position. His research interests include the design of algorithms and the study of the computational complexity for problems especially in the areas of distributed computing, algorithmic game theory, computational geometry and bioinformatics.

Παρασκευή 5/11/2021 – 12:00 – 13:00
Η διάλεξη θα γίνει διαδικτυακά