

In order to find and monitor the evolution of essential individuals in social networks, we proposed a temporal analysis approach. Our method was able to perform investigation considering the study of overlapping structures in subsequent periods. Furthermore, it proved to be able to explore temporal changes by investigating syntactic and semantic network aspects.

To achieve this goal, we proposed a contribution network using some popular GitHub projects. Initial findings pointed out that it was possible to identify core nodes in all periods, as well as the individuals considered essential for the network evolution due to their high contribution degree. However, these analyses were not sufficient to fully understand the role these individuals play in the network. Consequently, we also proposed an ontology representing the domain knowledge and enriching the results with implicit semantic understanding.

Evidence was provided that the proposed ontology allows us to explore the network domain further, providing a structure with a higher semantic weight. It was also able to bring knowledge about the projects' evolution and detect individuals considered essential due to their role in meeting specific project demands.

As future work, we intend to advance the ontology to work on the recommendation of specialists and teams of specialists with complementary skills. Furthermore, in this work, we focused on analyzing a GSD context since it is a domain of high development integration with numerous individuals, projects, and artifacts to be explored. Therefore, in future works, we also plan to extend our work to explore other contexts, such as the academic or scientific domain.

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