Papers in ISI Journals

1. ***Fuzzy Logic for Intelligent Control System Using Soft Computing Applications***, SENSORS by MDPI, 2021, Catalin Dumitrescu, Petrica Ciotirnae, Constantin Vizitiu, (https://www.mdpi.com/1424-8220/21/8/2617)

Abstract: When considering the concept of distributed intelligent control, three types of components can be defined: (i) fuzzy sensors which provide a representation of measurements as fuzzy subsets, (ii) fuzzy actuators which can operate in the real world based on the fuzzy subsets they receive, and (iii) the fuzzy components of the inference. As a result, these elements generate new fuzzy subsets from the fuzzy elements that were previously used. The purpose of this article is to define the elements of an interoperable technology Fuzzy Applied Cell Control-soft computing language for the development of fuzzy components with distributed intelligence implemented on the DSP target. The cells in the network are configured using the operations of symbolic fusion, symbolic inference and fuzzy– real symbolic transformation, which are based on the concepts of fuzzy meaning and fuzzy description. The two applications presented in the article, Agent-based modeling and fuzzy logic for simulating pedestrian crowds in panic decision-making situations and Fuzzy controller for mobile robot, are both timely. The increasing occurrence of panic moments during mass events prompted the investigation of the impact of panic on crowd dynamics and the simulation of pedestrian flows in panic situations. Based on the research presented in the article, we propose a Fuzzy controller-based system for determining pedestrian flows and calculating the shortest evacuation distance in panic situations. Fuzzy logic, one of the representation techniques in artificial intelligence, is a well-known method in soft computing that allows the treatment of strong constraints caused by the inaccuracy of the data obtained from the robot's sensors. Based on this motivation, the second application proposed in the article creates an intelligent control technique based on Fuzzy Logic Control (FLC), a feature of intelligent control systems that can be used as an alternative to traditional control techniques for mobile robots. This method allows you to simulate the experience of a human expert. The benefits of using a network of fuzzy components are not limited to those provided distributed systems. Fuzzy cells are simple to configure while also providing high-level functions such as mergers and decision-making processes.

Keywords: fuzzy logic control; path planning; fuzzy interference system

2. Efficient Response Solution for Integrated Command and Control center using Automatic Interactive Voice Response System , Journal of Military Technology, 2021, Daniel GÎRBEA, Petrică CIOTÎRNAE, in Review (https://jmiltechnol.mta.ro)

Abstract – Current communication networks are constantly expanding, the services offered are diversifying and the number of special users is increasing. These facts lead to an increasing number of special requests from military user applications and implicitly to a long waiting time in the calling queue. The purpose of this paper is to design a Automatic Call-Center integrated with an Interactive Voice Response (IVR), which improves call routing and increases special users satisfaction through various specific modern capabilities, but also have call monitoring and error reporting options from a management center. The call-center configuration solution has been implemented in accordance with the needs of command and control centers that is constantly developing and takes into account special user requests.
Keywords: Call-Center, IVR, Features, Special Military User Requests, Command and control center