

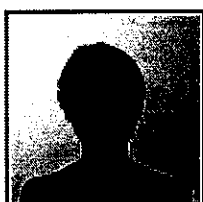
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Description
 Traditional combat simulation is usually based on Lanchster models, a set of mathematical equations. They are very intuitive and therefore easy to apply, however, they have shown their inherent shortcomings, eg, come resolution and low credibility. From the viewpoint of complex system theory, war is one social phenomenon of organized behavior of mankind, and as is known to all, it is very complex. So we now need more effective models and methods for combat system simulation. In this paper, we. frit analysis several main issues ...
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FIRST PAGE OF THE ARTICLE



RenLiang Fan, XieWei Wang, ChangLi Yang
East China Normal University

In this paper, we try to use modern technology of the artificial neural network which experienced a rapid development in the late 80s to analyze the law of dynamic change of the Chlorine ion in the waters of the Yangtze river estuary. Then the mathematical modeling of the Chlorine ion's density in the waters of the Yangtze river estuary is discussed. With the different controlling water quantity schemes after the completion of the construction of the reservoir in Three Gorge upward the Yangtze River, a BP neural network model is used for forecasting the density of Chlorine ion in the waters of the Yangtze river estuary. The results will be referred to related Shanghai department and water supply corporation for decision making.

MAL11-4
Overview of Combat Complex System Simulation

XiaoJun Guo
Armored Force Engineering Institute
Jingze Wang
Naval Aeronautical Engineering Institute.
Jun'an Hu
Armored Force Engineering Institute

Traditional combat simulation is usually based on Lanchester models, a set of mathematical equations. They are very intuitive and therefore easy to apply, however, they have shown their inherent shortcomings, e.g., coarse resolution and low credibility. From the viewpoint of complex system theory, war is one social phenomena of organized behavior of mankind, and as is known to all, it is very complex. So we now need more effective models and methods for combat system simulation. In this paper, we first analysis several main issues existing in combat simulation: multi-resolution modeling (MRM), behavior modeling, command and control simulation and cluster approach. Then we illustrate the core role of command and control in combat complex system simulation, and provide the methods to resolve combat complex system simulation — the "weapon-platform-based" methods. In the last, we introduce the project development on Land Combat System Simulation.

MAL11-5
Sliding Mode Control for a Class of Uncertain Dynamic Systems with Mismatched Uncertainties

Yahaya M. Sam, Johari H.S. Osman, Radin A. Ghani
Universiti Teknologi Malaysia

This paper focused on the proportional-integral sliding mode control for uncertain dynamic systems with mismatch uncertainties. First, the switching surface condition for the sliding mode control is synthesized. Then the control law is designed to drives the state trajectories of the system onto the sliding surface and the system remains in it thereafter. The proposed control law is able to minimize the effects of the mismatched uncertainty upon the dynamic performance prescribed by the switching surface. A simulation study for a numerical example is given to illustrate the effectiveness of this control design.

MAL11-6
Asymptotic Stabilizability Switching Control Strategy For Linear Switching Systems

Shumin Fei, Jie Shen, Qihong Chen
Southeast University

Start from the definition of stability and

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