

# MSc thesis defense presentation

## Eleni Mpakali defends her MSc thesis.

<b>Date:</b>	Monday, 15 Dec 2014
<b>Thesis title:</b>	<a href="#">On the meaningful instances of clustering</a>
<b>Committee:</b>	<ul style="list-style-type: none"><li>• <a href="#">Dimitris Achlioptas</a></li><li>• <a href="#">Dimitris Fotakis</a></li><li>• <a href="#">Efstathios Zachos</a></li></ul>

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### Thesis abstract

Clustering is a problem with many different definitions, approaches and applications, but not well defined mathematically. Especially it is not clear how to define meaningfulness, and how to determine if a solution is meaningful, in the sense that it reveals some existing inherent in the data structure. When we refer to clustering via optimization of some objective functions, it is usually a task performed efficiently, despite that most existing objective functions are NP-hard. We will present some existing results showing that “meaningful” instances can be solved efficiently. In these papers is made apparent (implicitly or explicitly) a connection between structure in the data, and the behavior of the objective function over the space of solutions. We will propose a method exploiting this connection, that could decide for each pair {objective function, dataset}, if it is “meaningful” the particular dataset to be clustered by optimizing (or approximating) this particular objective function.

Download date: 2024-07-27, 09:40.