White-box machine learning is not the first attempt for alleviating "black box" problems.

Yoshiyasu Takefuji, Ph.D.
Professor of Keio University

Jason H. Yang et al. wrote an article entitled "A White-Box Machine Learning Approach for Revealing Antibiotic Mechanisms of Action" (Jason H. Yang et al. 2019). However, their approach to alleviate "black box" problems is not the first attempt (Y. Takefuji 2019). Many researchers don't know how to convert deep learning which is called black-box into an explainable decision tree. Geoffrey Everest Hinton, who received Turing award in 2018, has proposed an idea on how to eliminate the black-box problem (Nicholas Frosst, G. Hinton 2017). Hinton's algorithm, called the soft decision tree converted from deep learning has been implemented in several open source github sites (4, 5). 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 libraries including scikit-learn and others (6, 7). In other words, the black box problem in AI can be eliminated if we would like to do before the proposed white-box machine learning. Jason H. Yang et al. should cite the Hinton's paper and mention open source github sites in their paper.

References:

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