ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Distributed Computing

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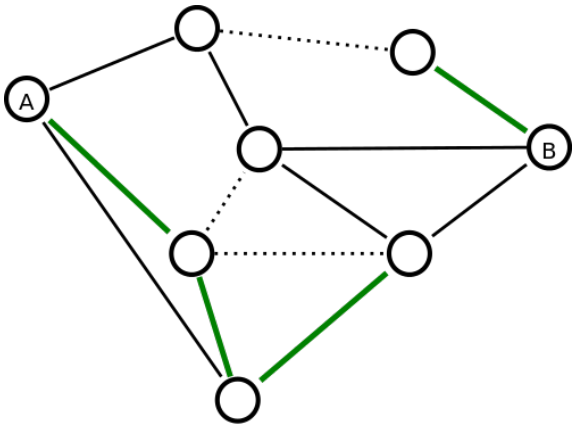
BA/MA/SA/Group/Lab:

Graph Games

It is rather not surprising for a person who has played Tic-Tac-Toe that if both the players are good, then the game results in a draw. Imagine now that the 3X3 grid is replaced by a network of nodes and player take turns to change the graph by small amount in each step. It involves interesting interplay of graph theory and strategy to analyse such a game.

Shanon switching game is a nice example. In this game, a graph with two designated nodes A and B is given at the start of the play. There are two players called Cut and Path. In Path's turn, an edge is colored. In Cut's turn, an uncolored edge is removed. Cut wins if she manages to separate nodes A and B. Path wins if she manages to connect A and B through colored edges.



The thesis would explore games in similar setting and their winning strategies if they exist. We have some ideas for few games related to connectivity that can be used as a starting point. Ofcourse, your ideas are welcome too!

Requirements: Creativity, affinity to graph theory and ability to work independently on the topic. You would meet on a weekly basis with your advisor to discuss open questions and further directions.

Interested? Just drop us an email and we will fix a time for chat!

Contacts

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