**Observations attended**

Paper ID 45: Characterization of Objects in Indoor Spaces of Human Occupation Using Knowledge Graphs.

**Authors**

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Reviewer 1

----------- **Overall evaluation** -----------

The paper proposes the use of a knowledge graph to describe relationships between objects found in an image, to be able to make inferences based on this. The topic is relevant to the conference and interesting. The manuscript is well structured, the techniques used are sound and the results promising. The paper could benefit from a careful review to improve readability.

Regarding the suggestion of Reviewer 1, a general revision was made to improve the readability of the document and possible typographical errors were also corrected and adjustments were made in some incomplete sentences detected.

**Reviewer** **2**

**----------- Overall evaluation -----------**

This paper presents partially the Grakn.AI NoSQL database, which is an Open Source engine for creating knowledge graphs to organize and model data.

**Remark.** That is right, Grakn is the technology used in the work presented.

The defined knowledge graph schema uses the binary entity-relation: Object1–Predicate–Object2, constructing a graph.

**Remark.** This statement is also correct.

The architecture of Grakn is only presented in a figure but not explained.

**Remark.** The explanation of Figure 1 was expanded, which shows the internal architecture of Grakn.

… “In general, Grakn can be seen as a distributed, hyperrelational database that uses intuitive ontology, this is, it uses the definition of types, properties, and relationships between existing entities in a given context, to model complex data, which serves as a knowledge base for cognitive systems [14]. Thus, based on the architecture of Grakn, at the bottom we can see the system layer, which is made of Apache technologies: i) HBase1 is a distributed, scalable, big data store database; ii) Spark for a distributed processing system used for big data workloads; and iii) Hadoop allows us to handle distributed processing of large data sets across clusters of computers using simple programming models. These technologies are Tinkerpop tools to create the structure of the knowledge graph. On the other side, Graql represents the Grakn interface, where through queries knowledge can be retrieved explicitly or implicitly. In addition, Grakn was designed to be integrated with other technologies that allow it to function in a distributed manner, for example, as a complement in Natural Language Processing (NLP) and Machine Learning (ML) systems [15]. Thus, Grakn from its creation in 2016 to date is used by several companies, such as Google and Cisco; and by institutions like MIT, OpenCTI, and Cares Genetics. Table I summarizes the most important features reported by the db-engines site. A more detailed explanation can be found on the official Grakn site (https://grakn.ai).”

The presented example is very simple, and it is not possible to observe the claims of authors, for instance, how to explicit the implicit information, and how to make inference or reasoning.

**Remark.** It is an illustrative example, that is what the work is about, as indicated in its summary, that is, proposing a knowledge graph to describe the semantic relationships of objects present in an interior space, such as the bedroom of a house. This information on the semantic relationship demonstrates the characterization of objects and their relationships based on the principles of knowledge representation. The scope of the work is not to make inferences or reasoning.

Besides, any real example is presented, neither real applications in the AI branch cited by authors like NLP, ML, etc.

**Remark.** It is mentioned that Grakn was designed to integrate with other technologies, with the purpose of working in a distributed way, for example, as a complement in Natural Language Processing (NLP) and Machine Learning (ML) systems. At no time is it indicated that they are examples of knowledge graphs.

This paper is in the very initial state, it does not present any actual results of a real case.

**Remark.** It is true, it is initial work. At no time has the opposite been mentioned, but it does not stop being relevant. The work is a contribution to the categorization of the semantic context as a tool to describe spatial relationships in the environment of interior spaces of human occupation, in this case, a bedroom.