

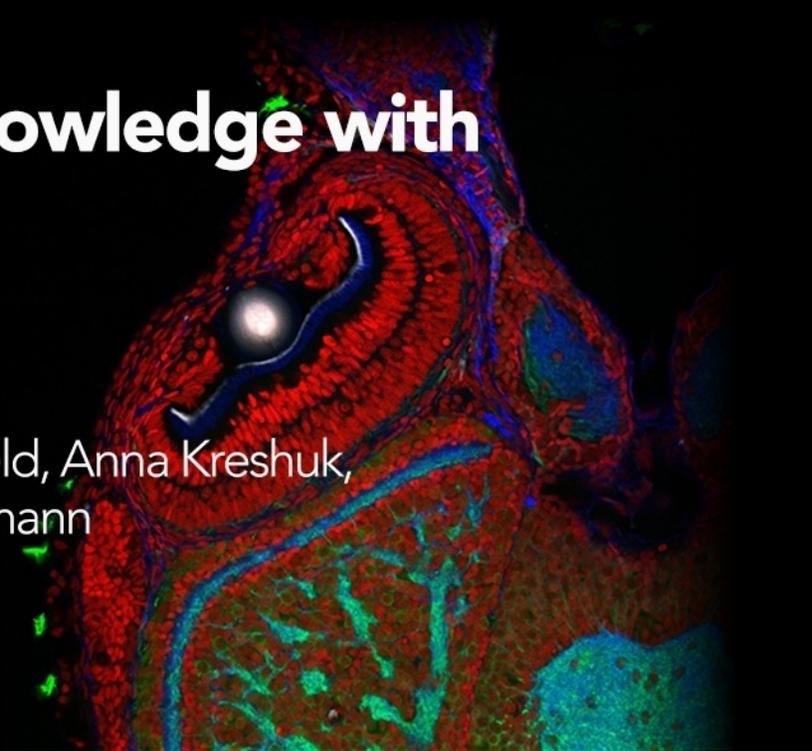
From Images to Knowledge with ImageJ & Friends

virtual conference

Nov 30 - Dec 2, 2020

Stephan Preibisch, Stephan Saalfeld, Anna Kreshuk,
Pavel Tomancak and Virginie Uhlmann

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Conferences



PyImageJ: Combining ImageJ and Fiji with tools in the Python ecosystem

Tutors: Curtis Rueden (ctrueden.wisc@gmail.com)

Session 1: 2020-12-01 22:00 UTC – 2020-12-02 02:00 UTC

Session 2: 2020-12-02 15:00 UTC – 2020-12-02 19:00 UTC

Information about the tutor[s]

<https://imagej.net/User:Rueden>

Title and abstract of the tutorial

PyImageJ: Combining ImageJ and Fiji with tools in the Python ecosystem

This workshop will illustrate how to harness the power of ImageJ and Fiji from Python using the new version of PyImageJ. Material will include:

- Shared access to images between ImageJ/ImgLib2/Java and NumPy/xarray/Python, without copying pixels.
- Mixing and matching of image processing routines from ImageJ (ImageJ1 plugins, ImageJ2 Ops, ImageJ macros and scripts) with Python-side image processing (e.g. scikit-image, ITK, OpenCV).
- Utilizing the new napari image viewer with image data loaded from Java e.g. via SCIFIO and Bio-Formats.
- Tips and tricks to avoid pitfalls
- Some brief discussion of future directions and community requirements gathering

The workshop will be structured as a guided walkthrough of a series of Jupyter notebooks, so that students may easily run and change live code on their own machines, or on the cloud via Binder. No experience is necessary in ImageJ/Fiji nor Python programming—although the workshop will be most of interest to people familiar with at least one of the two paradigms. To get the most out of the workshop, bring your own Fiji installation, your own image data, and your own ImageJ and/or Python image analysis scripts.

A rough outline how the tutorial will be organized including technical requirements

I will walk people through usage of PyImageJ, starting with ways to install it, followed by notebooks covering the topics above.

Tools students should have installed prior to the workshop:

- Fiji (<https://fiji.sc/#download>)
- Python 3 (<https://www.python.org/downloads/>)
- Encouraged but not required: Conda (<https://docs.conda.io/en/latest/miniconda.html>)

For reference, here are the PyImageJ materials from I2K-2018: <https://github.com/imagej/i2k-2018>. I will of course push a new repository at <https://github.com/imagej/i2k-2020> as the materials develop.

We are rebuilding the Java/Python linkage using jpyype (was previously pyjnius), which offers some exciting new possibilities on the horizon. For the curious, there is technical discussion on GitHub (<https://github.com/scijava/scyjava/issues/18>). It is largely working, with releases expected in the next couple of weeks.