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Multisolution Approach to Classification Tasks in Biomedicine

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Simultaneous search for multiple sparse solutions of a classification/regression problems differs fundamentally from common approaches to these classical machine learning problems. At the same time, it is strongly motivated by practical requirements, e.g. in applications in biomedicine. In such tasks, we face high dimensions, limited number of samples, errors in data and, most importantly, the necessity of providing a human-interpretable model. On the other hand, field-related expertise is usually available.

This contribution shall convey the concept of multisolution feature selection within a classification problem. Using a real world example, we shall introduce the core ideas. We shall also outline the individual steps leading to the problem's formal definition and its potential solution.

Primary author: HENCLOVÁ, Kateřina (Department of Mathematics, FNSPE, Czech Technical University in Prague)

Presenter: HENCLOVÁ, Kateřina (Department of Mathematics, FNSPE, Czech Technical University in Prague)

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