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Multi-criteria decision-making for purchasing cell phones using machine learning approach

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The process of cell-phone selection for purchasing is a multi-criteria decision-making (MCDM) problem with conflicting and diverse objective. In this study, various techniques using machine learning approach is discussed. To begin, participants responded to a questionnaire having different latest features available in a cell-phone. Seven independent input variables cost, talk-time, rear camera, weight, size, memory and operating system were then derived from participant respondents. Linguistic terms such as low, medium and high were used to represent each of the input variables. Using Mamdani approach both traditional fuzzy reasoning tool (FLC) and neuro-fuzzy system (ANFIS) were designed for three input and one output process. The neuro-fuzzy system was trained using a back-propagation algorithm. Compared to two traditional fuzzy reasoning tools, artificial neural network approach (ANN), the neuro-fuzzy system could provide better accuracy for selecting a cell-phone for personal use.

Biography

S N Mohanty completed his PhD from IIT Kharagpur, India in the year 2014, with MHRD Scholarship from Govt. of India. He has recently joined as Assistant Professor in the School of Computer Science & Engineering at KIIT University. His research areas include Data mining, Big Data Analysis, Cognitive Science, Fuzzy Decision Making, Brain-Computer Interface, Cognition, and Computational Intelligence. He has received two best paper awards during his PhD at IIT Kharagpur from International Conference at Benjing, China, and the other at International Conference on Soft Computing Applications organized by IIT Roorkee in the year 2013. He has published five papers in international journals and has been elected as member of Institute of Engineers and IEEE Computer Society. He is the Reviewer of IJAP and IJDM.

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