

Postdoctoral position in the Semantic Web

Querying the Web of Microdata with Things

Job title: postdoc 24 months, starting January 2024

Project: MeKaNo (ANR), 2023-2026

Research Lab: IRISA, Rennes

Team: LACODAM

Contact: ferre@irisa.fr, peggy.cellier@irisa.fr

Keywords: semantic web, knowledge graphs, query languages, microdata, user interaction

Context and Objectives:

In MeKaNo, we aim to search the web with "Things" (entities), in order to get more accurate results over a wide diversity of sources. Traditional web search engines search the web with strings. However, keyword search often returns many irrelevant documents, pushing users to refine their keyword list following a trial-and-error process. On the other hand, Knowledge Graphs (KG) like Wikidata [1] enable users to search for Things and facts, and to get exact answers. However, there may exist many answers on the web that are not part of the knowledge graph. Moreover, nowadays, many websites include entities and facts in the form of microdata [2], for which there is no query engine so far. In MeKaNo, we aim at combining the querying of knowledge graphs and microdata together in order to reconcile the accuracy of KG querying, and the diversity of web search.

To search the web with Things, we face several scientific challenges. Among them, an important one is the definition of a query language that combines knowledge graph querying, web search, and microdata querying. Another challenge is to assist users in the building of such complex queries [3]. We already have an approach (Sparklis [4]) that assists users in knowledge graph querying. The objective of the postdoc is to extend this approach to include web search and microdata querying.

Requirements:

The candidate must hold a Ph.D in Computer Science, preferably in the field of the Semantic Web. Skills in query languages (SPARQL), language design, web programming are a plus.

Application method:

To apply send an email to sebastien.ferre@irisa.fr and peggy.cellier@irisa.fr with attached a single PDF containing:

- Cover letter in which you describe your motivation and qualifications for the position.
- Curriculum vitae, including a list of your publications and the contact information of references.

References:

1. Vrandečić, D., & Krötzsch, M. (2014). Wikidata: a free collaborative knowledgebase. *Communications of the ACM*, 57(10), 78-85.
2. Meusel, Robert, Christian Bizer, and Heiko Paulheim (2015). "A web-scale study of the adoption and evolution of the schema. org vocabulary over time." *Int. Conf. on Web Intelligence, Mining and Semantics*.
3. G. Marchionini. *Exploratory search: from finding to understanding*. *Communications of the ACM*, 49(4):41–46, 2006.
4. Sébastien Ferré. "Sparklis: an expressive query builder for SPARQL endpoints with guidance in natural language." *Semantic Web 8.3* (2017): 405-418.