Nom et prénom: CHABANE Yahia

Laboratoire de thèse : LIMOS

Directeur de thèse : PR. TOUMANI Farouk et MC. REY Christophe

Date de soutenance : 19/12/16 à 10h30

Noms des personnes composant votre jury :

- MC. JAUDOIN Hélène
- PR. HACID Mohand-Saïd
- PR. BELLATRECHE Ladjel
- MC. REY Christophe
- PR. TOUMANI Farouk

Titre de thèse : Semantic and flexible query processing of medical images using ontologies

Résumé : Querying efficiently images using an image retrieval system is a long standing and challenging research problem.

In the medical domain, images are increasingly produced in large quantities due their increasing interests for many medical practices such as diagnosis, report writing and teaching. This thesis proposes a semantic-based gastroenterological images annotation and retrieval system based on a new polyp ontology that can be used to support physicians to decide how to deal with a polyp. The proposed solution uses a polyp ontology and rests on an adaptation of standard reasonings in description logic to enable semi automatic construction of queries and image annotation.

A second contribution of this work lies in the proposition of a new approach for computing relaxed answers of ontological queries based on a notion of an edit distance of a given individual w.r.t. a given query. Such a distance is computed by counting the number of elementary operations needed to be applied to an ABox in order to make a given individual a correct answer to a given query. The considered elementary operations are adding to or removing from an ABox, assertions on atomic concept, a negation of an atomic concept or an atomic role. The thesis proposes several formal semantics for such query approximation and investigates the underlying decision and optimisation problems.