Title:

Dynamic Voronoi Game

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Scientific Summary:

Assume a playing area S and two (or more) players. Players placing points, one at a time, into S until each of them has placed n points. In the static competitive Voronoi game the winner is the players whose points has the larger area of the S based on nearest-neighbor rule (see the figure, the red area is larger than blue one, so in the finishing of the second round of the game the winner is the red player). In this project we follow this game in a dynamic manner e.g. changing the position of the points in S. So, some interesting questions arise:
- Is there any equilibrium in such dynamic game?
- Is there always a winning strategy for the first or the second player?
- What is the complexity of the problem?

In the next step, for the sake of to close real competitive facility location applications, we assign a cost weight for each point position changing. So, under such assumption can we find an upper bond for the maximum position of changes?

Variety of the Dynamic Voronoi Game:

- Continuous or Discrete Game Space (plane 1D or 2D, grid or graph),

- Rules of the game- one or n round

- Investigating Cores or Nash equilibrium, and Also dominance or winning strategies
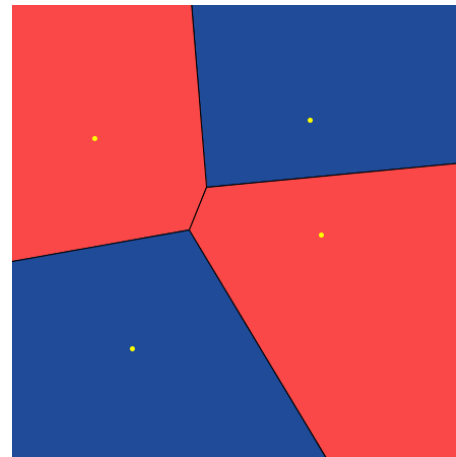
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