



Learnware: Small models do big

"Learnware = Model + Specification". Let's consider the following questions: First, do we believe that in the future (A) there will be a big model that is able to cope with all possible learning tasks, or (B) it is crucial to have many models to collaborate? Second, are these models to be developed by (A) one developer (or one company), or (B) lots of developers all over the world? Third, are training data used to train these models to be (A) freely shared, or (B) mostly not? If we choose (B) for the answers, it seems that we will encounter a mission impossible: how to identify helpful models from a growing huge pool of trained models developed by developers all over the world, and reuse or even reassemble the models to tackle new user's task, given that we could not touch developers' and users' training data? "Learnware" makes this possible. A key ingredient is the specification which enables a trained model to be adequately identified to reuse according to the requirement of new user who knows nothing about the model, while model developers' training data are preserved. Learnwares are accommodated in a learnware dock system, which enables small models do big, and enables models do things even beyond their original development purposes. This talk will briefly introduce some preliminary research advances in this direction.

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Speaker

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Zhi-Hua Zhou is Professor of Computer Science and Artificial Intelligence, and Vice President of Nanjing University. His research interests are mainly in artificial intelligence, machine learning and data mining, with significant contributions to ensemble learning, multi-label and weakly supervised learning, etc. He has authored the books "Ensemble Methods: Foundations and Algorithms", "Machine Learning", etc., and published more than 200 papers in top-tier journals or conferences. According to Google Scholar, his publications have received 110,000+ citations, with H-index 134. Many of his inventions have been successfully deployed in industry and supported a number of China giant companies' intelligent technology development and progress. He founded ACML (Asian Conference on Machine Learning), serves as series editor of Springer Lecture Notes in Artificial Intelligence, advisory board member of AI Magazine, editor-in-chief of Frontiers of Computer Science, etc. He is President of IJCAI Trustee, Fellow of the ACM, AAAI, AAAS, IEEE, etc., member of the Chinese Academy of Sciences and Academia Europaea, and recipient of the National Natural Science Award of China, the IEEE Computer Society Edward J. McCluskey Technical Achievement Award, the CCF-ACM Artificial Intelligence Award, etc.

