

A Feasible Direction Interior Point Method for Generalized Nash Equilibrium Problem with Shared Constraints

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We present a feasible direction interior point algorithm to find the normalized equilibrium of the Generalized Nash Equilibrium Problem (GNEP), with shared constraints. Each player has associated an optimization problem such that the objective function and the feasible set depend on their own variables as well as of the strategies of the other players. The method presented is a Newton type method and generates a sequence converging to the normalized equilibrium of the GNEP, solving the concatenated Karush-Kuhn-Tucker (KKT) conditions. We proved global convergence and solved a collection of test problems [1]. This work was developed jointly with Jean Rodolphe Roche (I.E.C.L., University of Lorraine, CNRS, Vandoeuvre lès Nancy, France) and José Herskovits (COPPE-UFRJ/Military Institute of Engineering, Rio de Janeiro, Brazil)

References

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