

ONE-CLICK SHARING OF 3D DATA USING FPBIOIMAGE FOR VOLUMETRIC VISUALISATION ON THE WEB

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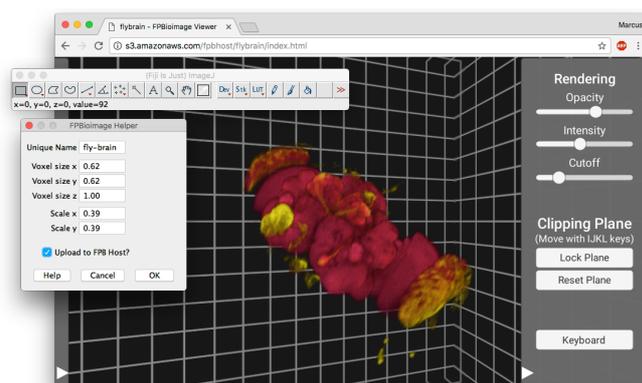
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Modern microscopy techniques, such as light-sheet, structured illumination, and confocal microscopy, generate large volumetric datasets. The rich 3-dimensional data gained can answer biological questions not possible with 2D microscopy, such as confirming a drug is localised within a cell [1], or observing the growth of a *Drosophila* embryo [2]. Sharing these observations had for a long time been restricted to presenting videos of 3D rotations or fly-throughs of 3D data.

We recently released FPBioimage [3], allowing anyone interactive access to the data from a web browser. Researchers can now share their data to anywhere in the world, and enhance their publications by allowing others to explore the full volumetric dataset themselves. The initial release of FPBioimage provides advanced rendering features including transparency and cutting planes, accessible through an intuitive user interface requiring no training for those viewing the data. We noted, however, that many researchers acquiring volumetric data were uncomfortable either preparing it for FPBioimage, or subsequently uploading it to an appropriate online location for sharing. With this in mind, we would now like to present FPBioimage-Helper to the community.

FPBioimage-Helper is a plugin for imageJ/FIJI and Icy, providing one-click preparation and upload of volumetric imaging data. Sharing volumetric image data is now just as easy as viewing the data in FPBioimage, promoting open access to data, and easy collaboration. If the upload option is checked, data are uploaded to the dedicated AWS repository 'FPB Host', creating a permanent link to the data. Furthermore, the close integration of FPBioimage-Helper with FPBioimage has allowed for optimisations which reduce file size and loading time by ~30% over previous implementations.

This talk will show how FPBioimage can be used as part of a best-practice approach to publishing volumetric data alongside a publication. We encourage attendees of Focus on Microscopy to bring any volumetric data along to the talk on a memory stick, to have it shared online in seconds.



[1] M. Teplensky, M. Fantham, et al. "Temperature Treatment of Highly Porous Zirconium-Containing Metal-Organic Frameworks Extends Drug Delivery Release." *Journal of the American Chemical Society* (2017).

[2] R. Tomer, et al. "Quantitative high-speed imaging of entire developing embryos with simultaneous multiview light-sheet microscopy." *Nature methods* **9.7** (2012).

[3] M. Fantham and C. F. Kaminski. "A new online tool for visualization of volumetric data." *Nature Photonics* **11.2** (2017).