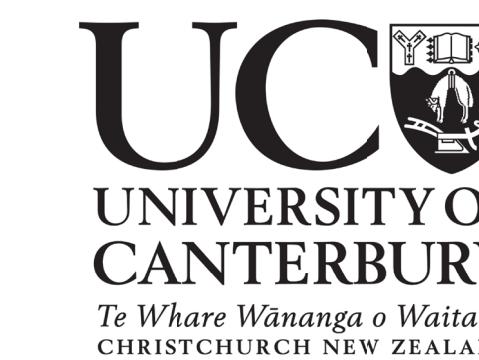




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Background

Academic publication mediums have remained relatively static since they were first devised in the 1600's. As computational methods increased in popularity and utility, new challenges of reproducibility, reuse and transparency have pushed this medium to adapt. Executable articles, portable computational workflows, and co-publication methods have been developed to both solve these challenges and enable new behaviours within the academic publishing space.

LivePublication

LivePublication is an exploration of our current eScience capabilities, and how these capabilities can be orchestrated together to create a new publication medium. Strong design considerations have been taken to avoid the centralisation of components. Rather, LivePublication provides methods of connecting distributed tools and technologies to achieve its goals. Predicating research articles upon live computational methods enables dynamic content behaviour, consistently up-to-date results, continuous integration, and a publication whose value does not diminish with age.

Prototype

An early prototype was developed and deployed to showcase as a proof of concept, integrating live analysis of Sentinel-2 data for vegetative health monitoring. Utilising the Common Workflow Language (CWL) standards and reference runner, the prototype's computational method is executed autonomously – dependent on data availability. The resulting research artefacts are integrated with the publication artefact, updating the article's findings, and content.

Further, executable CWL descriptions, intermediate method outputs, and generated workflow descriptions are provided to users enabling reuse and transparency. This integration of live computational methods with research articles provides a host of benefits:

1. The article presents the current results of the computational method,
2. Dynamic content is predicated on data drawn from the method,
3. The computational method is transparent,
4. The workflow descriptions are accessible, enabling reuse, and
5. Enabling continuous integration of computational method and research article.

Conclusion

This prototype represents the first steps towards designing the generalisable framework for LivePublication, providing feedback and strategies to transform static publications into dynamic representations of live research.

This work is part of the "Beyond Prediction: explanatory and transparent data science" project supported by the Strategic Science Investment Fund administered by the Ministry of Business Innovation and Employment, Aotearoa/New Zealand.



- Short Paper
- Conceptual Overview
- Prototype Repo



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