Séminaire "Machine Learning applied to Graph Matching"
par Francesc Serratosa, Professeur à l’université de Tarragona

Machine Learning applied to Graph Matching

Abstract:
In this talk, we show how we have combined machine learning models and graph matching algorithms to define useful models to be applied in structural pattern recognition. This research has been carried out in the SSAI research group (Sensorial Systems Applied to the Industry) at the Universitat Rovira i Virgili, Tarragona, Catalonia.

The talk is divided in three theoretical parts and a practical part in which we show the application of the models commented on.

- First, we explain two different algorithms that solve the error-tolerant graph-matching problem. Specifically, given a pair of attributed graphs that represent two objects, these algorithms deduce a distance between them and also the node-to-node mapping.

- Second, we explain our contributions on graph prototyping. Three different models have been presented, FDGs, SORGs and Median Graphs. The main aim of graph prototyping is to represent the set of attributed graphs that form a class with a single structure.

- And third, we explain how machine-learning techniques have been applied to
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- And third, we explain how machine-learning techniques have been applied to graph matching. In this part, we comment on three different aspects. a) Learning the graph-matching parameters to increase the quality of the final node-to-node mapping. b) Adding human interactivity in the process of matching two attributed graphs. c) Finding the consensus of several node-to-node mappings.

This methods and algorithms have been applied to robotics and now it is time to explore other industrial, commercial or social fields.

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