

Simulation of Agent-Based Negative Selection Model (ABNSM) for Reservoir Water Level Monitoring

Abstract

Reservoir water level monitoring is an important process during heavy or light rainfall to determine the volume of reserved water. Mistakes in data recording by the dam operator can lead to disasters. Data from different gauging stations are collected to determine whether to release water in the dam or not. The decision to release water is critical because it can affect the volume of water left in the dam for both drought and flood seasons. Constant water level monitoring is difficult because of the changes in water level. To overcome this issue, intelligent agent-based architecture is proposed for reservoir water level monitoring by imitating the artificial immune system. This paper presents the agent technology where agents communicate with each other concurrently by sending online data from different gauging stations to the main reservoir. One of the techniques in the artificial immune system is known as negative selection and this technique has been chosen as a water level monitoring model.