KNIME Image Processing

What’s new?

Christian Dietz, Martin Horn
University of Konstanz
{christian.dietz, martin.horn}@uni-konstanz.de
KNIME Image Processing 2013

- ImageJ1
- ImageJ2
- OMERO
- VTK
What’s new 2014?

KNIME Image Processing 1.1.2

- SUISE
- Tess4J
- ImageJ1
- ImageJ2
- ImageJ3D Viewer
- VTK
- Tracking
- OMERO
ImageJ 3D Viewer Integration

Overview
• ImageJ3D Viewer (http://3dviewer.neurofly.de)
• Visualization of 3 to 5 dimensional images

Future Work
• Display of labelings and overlays

http://tech.knime.org/imagej-3d-viewer
Tracking with TrackMate

Overview

• Integration of TrackMate ([http://fiji.sc/TrackMate](http://fiji.sc/TrackMate))
• Allows tracking of objects in KNIME

Future Work

• Better visualization of tracks
• Calculation of tracking features
Tess4J Integration

Overview
• Optical Character Recognition
• Java Wrapper of Tesseract OCR

Future Work
• Mac Support

ImageJ2 Integration

ImageJ2 (University of Wisconsin)

- Next-generation version of ImageJ
- Complete re-design of ImageJ while maintaining backwards compatibility
- Based on ImgLib2

http://tech.knime.org/community/community/imagej
ImageJ2: Current Status

ImageJ2 in KNIME

- Automatic KNIME Node generation of IJ2 Plugins
- Add own ImageJ2 Plugins via installer
- Currently in BETA
ImageJ2: Work in Progress

KNIME in ImageJ2

• Run Workflows as ImageJ2 Plugins (headless)
• Record Workflows in ImageJ2

ImageJ2 in KNIME

• Use your IJ2-Update Site in KNIME
ImageJ2 Integration

Ultimate Goal: Full Bi-directional Integration
Supervised Image Segmentation (SUISE)
(experimental)
New Nodes

Maximum Finder
Labeling Filter
CLAHE (contrast enhancement)
Thinning
Compare Segments
Ultrametric Contour Maps
Trackmate based LAPTracker
DataRow to Image
...

...
Future Work

**KNIME Image Processing 1.2.0**

- New Image Writer Node
- Reimplementation of Descriptors / Features
- Better support of color tables
- Support for huge images (>memory capacity)

**Collaborations with IJ2/FIJI**

- Common Algorithm, Operations, Plugin, Descriptors and Repository (Hackathon 2014 in Konstanz)
Website

- Update Site
- Installation Details, News, Wiki, GitHub
- Forum
- Contact Information
- Example Workflows/Tutorials

http://tech.knime.org/community/community/image-processing
Thank you...