Abstract HMC 2026 conference

DEMO-POSTER

Title:
Ontology-Driven Integration of Preclinical Radiation Oncology Data

Preclinical radiation oncology research produces many different types of data to answer different contexts such as how experiments are designed, how treatments are applied, and how tumors respond to the treatment. This inherent heterogeneity causes challenges in data integration, to ask clear questions across studies, and reusability for new research.

In our research, we approach this problem by demonstrating how this heterogeneuous preclinical radiation oncology data can be organized and consistently connected using an ontology-driven knowledge graph. The demonstration is based on the PTRO ontology. as the semantic backbone for data access. Real preclinical datasets are mapped to the ontology and exposed through a SPARQL endpoint.

Overall, this approach shows a real, working example of how complex biomedical data can be better organized, laying the groundwork for further data integration across research domains even beyond cancer or health studies in general.