The goal of meta-learning is to model the relationships between the performance of various learning algorithms and the characteristics of problems being learned. In this sense, we are focused on learning about learning. Under what conditions can we expect a certain algorithm to perform well? The field of meta-learning has been very well developed in the machine learning community over the last 15 years or so, where the focus has been on the study of supervised learning methods such as support vector machines and neural networks, and their performance on classification problems. But the goal of seeking a greater understanding of the relationship between problem characteristics and algorithm performance is not limited to machine learning or classification problems.

In this talk we will explore the generalisation of meta-learning to other domains including forecasting, optimisation, bioinformatics, etc. The common factor in these diverse fields is the availability of a large number of algorithms for solving the problems, the availability of large benchmark datasets, and the existence of suitable metrics to characterise the properties of the datasets. In each case, great insights into the conditions under which various algorithms perform best can be derived using a meta-learning framework, helping in the design of better algorithms, as well as automated algorithm selection methods.

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