

Internship Title: Quality assurance for OpenPVSignal Knowledge Graph

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Lab: ESIEE Paris, LIP6 - SU.

Involved french research partner : LIMICS (INSERM, Sorbonne University, Paris 13 University)

International partner: eHealth Lab, Institute of Applied Biosciences, Centre for Research and Technology Hellas, (INAB|CERTH), Thessaloniki, Greece

Filière: Biotechnology & e-health, Data Science and Artificial Intelligence, Computer Science

Context: Ontologies are used in computer science to represent and model knowledge, allowing artificial intelligence tools to use that knowledge and make decisions. *OpenPVSignal*[1], is an open source ontological model aiming to support the semantic enrichment and the publication of pharmacovigilance (PV) signal information along the FAIR (Findable, Accessible, Interoperable, and Re-usable) data principles. Moreover, the OpenPVSignal model enables the use of automatic reasoning capabilities upon the interlinked PV signal report data[2]. Currently, the INAB|CERTH team is in the process of building a Knowledge Graph (KG) populated by the PV signal information published as part of the WHO Pharmaceuticals Newsletter[3] using the OpenPVSignal model as its main conceptual schema. To this end, all the PV signals published by the WHO-UMC in the last decade were converted in the OpenPVSignal format and this KG is going to be published in the following months.

Project goal: The process of quality control of such a Knowledge Graph is far from trivial. The project will aim to provide a well-defined quality control process which will focus on developing regression tests. More specifically, the quality control process will actively investigate the following approaches:

- Exploratory quality control
- Comparatory quality control
- Regression tests using SPARQL queries

Value for the student: This is a student-oriented project, aiming to provide value for them. More specifically, in the context of this project, the student will have the opportunity:

- To familiarize with state-of-the-art quality assurance approaches, widely used in the industry and the research domain (unit tests, regression tests, etc.)
- To work in a big research centre in Greece
- To work on Knowledge Graphs, a field largely related with Symbolic Artificial Intelligence
- To work on a high-level interdisciplinary lab, combining researchers from various domains (doctors, pharmacologists and engineers)
- To work in an international environment (using English as the main language), while also being able to discover Greece in a student friendly city.
- To work with french researchers from LIMICS

[1] GitHub repository: <https://inab-certh.github.io/OpenPVSignal/>

[2] OpenPVSignal: Advancing Information Search, Sharing and Reuse on Pharmacovigilance Signals via FAIR Principles and Semantic Web Technologies, Pantelis Natsiavas, Richard D. Boyce, Marie-Christine Jaulent and Vassilis Koutkias,
<https://www.frontiersin.org/articles/10.3389/fphar.2018.00609/full>

[3]

<https://www.who-umc.org/research-scientific-development/signal-detection/communicating-signals/>