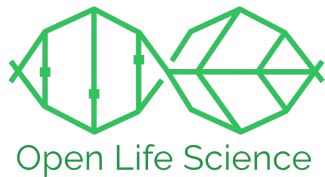


# Improving Documentation for Agricultural Research Software

Team Members: Kristina Riemer, Emily Cain, David LeBauer



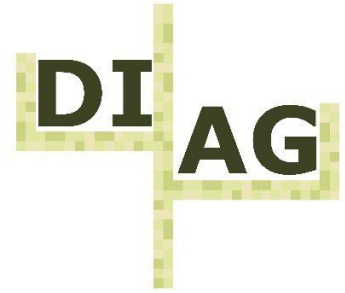
# Digital Agriculture Group

We develop software and enable data intensive agriculture research

Goals:

- make software and data more accessible
- enable contributors

OLS Focus: Drone Processing Pipeline



@DigitalAgGroup



<https://osf.io/xdkcy/>

# Initial Open Science Goals

- **Improve documentation to:**
  - Increase use of research software
  - Identify user needs
  - Engage with and encourage contributors

# Getting User Feedback

## Helpful:

- Feedback & communication
  - In person
  - Slack
- Availability of mentor / experienced user

## Barriers:

- Technical skills
- Data management

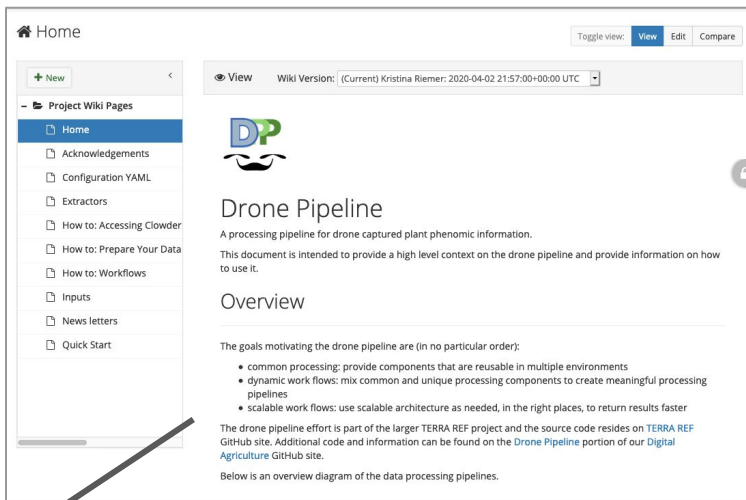
## Future:

- More advanced users with data
- Possible developers
- Pipeline & documentation needs to be more automated and user-friendly, but how?

# OLS Outcomes

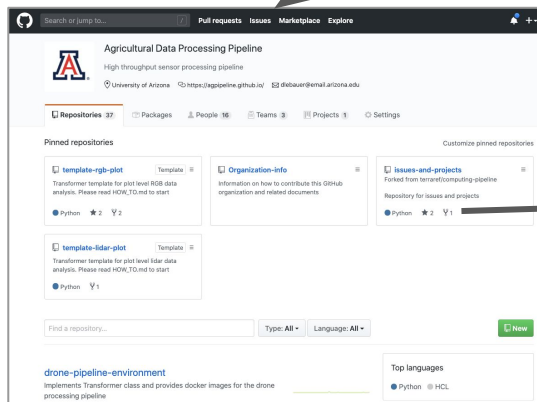
## Main website:

- Personas
- Tools list



## GitHub:

- Code
- Community health files



AgPipeline.github.io

### Agriculture Processing Pipeline Documentation

This documentation covers technical information on setting up, configuring, and running the pipeline. This includes information on creating new transformers that are not templates.

Additional information on our Data Science group can be found on our [University of Arizona site](#) and on [OSF](#).

Each template transformer has a `HOW_TO.md` document that provides details on how to use the that template. Links to technical and HOW TO documentation are provided in the section below. Note that not all transformers will have HOW TO documentation, only the template ones.

The term 'transformer' refers to an algorithm that takes source data files and performs an action on the data. These actions can be transforming the source data, or calculating one or more values from it. Transformers can work with RGB, LAS, hyper-spectral, and other data types.

To assist in the development of transformers, `template` transformers are provided with the intent of lightening the development load of implementing new algorithms. Template transformer's repository names start with `template`. Each template transformer has a `HOW_TO.md` document that provides details on how to use the that template. Links to technical and HOW TO documentation are provided in the section below. Note that not all transformers will have HOW TO documentation, only the template ones.

If you are finding problems with the documentation, or have requests or ideas on how to improve the documentation, please create an [issue](#) so that we can work on it.

#### Documentation links

##### Transformers

Before reading about specific transformers, it is helpful to be familiar with the [conceptual basis](#) for these transformers. Specifically [Environmental](#) and [Algorithm](#) concepts.

Transformer name	Technical link	How To link	Comments
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## Technical documentation

# Accomplishments

- Identified audience: users and contributors
- Improved website, documentation from their perspective
- Added community health files, personas
- Built relationships and understanding within our team

## Challenges

- Inertia
- Organizing materials intuitively
- Choosing project to improve

## Next steps

- Add personas and tools to main website
- Have new users “test” pipeline documentation

Next level of open science is building  
open, inclusive, and welcoming  
communities



# Acknowledgements

- Pipeline developers Chris Schnauffer & Julian Pistorius
  - Mentor Katrin Leinweber
- OLS leaders Yo, Malvika, and Bérénice
  - Everyone in cohort 1!
  - All of the amazing speakers

# Open Canvas

project : Increasing Ag Pipeline Usability  
(through documentation & software)

Project Execution	<b>Problem</b>  Overall: ag researchers need flexible, scalable, open software to process sensing data; need to be able to add new algorithms; need to be able to use the data that it generates  OLS-specific: identifying, engaging with, and getting contributions from potential users of the AgPipeline and the data it generates	<b>Solution</b>  Overall: AgPipeline including: templates + workflow + databases & APIs  OLS: Improve documentation of datasets and software so they are useful to others and encourage contributions	<b>Unique Value Proposition</b>  We are developing and maintaining a pipeline for processing agricultural data that doesn't already exist, which should be able to be used by many researchers to accelerate research in this domain and will be extended to others. Our software and data is open, automated, scalable, extensible. We facilitate best practices in software development and data curation.	
		<b>Key Metrics</b>  - feedback from 2 contributors + Chris - 5 contributions to AgPipeline from outside of our group by July 1 - 2 new tutorials for data access - clear landing page for all agpipeline related stuff	<b>User Profiles</b> Target audience and early adopters  - Early adopters = researchers working "on the fringes" of some of these projects already - Target audience = ag researchers already working with HTP & image data - IT staff who deploy pipeline at their own institution	<b>User Channels</b>  1. Funded projects that we are collaborating on 2. Landing page, twitter, youtube tutorials 3. Conferences, workshops, etc
	<b>Resources Required</b>  - Guides for documentation best practices - People hours to improve our documentation to those standards (requires people with technical experience) - guidance and feedback - from Chris and Julian and other devs - from end users (e.g. Michele, Emmanuel, Sateesh, ...) - Github, Zenhub, Slack, CyVerse, OSF - High Performance Computing - Servers for Databases, APIs	<b>Contributor Profiles</b> Contribution types and ideal contributors  - Algorithm contributors - scientists / engineers who want to analyze their data - Core software development Contributions = improvements to our documentation that reduce pain points and make products easier to use	<b>Contributor Channels</b>  1. Funded projects that we are collaborating on 2. Interested collaborators at conferences e.g. Phenome, SPIE 3. People we are proposing to work with 4. GitHub	
	Product		Community	

See next slide for instructions!