

Guilherme MAZANTI: Some examples of minimal time MFGs

Abstract: This talk considers a MFG model motivated by crowd motion where each agent wants to reach the boundary of a given bounded domain in minimal time. Each agent is free to move in any direction, but their maximal speed is assumed to be bounded in terms of the distribution of other agents in order to take into account congestion phenomena.

After briefly recalling the setting and some of the main results for this MFG presented in Filippo Santambrogio's talk, I will present simulations in three examples highlighting some interesting characteristics of our model. In the first case, we consider that the domain is a segment and agents are initially concentrated in a single point, the main goal being to understand the behavior of the equilibrium, and in particular the exit time of the agents, as the initial position is changed. The second example concerns the case where agents evolve in a simple graph and shows that one may obtain a Braess-type paradox in this setting. We finally consider a MFG in the two-dimensional Euclidean ball with all agents starting from the same point, showing how one can simulate the evolution of the distribution of agents in this case.

This talk is based on an ongoing work with Filippo Santambrogio.