ECP / TUB / ULB / UFRT / UPC

Potential Topics for IT4BI Master Theses

Université Francois Rabelais Tours – Blois Campus (UFRT)

Topic area 1: Natural Language Processing

Subject: Parsing and Multi-Word Expressions

Advisors: Dr Agata Savary (UFRT), Dr Yannick Parmentier (Université d'Orléans), Prof. Jean-Yves Antoine (UFRT)

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This Master's thesis will be dedicated to fixed and semi-fixed Multi-Word Expressions (MWEs) such as "French fries", "random access memory" "to do one's best", "to spill the beans", "to kick the bucket", etc. In order to correctly treat the syntax and semantics of such expressions, language resources (lexicons and treebanks) and grammars have to be enlarged with respect to the syntactic structure of MWEs. These challenges will be addressed in French, English and other languages known by the candidate.

Topic area 2: Data collection and integration

Advisor: Patrick Marcel (UFRT), Veronika Peralta (UFRT)

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This Master's thesis will contribute to the design and development of a data warehouse aiming at the interactive analysis of open data, to study the energy vulnerability of households and territories of Loir et Cher.

Topic area 3: OLAP query recommendation

Advisors: Marie-Aude Aufaure, Yves Vanrompay (ECP), Patrick Marcel (UFRT), Stefano Rizzi (University of Bologna)

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Current OLAP query recommendation techniques include intension-based approaches, where only query expressions are considered for computing recommendations, and extension-based approaches, where query results are analyzed for computing recommendations. The aim of this thesis is to study how to combine an intension-based technique with an extension-based one.1

Topic area 4: spatio-temporal data mining

Advisor: Thomas Devogele (UFRT)

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New process to define clusters and patterns of trajectories.

Topic area 5: Optimization of query answering in OBDA semantic mediators

Advisor: Dr Béatrice Bouchou Markhoff (UFRT), Dr Cheikh Niang (UFRT)

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Query answering in an OBDA (Ontology Based Data Access) semantic mediator consists in (i) query rewritings based on either GAV mappings or LAV mappings, (ii) subquery sending to each of the involved sources, each of them performs the local query evaluation, then sends its results, and (iii) query evaluation on the data sent by each source. Some optimizations may take

place all along this whole process, thus the aim of this thesis is to design some of them and to perform experiments in order to measure their relevance.

Topic area 6: Query recommendation for analytical services (to be confirmed)

Advisor: Jari Koister (Agilone), Patrick Marcel (UFRT)
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Agilone is a company that provides analytical services to its clients, mostly marketers, which allow them to analyze trends and do predictions. The aim of this thesis is to study how an existing query recommendation technique can be adapted to the Agilone context.