

## Black-box in AI is not black box

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Elizabeth A. Holm wrote an article entitled “In defense of the black box “ (1). Holm of CMU is confused with intentional or ignorant black box problems. Many researchers don’t know how to convert deep learning which is called black-box into an explainable decision tree. Geoffrey Everest Hinton, former faculty of CMU (1982–1987) has proposed an idea on how to eliminate the black-box problem (2). Hinton’s algorithm, called the soft decision tree converted from deep learning has been implemented in several open source sites (3, 4). Not only in deep learning based on GPU computing, but also in ensemble methods based on CPU computing, the explainable decision tree function has been implemented in open source machine learning including scikit-learn. In other words, the black box problem in AI can be eliminated if we would like to do. The intentional black box in AI system is another issue.

### References:

1. E. A. Holm, Science 05 Apr 2019: Vol. 364, Issue 6435, pp. 26-27
2. <https://arxiv.org/abs/1711.09784>
3. <https://github.com/kimhc6028/soft-decision-tree>
4. <https://github.com/AaronX121/Soft-Decision-Tree>