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Can we accurately predict how a message spread in Twitter?

Title of the dissertation	Multilabel classification through structured output learning - methods and applications
Contents of the dissertation	Can we accurately predict how a message spread in Twitter? Are you interested in whom will share your post in Facebook? How about reliably figuring out drug potentials without getting your hands dirty? Does computer vision really work? All these heterogeneous questions can be answer by multilabel classification. Multilabel classification is an important research field in machine learning, the goal of which is to reliably predict multiple output variables for a given input. As output variables are often interdependent, the central problem in multilabel classification is how to best explore the correlation between labels to make accurate predictions.
	This thesis tackles the multilabel classification problem through structured output learning which relies on an output graph connecting multiple output variables and models label correlations in a comprehensive manner. The output graph can be either known apriori or unobserved. The main contributions are several novel learning algorithms that widen the applicability of structured output learning. Meanwhile, this thesis provides rigorous theoretical studies to guarantee the performance of the proposed methods.
Field of the dissertation	Machine Learning, Classification
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A doctoral dissertation is a public document and shall be available at Aalto University, School of Science's notice board in Konemiehentie 2 and at Otakaari 1, Espoo at latest 10 days prior to public defence.