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Proceedings of the 2015 IEEE 8th International Conference on Intelligent Data Acquisition and Advanced Computing Systems: Technology and Applications, IDAACS 2015

Volume 1, 30 November 2015, Article number 7340724, Pages 177-181

8th IEEE International Conference on Intelligent Data Acquisition and Advanced Computing Systems, IDAACS 2015; Warsaw, Poland; 24 September 2015 through 26 September 2015; Category numberCFP15803-ART; Code 117622

## Algorithmic model for risk assessment of heart failure patients (Conference Paper)

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### Abstract

A leading cause of hospital admission in the elderly is heart failure and it is considered a major financial burden since the hospitalization costs are high. This is intensified with a lack of medical professionals due to a continuing significant increase of patients with heart failure as a result of obesity, diabetes and aging population. Integration of an intelligent decision support system into a home telemonitoring system seems a more-and-more supported solution. Therefore, the use of ambiguity for risk assessment of patients with heart failure is investigated. An algorithmic model is made using ambiguity and notions of fuzzy logic. The algorithmic model stores knowledge about patients as a group of interpretable fuzzy rules and uses them for risk assessment. The study shows that its achieved results are promising in comparison to a Bayesian network classifier, a nearest neighbor classifier, multilayer neural network, 1R classifier, a decision list, and a logistic regression model. © 2015 IEEE.

### Author keywords

algorithmic modeling; fuzzification; fuzzy rules; heart failure; risk assessment

### Indexed keywords

**Engineering controlled terms:** Algorithms; Artificial intelligence; Bayesian networks; Cardiology; Computation theory; Data acquisition; Decision support systems; Fuzzy inference; Fuzzy logic; Fuzzy rules; Heart; Hospitals; Multilayer neural networks; Regression analysis; Telemedicine

Algorithmic model; Bayesian network classifiers; fuzzification; Heart failure; Intelligent decision support systems; Interpretable fuzzy rules; Logistic Regression modeling; Nearest Neighbor classifier

**Engineering main heading:** Risk assessment

ISBN: 978-146738361-5 **Source Type:** Conference Proceeding **Original language:** English

DOI: 10.1109/IDAACS.2015.7340724 **Document Type:** Conference Paper

**Sponsors:** et al., IEEE Ukraine Section I and M / CI Joint Societies Chapter, River Publishers, The University of Maine, THEY, Warsaw University of Technology **Publisher:** Institute of Electrical and Electronics Engineers Inc.

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