

New integrations and improved visualisation for imaging data published in

(GIGA)ⁿ DB

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Introduction

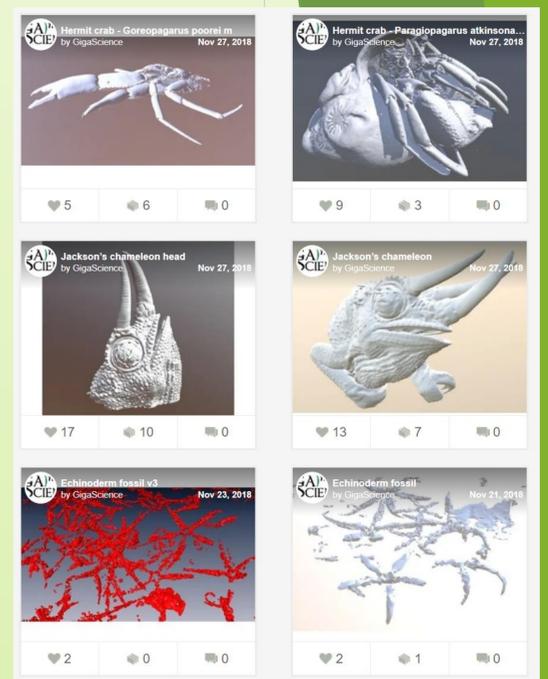
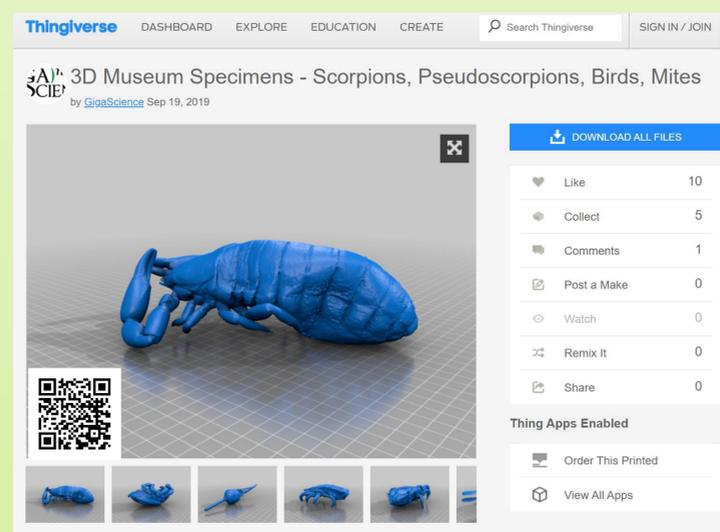
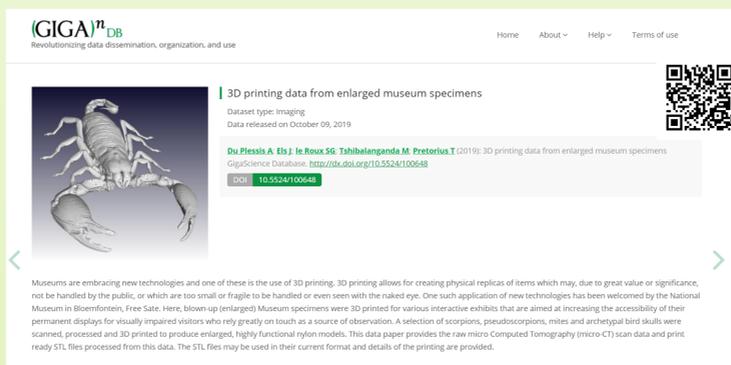
Better visualization of imaging data

GigaDB (<http://Gigadb.org>) is an open data hosting platform integrated with the open science journal, *GigaScience* - both of which implement the FAIR (Findable, Accessible, Interoperable and Reusable) principles. It is a curated database with a focus on data and informatics tool reuse. To foster this, our curators engage with *GigaScience* authors in order to make all the raw and intermediary data, computational tools and data processing pipelines described in the papers available, and where possible, executable on an informatics platform. GigaDB currently hosts over 1,700 datasets from multiple disciplines, such as genomics, proteomics, neuroscience and increasingly more imaging data, such as fMRI and MRI, and 3D X-ray MicroCT images.

3D visualisations are powerful means to explore any specimen in detail. Sketchfab (<http://sketchfab.com>) is the world's largest platform to visualise, share and interact with 3D images. Thingiverse - is a platform dedicated to sharing user-created digital design files, and is commonly used by the Maker & DIY Tech communities. GigaDB has embedded both SketchFab images in associated dataset landing pages and are now also able to embed these in an online version of the published paper.

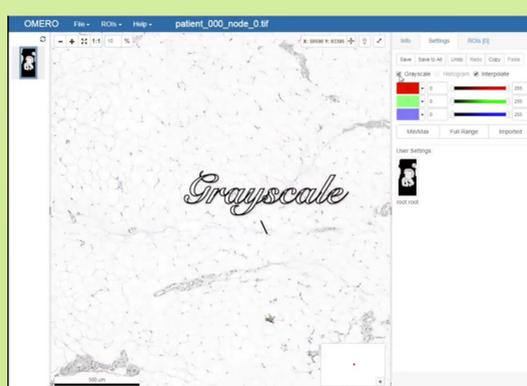
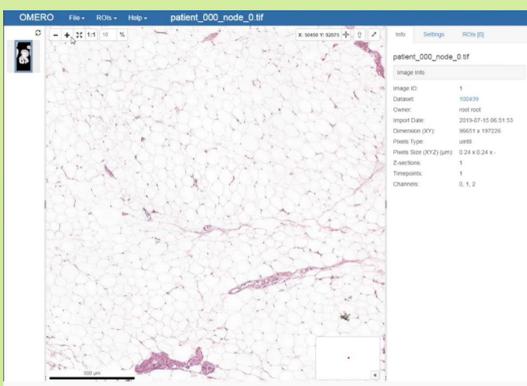
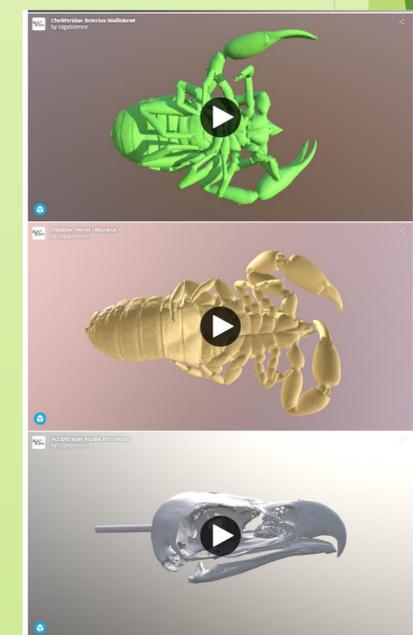


Imaging data can be difficult to analyse and peer review for reproducibility, and the ability to better interact with and visualise such large-scale and high-resolution images in detail is essential. In order to better support this, GigaDB has recently been integrated with two new tools - SketchFab and ThingiVerse. In addition, we are exploring the use of OMERO as a means of providing web-based zoomable views of whole-slide imaging (WSI) data. Here we will describe the new imaging visualisation and interactive tools integrated with GigaDB, with examples, and show how they improve user experiences, and further support imaging data reuse.



The Future

The OMERO zoom viewer allows whole-slide images to be explored at cellular resolution in the context of a web browser, and without need for data download. This example shows a lymph node section from a breast cancer patient and highlights pan-and-zoom functionality, and how to find image resolution. The image resolution is utilised by the scale-bar, which is additionally dependent on the user-specified zoom level. The whole-slide images (WSI) used in this example are available from GigaDB.



View our OMERO movie with this QR Code

Submit your next manuscript containing large-scale data and workflows to *GigaScience* and take full advantage of:

References

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- Litjens G; Bandi P; Bejnordi BE; Geessink O; Balkenhol M; Bult P; Halilovic A; Hermesen M; de Loo RV; Vogels R; Manson Q; Stathonikos N; Baidoshvili A; Diest Pv; Wauters C; Dijk Mv; Laak Jv (2018): Supporting data for "1399 H&E-stained sentinel lymph node sections of breast cancer patients: the CAMELYON dataset" *GigaScience Database*. <http://dx.doi.org/10.5524/100439>

- No space constraints, and unlimited data and workflow hosting in *GigaDB* and *GigaGalaxy*
- Open access, open data, and highly visible work, freely available for distribution
- Data independently indexed and discoverable with rich schema.org metadata
- Inclusion in DOAJ, MEDLINE, PubMed Central, PubMed, Scopus

