JupyterIDE

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Promoting JupyterLab features and extensions that facilitate collaboration among researchers and RSEs

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BACKGROUND

Research software engineers exist on a continuum of different backgrounds and skill sets, often using different tools and approaches for programming. Preferred development platforms each have their own advantages which cater to various users, but when programmers collaborate closely it can be beneficial to use a shared platform to encourage the shared use of shared practices. JupyterLab, an extensible platform, is capable of supporting a wide variety of development approaches and practices. We propose JupyterLab as an ideal platform for collaboration among programmers that prefer platforms ranging from Jupyter Notebooks to more traditional IDEs. We introduce JupyterIDE, a set of tutorials to assist interdisciplinary teams in converging on a set of shared best practices centered around JupyterLab.

File Edit View Run Kernel Tabs Settings

Current Repository

Tags

New Branch

History

jupyterlab-ide

Current Branch

main

Branches

thresholding

Changes

Staged

test.ipynb

Changed

Untracked

sensitiveData

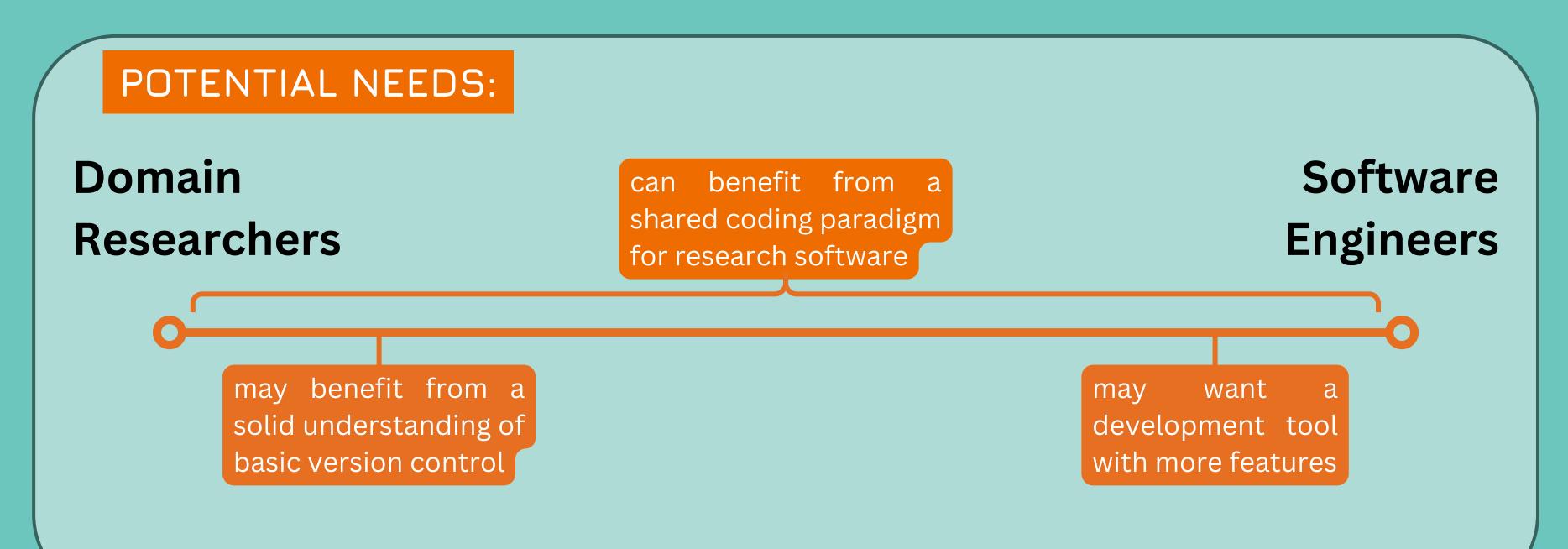
Description

Summary (required)

preProcessingInterface

Filter

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SOLUTION

JupyterIDE provides short modules explaining core software development practices, like Git version control, implemented in JupyterLab. For individuals who want more features in JupyterLab, there are independent modules explaining other features available through curated extensions for JupyterLab. Lastly, there is a short primer on the intersection of iterative and literate programming approaches that is designed with research contexts in mind.

These libraries are useful standards for image processing in python, so we import them here for use during our dashboarding.

import cv2 import PIL import numpy as np

test.ipynb

Now we will import a test image from our data folder. In this case, we will use an image which is not too far from our other manuscripts. The page will not have are the blemishes, just to see if we can get a standard present some see going. We will also convert it to a numpy array ethods.

("path/to/file wellspelt_var = cv2.imr /(misspelt_var) wellspelt_array = np.ar

With this image, we will try a co le different 'ker different convolutions we will be tasks like edge extraction, binarization number of different boundary conditions to see if we end up served better with one of them or another. First, we will use the cv2 library for edge extraction. You can see below some of the different methods already built into the library for this sort of purpose.

(O)

Diagnostics Panel

Cell Code Severity -Line Message Source pyflakes undefined name 'misspelt_var' Error Name 'misspelt_var' is not d... mypy Error PIL imported but unused pyflakes Warning

jupyterlab-lsp

Literate and iterative

programming, used

documentation for

dashboarding that can

be replicated afterwards

together, create

This **extension** allows users to use language server including processing, autocompletion, code linting, and diagnostics.

JUPYTER-IDE [ALSO] HAS:

Commit

Domain Researchers

a short primer and example of literate programming for research contexts

Software Engineers

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Foundation (NSF) under Grant No. 2154495 Any opinions, findings, and conclusions or

Follow the link to access the GitHub repository and give it a

REPO

a self-paced tutorial on the Git extension and version control

a curated list of extensions with tutorials giving users access to featurs like language server processing