Innovation and Commercialization

UNIVERSITY OF TEXAS ARLINGTON

Bayesian Graphical Games for Synchronization in Dynamical Systems

Tech ID: UTA 18-18

INVENTOR: Yan Wan, Frank Lewis, Victor Gabriel Lopez Mejia

TECHNOLOGY NEED

In the present day scenario game theory has gained a lot of attention because of its optimal decision making using mathematical representation. This technology describes a new algorithm of Bayesian games for artificial and intelligent systems. Specifically this technology allows the system to make its best movement by observing the environment which contains systems with conflicting interests. In accordance, this technology proposes a novel algorithm of Bayesian games for continuous-time dynamical system in an environment which has limited information which is defined by a communication graph. In the former approach multiple agents in a game would perform with incomplete knowledge of their surroundings. While with this proposed approach the agents will have more information as they keep track of neighboring agents in a multi-agent environment.

INVENTION DESCRIPTION/SOLUTION

This algorithm proposes a method in which the game character is given a prior knowledge. The objective of each character depends on its prior information and its knowledge about the neighboring characters. When a game character's control policy is established for the first time, it is based on observing its immediate neighbors. Updating data about neighbors provide game characters more information. This algorithm is named Bayes-Hamilton-Jacobi-Isaacs (BHJI) because of its combinations with the Hamilton-Jacob-Isaacs equations and Bayes algorithm.

APPLICATIONS

- Multi-agent environment for artificial and intelligent control systems.
- Bayes-Nash Equilibrium

KEY BENEFITS

- Collects more information
- In multi-agent environment it keeps track of neighboring agents.

STAGE OF DEVELOPMENT

Proof of Concept

INTELLECTUAL PROPERTY STATUS

Patent Pending

About the Inventors:
Yan Wan
Frank Lewis
Victor Gabriel Lopez Mejia

Contact information:
For licensing, please contact Justin Sierchio (License Associate)
justin.sierchio@uta.edu
innovation@uta.edu
P: 817.272.1132

Our mailing Address:
Innovation and Commercialization

701 S Nedderman drive, Suite 350, Arlington, TX 76019
Connect with us: