UNIVERSITÀ DEGLI STUDI DI BARI ALDO MORO

Seminar Announcement

DIPARTIMENTO DI INFORMATICA

The Seminars on "Information Technology Outlook" – PhD Program in Computer Science and Mathematics

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11:00

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Neuro-symbolic approaches for the Knowledge Graph lifecycle

In the Web of Data, an increasing number of knowledge graphs (KGs) are concurrently published, edited, and accessed by human and software agents. Their wide adoption makes essential the tasks of their lifecycle: construction, refinement (e.g., matching, link prediction), mining, and usage to support applications (e.g., explainable AI, recommender systems). However, all these tasks require facing the inherent heterogeneity of KGs, e.g., in terms of granularities, vocabularies, and completeness. Besides, scalability issues arise due to their increasing size and combinatorial nature. In my talk, I will present my research on neuro-symbolic approaches for the KG lifecycle, intertwining domain knowledge from ontologies, deductive reasoning, analogical reasoning, and machine learning models. Throughout my presentation, I will show that such approaches enhance models by improving their semantic awareness, frugality, and the semantic interpretability of their latent representation space.

<u>SHORT BIO:</u> Pierre Monnin is a Junior Fellow in AI at Université Côte d'Azur, member of the Wimmics team. His research focuses on the different steps of the knowledge graph lifecycle (construction, knowledge discovery, matching, refinement, mining), and their usage in various downstream applications (e.g., recommender systems, explainable AI). He is particularly interested in interactions between domain knowledge represented in knowledge graphs and different forms of reasoning in a neurosymbolic perspective (e.g., benefits of injecting domain knowledge in Machine Learning models, analogical reasoning). His work involves both theoretical and applied perspectives, often in interdisciplinary settings (e.g., biomedical, educational domains). He was the Principal Investigator of the ECLADATTA project and he is an Investigator of the AT2TA project (both funded by the French National Research Agency).

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