

Hyperscale Graphs Models of life

Contact

Phillip Lord, phillip.lord@newcastle.ac.uk

Research project

Building computational models is always challenging; living organisms are some of most complex systems that we know of, and present an entirely different scale of issue. Over the last twenty years, we have developed massive models with 100,000s of terms, with contributions from thousands of scientists, describing life using graph-based ontology models. The computational challenge of manipulating models of this scale is such that we must do so piece-meal, either one species, or one level of granularity at a time. In this project, we will expand and build new software infrastructure, which enables us to build and manipulate all these models simultaneously, which

Applicant skills/background

This project requires strong software engineering skills

References

P. Lord and J. Warrender. Horned-owl: Building ontologies at big data scale. In *International Conference on Biomedical Ontologies*, 2021.

A computational representation of Gender

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Phillip Lord, phillip.lord@newcastle.ac.uk

Research Project

Gender and its meaning has become an issue of intense public debate over the last few years. A lack of clarity and precision in the meaning of the terms associated with gender are problematic for society, but also for software engineering where the software must change its behaviour in gender specific ways. For this project we will build computational interpretable definitions of gender; our representation will take attempt to take a neutral point of view, attempting to represent multiple different view points rather than decide or reconcile them. The outcome will be a model that developers can use to improve the response of software based on gender with luck, it may feed into the societal debate on gender as well.

Applicant Skills/Background

This is a cross-disciplinary project: you will need a mix of computational, philosophical and critical reading skills