

Research on developing a safe semi-supervised fuzzy clustering method applied to seaport management problems

Phùng Thế Huân

Abstract: Research and development of a safe semi-supervised fuzzy clustering method to enhance data processing in seaport management. In the logistics context, analysis often faces challenges such as label scarcity and noisy data. The proposed method combines fuzzy logic to handle uncertainty and a semi-supervised learning mechanism to maximize the use of unlabeled data. Notably, a "safety" factor is integrated to prevent performance degradation when encountering unreliable information. The research results provide decision-support tools for cargo classification and berth resource allocation. The project contributes to modernizing operations and enhancing the capacity of current smart seaports.

Keywords: Fuzzy semi-supervised clustering, Secure machine learning, Port management, Smart logistics, Fuzzy logic