ID de Contribution: **5** Type: **Non spécifié**

Resource Allocation Games on a Graph

lundi 1 juillet 2024 14:30 (45 minutes)

In this talk, we will start by defining and providing examples of Colonel Blotto games, a class of resource allocation games that has a wide range of applications. We will then extend standard Colonel Blotto games to a dynamic framework using the model of continuous-time two-player zero-sum stochastic differential games. The game is played on a graph, where each edge represents a battlefield, and where players control the drift of their state process on each battlefield, subject to a budget constraint. When both players have the same budget, using a dynamic programming approach, we explicitly characterize the Nash equilibria and the value function of the game in terms of a Hamilton-Jacobi-Bellman PDE that admits a regular solution. Our formulation is sufficiently general to include various rewards, whether continuous or not, allowing for different interpretations of the game. When the players' budgets are different, we provide a numerical approximation of the equilibrium strategies, relying on a class of neural networks. This is a joint work with Amine Hazzami (IECL, Univ. Lorraine, Metz) and Vineeth S Varma (CNRS, CRAN, Nancy).

Auteur principal: KAZI-TANI, Nabil (Université de Lorraine)

Orateur: KAZI-TANI, Nabil (Université de Lorraine)