



Java Image Processing Pipeline (JIPipe, <https://www.jipipe.org/>) [1] is a plugin for ImageJ [2] that allows to create image processing pipelines without a script language. Instead users only have to design a flow-chart by connecting processing steps (nodes) to each other in a visual programming language.

- ✔ 1000+ commonly used functions from ImageJ and popular plugins
- ✔ Intuitive and modern user interface
- ✔ Powerful annotation system for tracking metadata
- ✔ Standardized and automated output to hard drive

Image analysis powered by ImageJ

JIPipe integrates plenty of image analysis functions from ImageJ, such as image import, thresholding, contrast enhancement, edge detection, or extracting measurements. Additionally, we provided support for popular plugins including ...

- ✔ Bio-Formats
- ✔ OMERO
- ✔ MorphoLibJ
- ✔ FeatureJ
- ✔ Multi-Template-Matching
- ✔ Trainable Weka segmentation
- ✔ Soon: Trackmate
- ✔ Soon: Coloc2

To allow even greater flexibility, users can utilize ImageJ macro, Python, and R script nodes to write or re-use custom code inside the JIPipe environment.

GPU processing and deep learning

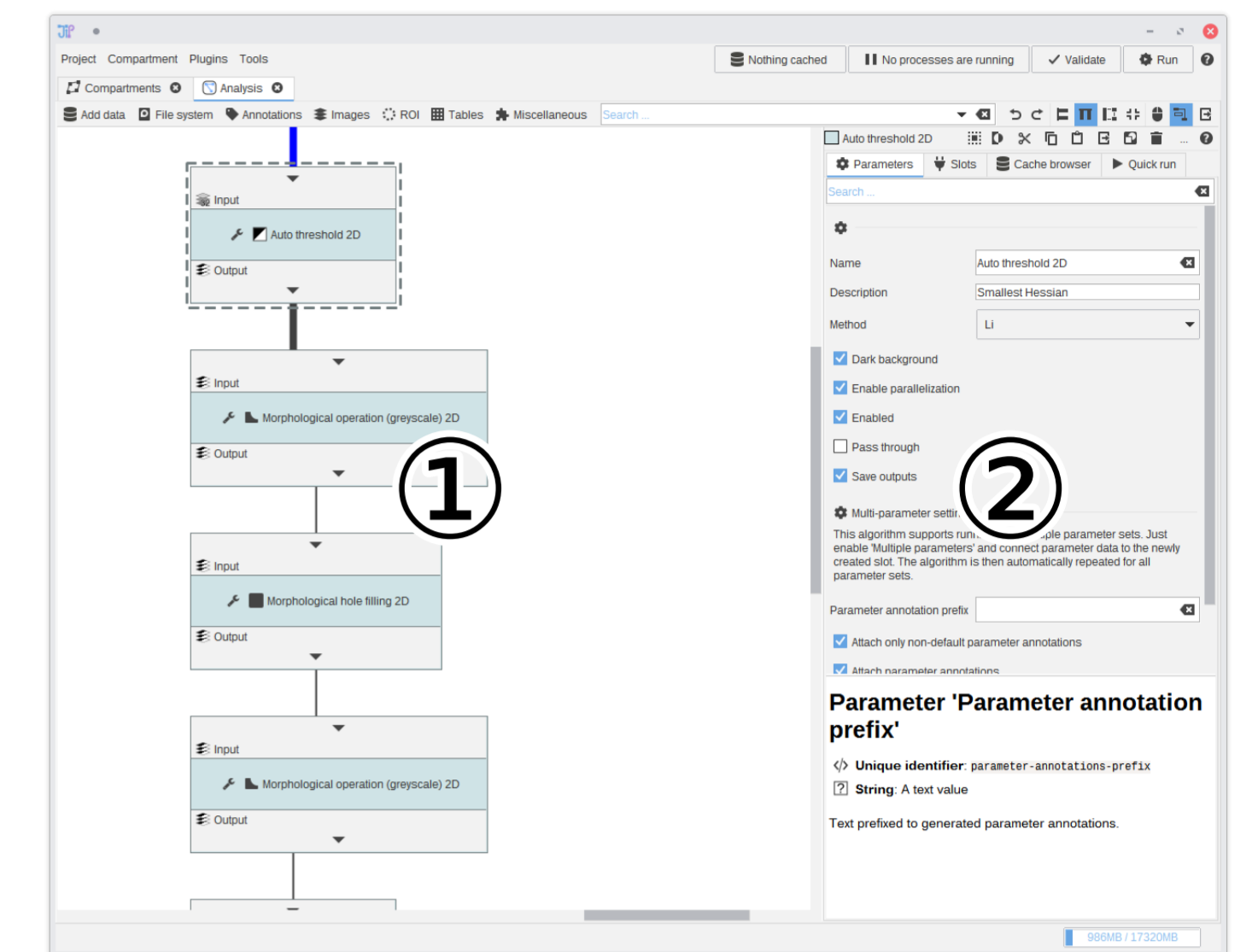
JIPipe allows easy utilization of state-of-the-art image analysis algorithms via its automated data management capabilities. The current version includes the functions provided by the powerful CLIJ2 [3] library, as well as the powerful deep learning platform Cellpose [4].

- ✔ CLIJ2 algorithms for GPU-accelerated image processing
- ✔ Deep learning via Cellpose
- ✔ Soon: Omnipose support
- ✔ Soon: Tensorflow integration

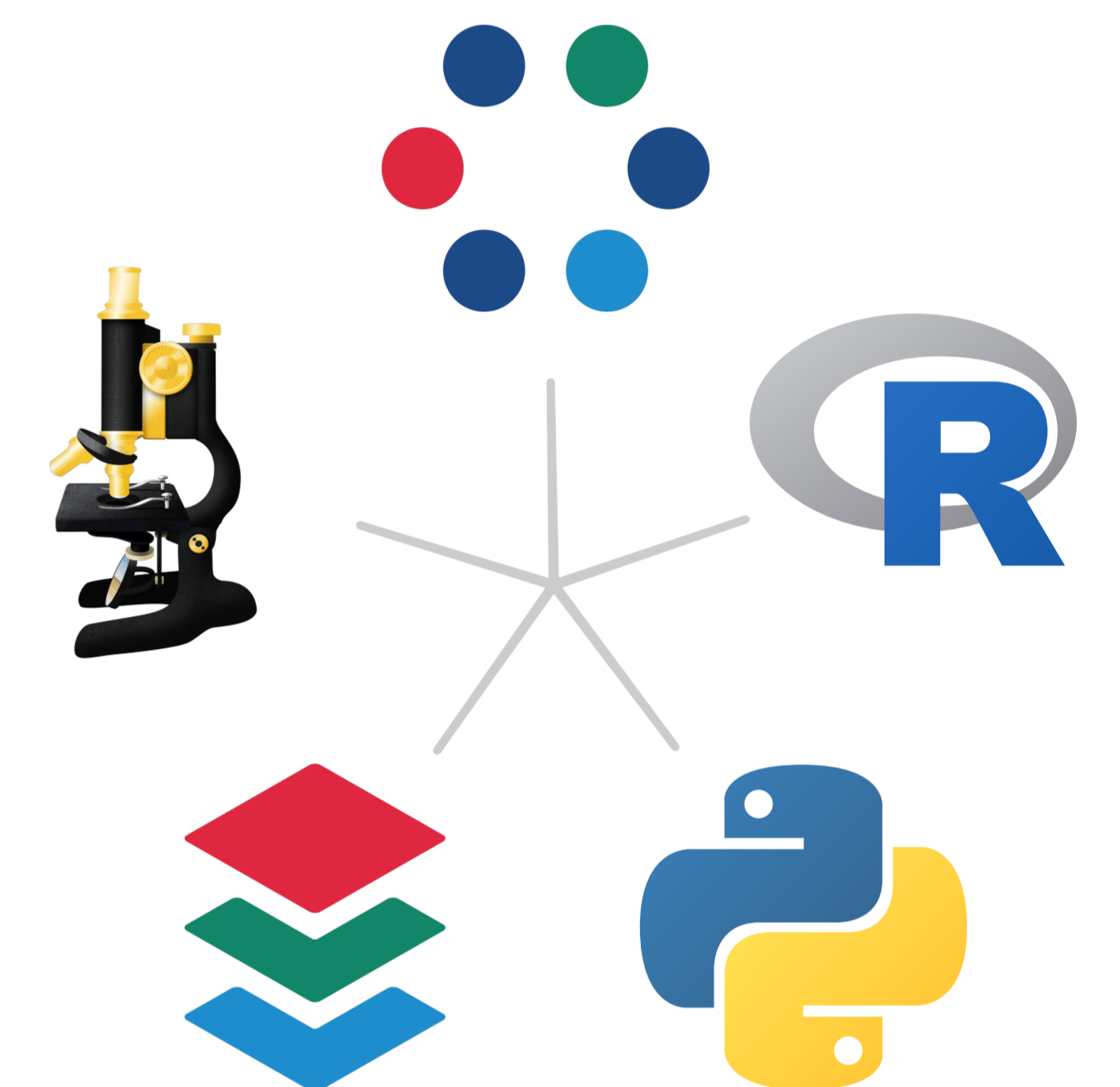
Additional features via plugins

JIPipe already provides many features, including nodes for table processing, plotting, sorting and distributing data, user interaction during the pipeline, and more.

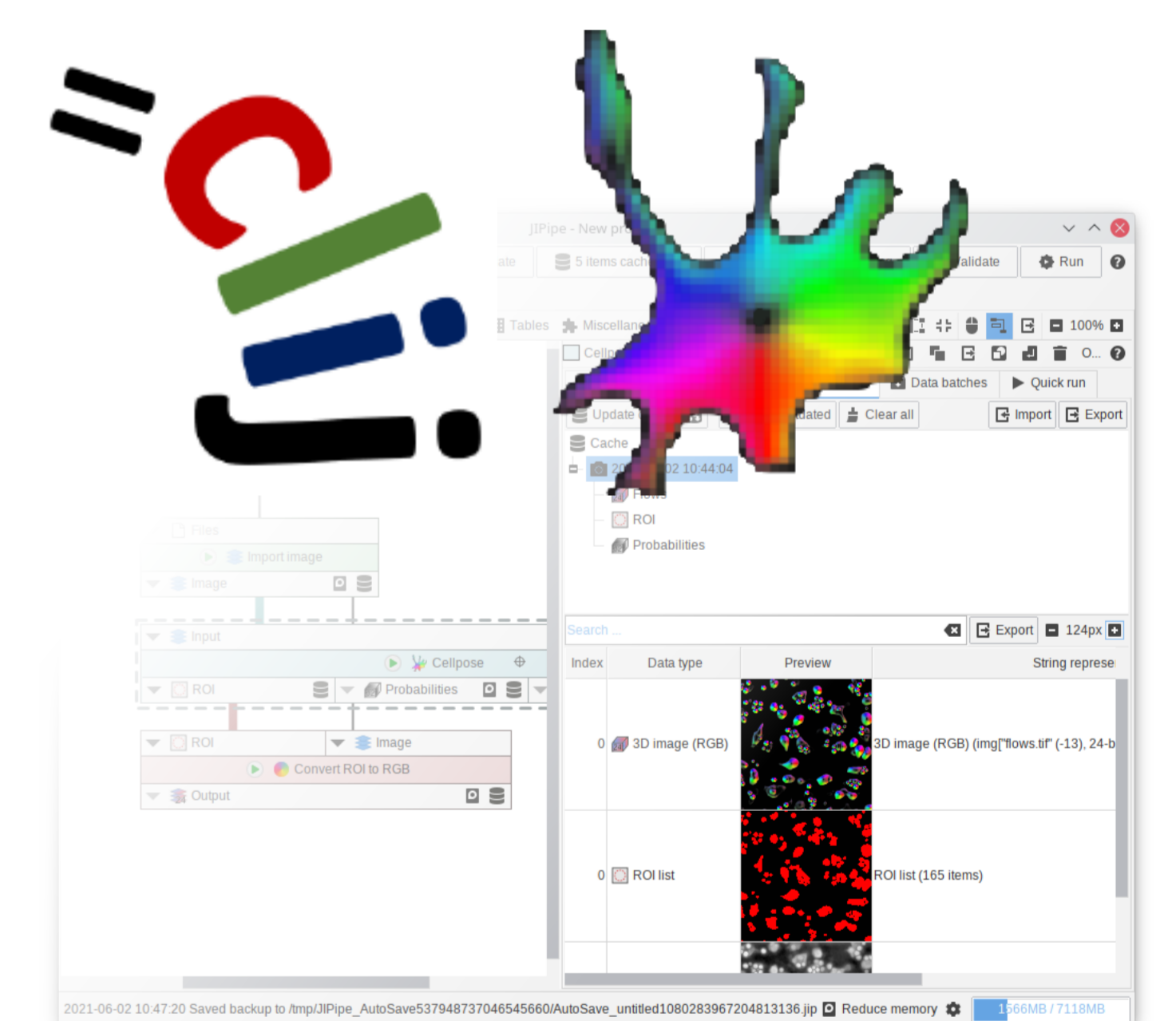
Additional features can be easily developed in Java as ImageJ plugin, or created within a GUI tool that allows anyone to create new nodes. These are also automatically available from inside ImageJ, as JIPipe exports all its functions to ImageJ.



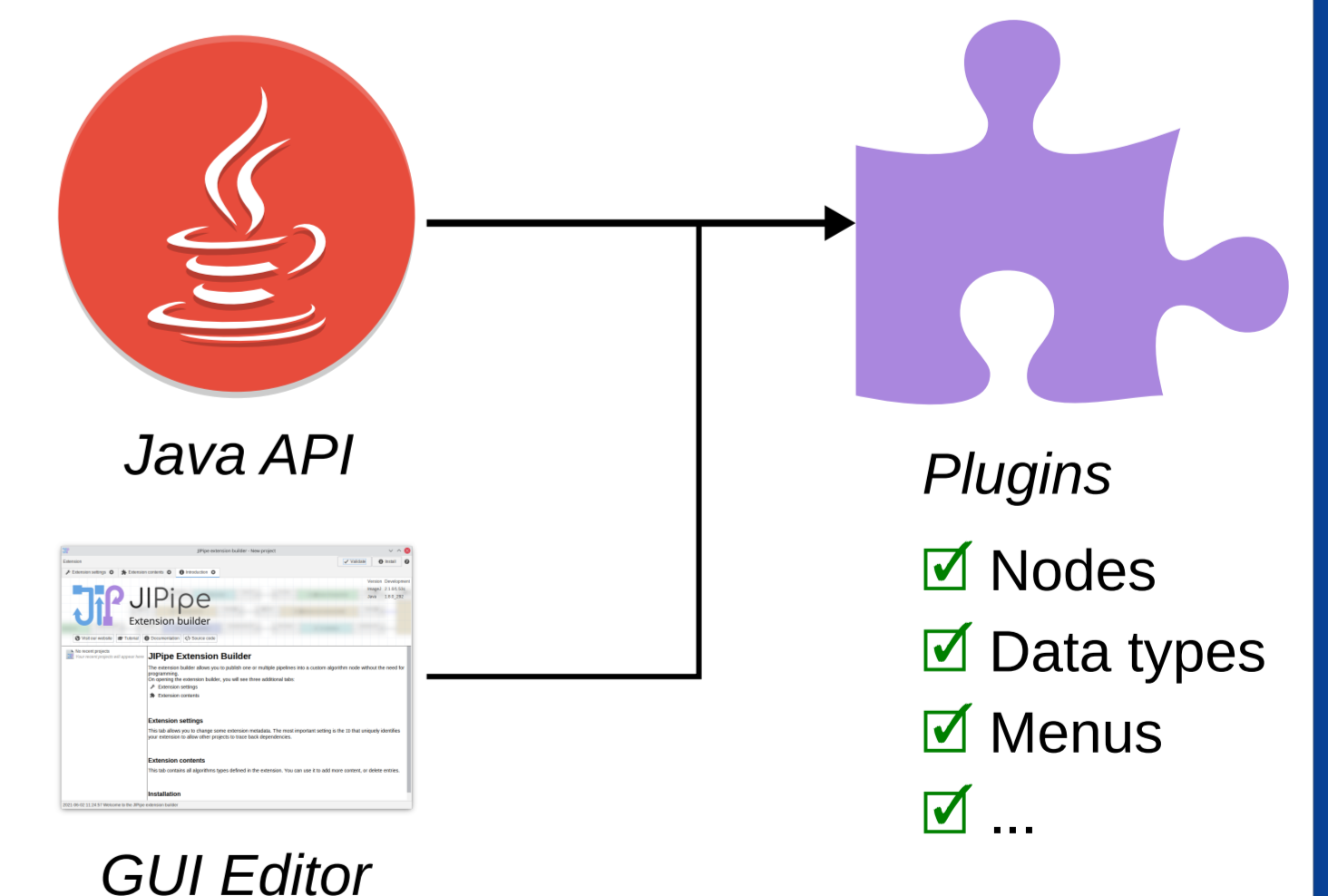
JIPipe comes with its own graphical user interface that allows easy access to all functions. ① The graph editor to build the flow chart ② All settings are shown on the right-hand side



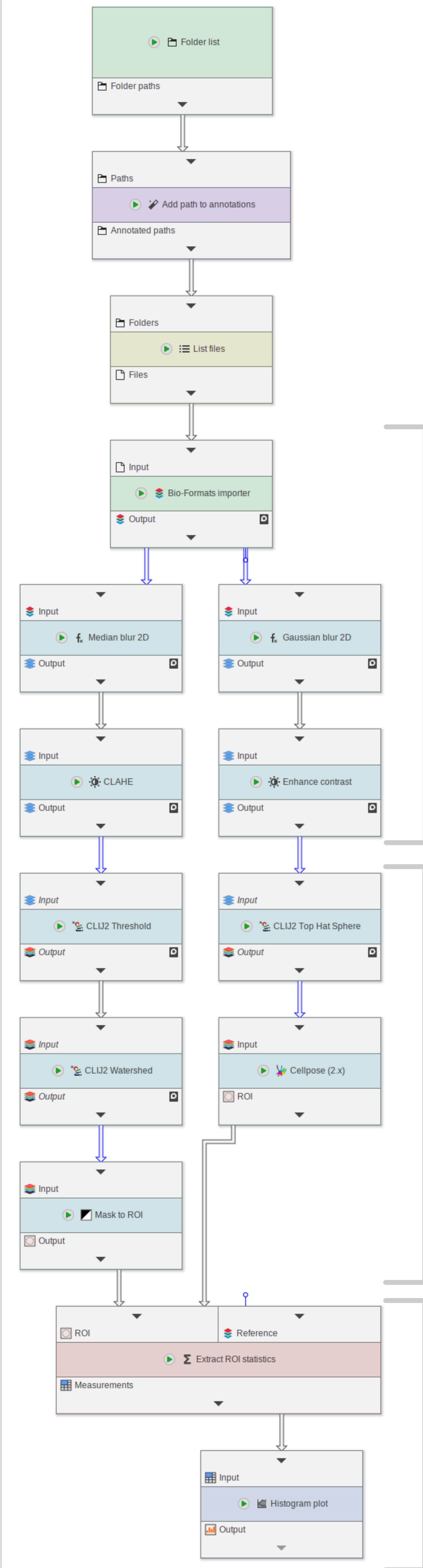
JIPipe already integrates many popular software tools like ImageJ and Python into one easy-to-use environment.



JIPipe comes pre-packaged with support for GPU and Deep Learning tools like CLIJ and Cellpose.



JIPipe can be easily extended with plugins.



References

- [1] Gerst et al. 2022. Research Square. PREPRINT rs.3.rs-1641739/v1
- [2] Rueden et al. 2017. BMC Bioinformatics. 18(1): 1-26.
- [3] Haase et al. 2020. Nat Methods. 17(1): 5-6.
- [4] Stringer et al. 2021. Nat Methods. 18(1): 100-106.