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Neural network classifier for automatic course-keeping based on fuzzy logic (Article)

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Просмотр дополнительных организаций

Краткое описание

The authors continued their research on the development of an intelligent automatic ships pilot containing a controller based on fuzzy logic. Its features are determined by the optimizer based on a genetic algorithm. It also contains a modular unit of neural network models of ship navigation paths, as well as a neural network classifier. This paper is devoted to the description of a neural network classifier designed to classify the movement patterns of marine vessels to identify the peculiarities of the ship depending on its type and sailing conditions. The introduction of such classifier to an autopilot allows for more precise consideration of multivariate and difficult to formalize factors affecting the vessel while operating, such as varying weather conditions, irregular waves, hydrodynamic characteristics of the vessel, draft, water under the keel, rate of the vessel sailing, etc. The article outlines the technique concerning the development of a neural network classifier and the results of its computer modelling on the example of a refrigerated transport vessel type. The authors used such methods for obtaining and processing findings as spectral estimation, machine learning methods, in particular, neural network technology and computer or simulation modelling.

Просмотр пристатейных ссылок (29)

Ключевые слова автора

automatic course-keeping | autopilot | fuzzy logic | Neural network classifier

Включенные в указатель ключевые слова

Engineering controlled terms: Computer circuits | Computer networks | Fuzzy logic | Genetic algorithms | Learning systems | Sailing vessels | Ships | Spectrum analysis

Engineering uncontrolled terms: Computer modelling | Hydrodynamic characteristics | Machine learning methods | Network technologies | Neural network classifier | Neural network model | Refrigerated transport | Spectral Estimation

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Просмотреть в формате результатов поиска >

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