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Cardiovascular dysautonomias diagnosis using crisp and fuzzy decision tree: A comparative study (Conference Paper)

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Abstract

Decision trees (DTs) are one of the most popular techniques for learning classification systems, especially when it comes to learning from discrete examples. In real world, many data occurred in a fuzzy form. Hence a DT must be able to deal with such fuzzy data. In fact, integrating fuzzy logic when dealing with imprecise and uncertain data allows reducing uncertainty and providing the ability to model fine knowledge details. In this paper, a fuzzy decision tree (FDT) algorithm was applied on a dataset extracted from the ANS (Autonomic Nervous System) unit of the Moroccan university hospital Avicenne. This unit is specialized on performing several dynamic tests to diagnose patients with autonomic disorder and suggest them the appropriate treatment. A set of fuzzy classifiers were generated using FID 3.4. The error rates of the generated FDTs were calculated to measure their performances. Moreover, a comparison between the error rates obtained using crisp and FDTs was carried out and has proved that the results of FDTs were better than those obtained using crisp DTs. © 2016 The authors and IOS Press.

Author keywords

Autonomic nervous system; C4.5 algorithm; Cardiovascular dysautonomias; Fuzzy decision tree; Fuzzy logic

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References (21)

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- Behadada, O., Chikh, M.A.
1 An interpretable classifier for detection of cardiac arrhythmias by using the fuzzy decision tree (2013) *Artificial Intelligence Research*, 2, pp. 45-58.
- Bohacik, J., Kambhampati, C.
2 Classification in a heart failure dataset with a fuzzy decision tree (2012) *Advanced Research in Scientific Areas*, 1, pp. 1981-1985.
- Breiman, L., Friedman, J.H., Olshen, R.A., Stone, C.J.
3 Classification and regression trees (1984) *Monterey, CA: Wadsworth & Brooks/Cole Advanced Books & Software*, pp. 246-280. [Cited 3 times](#).
- Esfandiari, N., Babavalian, M.R., Moghadam, A.-M.E., Tabar, V.K.
4 **Knowledge discovery in medicine: Current issue and future trend** (2014) *Expert Systems with Applications*, 41 (9), pp. 4434-4463. [Cited 34 times](#). doi: 10.1016/j.eswa.2014.01.011

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(1999) Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)










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- Fajfer, Maciej, Janikow, Cezary Z.
- 5 **Bottom-up fuzzy partitioning in fuzzy decision trees**
- (2000) *Annual Conference of the North American Fuzzy Information Processing Society - NAFIPS*, pp. 326-330. Cited 5 times.
- [View at Publisher](#) 
- Famili, A., Shen, W.-M., Weber, R., Simoudis, E.
- 6 **Data preprocessing and intelligent data analysis**
- (1997) *Intelligent Data Analysis*, 1 (1), pp. 3-23. Cited 104 times.
doi: 10.3233/IDA-1997-1102
- [View at Publisher](#) 
- Fayyad, U., Piatetsky-Shapiro, G., Smyth, P.
- 7 **From data mining to knowledge discovery in databases**
- (1996) *AI Magazine*, 17 (3), pp. 37-53. Cited 1117 times.
- 
- Idri, A., Kadi, I., Benjelloun, H.
- 8 **Heart disease diagnosis using C4.5 algorithms: A case study**
- (2015) *HEALTHINF 2015 - 8th International Conference on Health Informatics, Proceedings; Part of 8th International Joint Conference on Biomedical Engineering Systems and Technologies, BIOSTEC 2015*, pp. 397-404.
ISBN: 978-989758068-0
- [View at Publisher](#) 
- Janikow, C.Z.
- 9 **Fuzzy decision trees: Issues and methods**
- (1998) *IEEE Transactions on Systems, Man, and Cybernetics, Part B: Cybernetics*, 28 (1), pp. 1-14. Cited 363 times.
doi: 10.1109/3477.658573
- [View at Publisher](#) 
- Janikow, C.Z., Kawa, K.
- 10 **Fuzzy decision tree FID**
- (2005) *Annual Conference of the North American Fuzzy Information Processing Society - NAFIPS*, 2005, art. no. 1548565, pp. 379-384. Cited 5 times.
doi: 10.1109/NAFIPS.2005.1548565
- [View at Publisher](#) 
- Kadi, I., Idri, A.
- 11 **A decision tree-based approach for cardiovascular dysautonomias diagnosis: A case study**
- (2015) *IEEE Symposium on Computational Intelligence*
- Karaolis, M.A., Moutiris, J.A., Hadjipanayi, D., Pattichis, C.S.
- 12 **Assessment of the risk factors of coronary heart events based on data mining with decision trees**
- (2010) *IEEE Transactions on Information Technology in Biomedicine*, 14 (3), art. no. 5378501, pp. 559-566. Cited 43 times.
doi: 10.1109/TITB.2009.2038906
- [View at Publisher](#) 
- Kreibig, S.D.
- 13 **Autonomic nervous system activity in emotion: A review**
- (2010) *Biological Psychology*, 84 (3), pp. 394-421. Cited 443 times.
doi: 10.1016/j.biopsycho.2010.03.010
- [View at Publisher](#) 
- Lee, Koen-Myung, Lee, Kyung-Mi, Lee, Jee-Hyong, Lee-Kwang, Hyung
- 14 **Fuzzy decision tree induction method for fuzzy data**
- (1999) *IEEE International Conference on Fuzzy Systems*, 1, pp. I-16 - I-21. Cited 14 times.



Pecchia, L., Melillo, P., Bracale, M.

15 **Remote health monitoring of heart failure with data mining via CART method on HRV features**

(2011) *IEEE Transactions on Biomedical Engineering*, 58 (3 PART 2), pp. 800-804. Cited 41 times.

doi: 10.1109/TBME.2010.2092776

[View at Publisher](#)



Quinlan, J.R.

16 **Induction of Decision Trees**

(1986) *Machine Learning*, 1 (1), pp. 81-106. Cited 6778 times.

doi: 10.1023/A:1022643204877

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Quinlan, J.R.

17 C4.5 programs for machine learning

(1993) CA: *Morgan Kaufmann Series in Machine Learning*, pp. 1-302.

Salzberg, S.L.

18 **On comparing classifiers: Pitfalls to avoid and a recommended approach**

(1997) *Data Mining and Knowledge Discovery*, 1 (3), pp. 317-328. Cited 433 times.

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accessed January 2015

19 www.cs.umsl.edu/~janikow/fid/

Zadeh, L.A.

20 **Fuzzy sets**

(1965) *Information and Control*, 8 (3), pp. 338-353. Cited 31643 times.

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Zadeh, L.A.

21 *From Computing with Numbers to Computing with Words-From Manipulation of Measurements to Manipulation of Perceptions.* Cited 2 times.

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