

# Open Project Management

from an “open” perspective

## UNIT 3

Instructor: Dr. Bradly Alicea

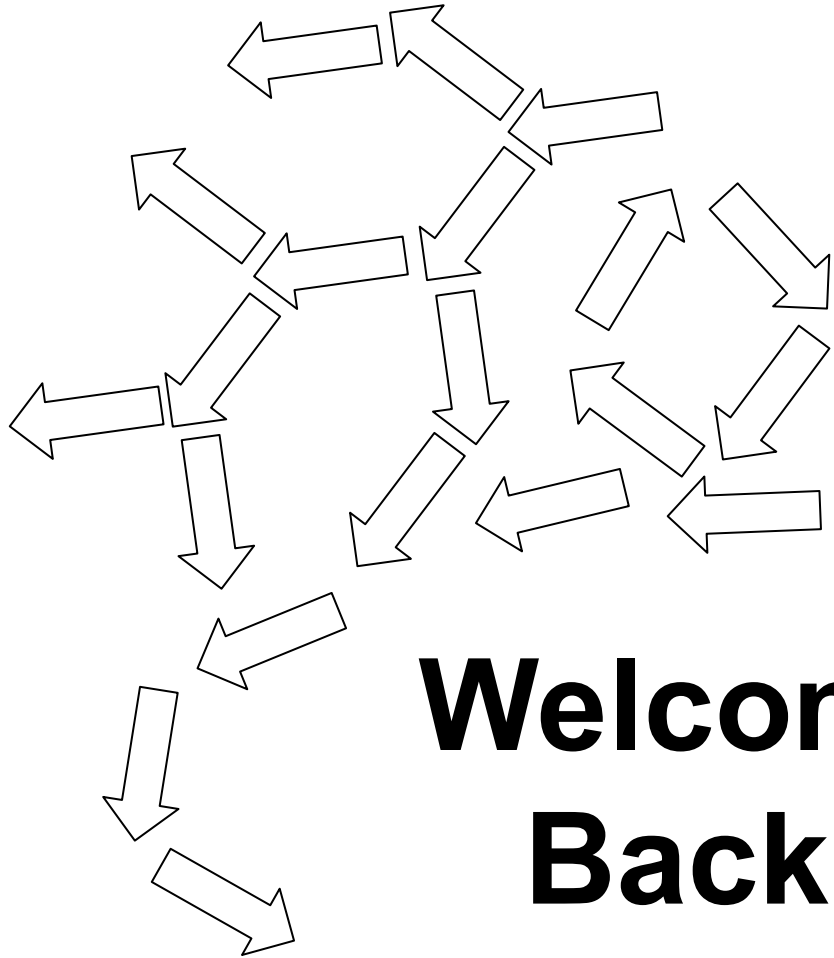
<http://bradly-alicea.weebly.com>



IS 340: Spring 2023

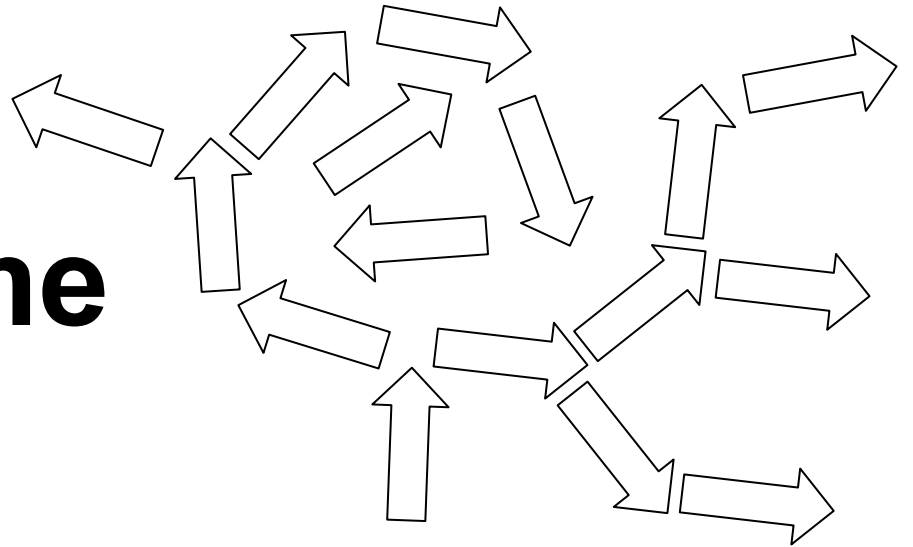
All content





**Welcome  
Back!**

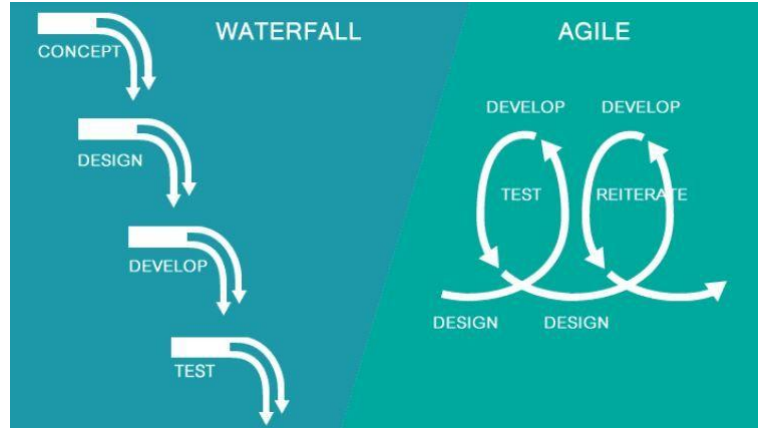
**Open Project  
Management**



# Documentation as a form of Community Organization



# Before documentation, let's back up and talk about Agile methods



Agile designs for ultimate flexibility and speed (e.g. move fast and break things).

- break down every task into its smallest units.
- getting things done fast, giving frequent updates, and changing direction on demand.

Agile >> Scrum >> Standups: <https://www.atlassian.com/agile/scrum/standups>

1970

2000

2020s

Agile Manifesto: <http://agilemanifesto.org/>

## Waterfall

Much documentation needed up front, development happened after docs are in place.

## Agile

Break problems into digestible components, documentation is secondary.

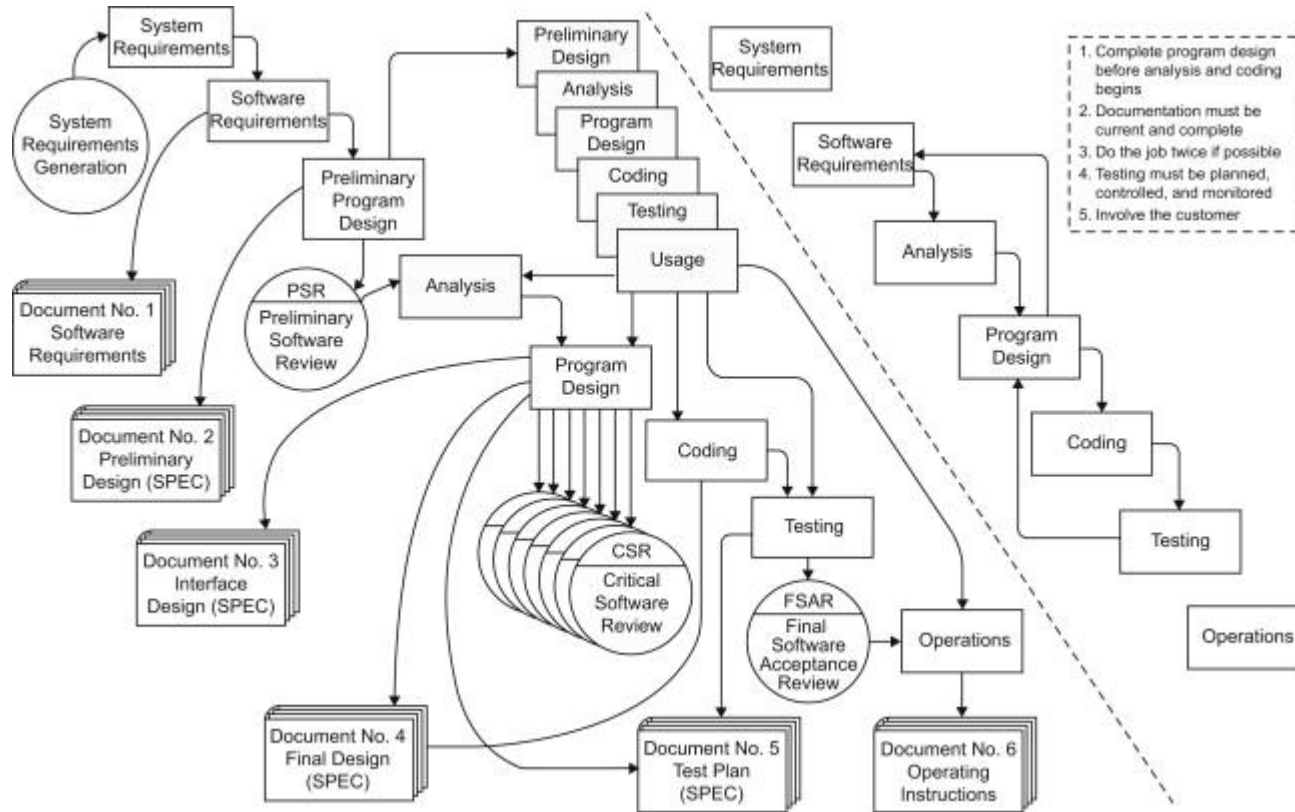
Lean documentation: communication replaces reliance of documentation

<http://agilemodeling.com/essays/agileDocumentation.htm>

  
**Better Technical Methods**

**Infoworld: A Brief History of the Agile Method**

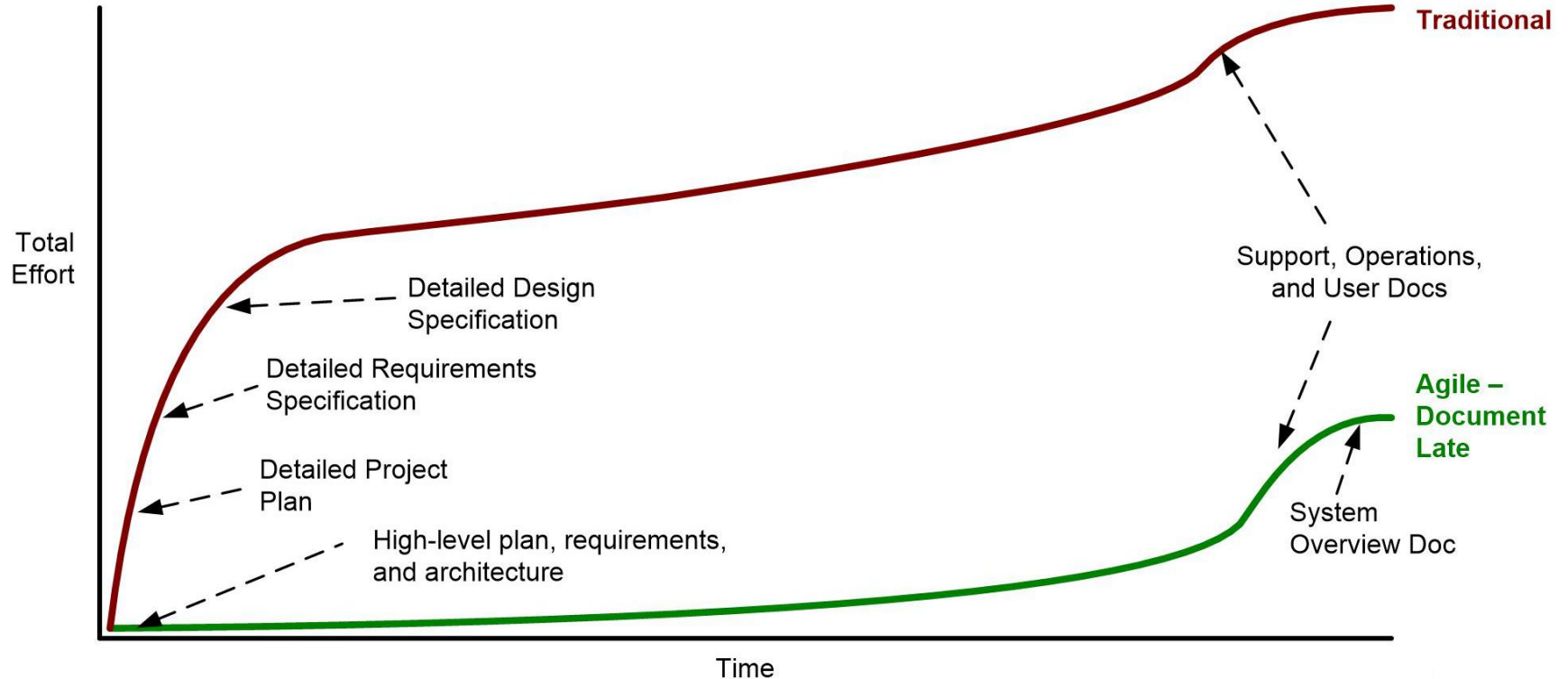
<https://www.infoworld.com/article/3655646/a-brief-history-of-the-agile-methodology.html>



**Waterfall Approach:** documents specify parts (6x), top-down documentation (controlled versioning and complete before development).

# Core Practices for Agile/Lean Documentation

<http://agilemodeling.com/essays/agileDocumentationBestPractices.htm>



# Core Practices for Agile/Lean Documentation (con't)

<http://agilemodeling.com/essays/agileDocumentationBestPractices.htm>

Keep documentation just simple enough, but not too simple.

Write the fewest documents with least overlap.

Put the information in the most appropriate place.

Display information publicly.



# Core Practices for Agile/Lean Documentation (con't)

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Keep documentation just simple enough, but not too simple.

Write the fewest documents with least overlap.

Put the information in the most appropriate place.

Display information publicly.

Iterate, iterate, iterate.

Find better ways to communicate.

Start with models you actually keep current.

Update only when it hurts.

**Now let's discuss the different types of documentation useful to your community or organization**

# Readings

## **The Anatomy of a Great Open Source Documentation: How to Document Your Projects on GitHub**

<https://dzone.com/articles/the-anatomy-of-a-great-open-source-documentation-h>

## **Building great open source documentation**

<https://opensource.googleblog.com/2018/10/building-great-open-source-documentation.html>

## **5 tips for making documentation a priority in open source projects**

<https://opensource.com/article/20/8/documentation-open-source-projects>

## **What I've learned about open source project management: milestones (Tom McFarlin blog)**

<https://tommcfarlin.com/open-source-project-management-milestones/>

# **“5 Tips for Making Documentation” Recommendations**

Value contributions to documentation just as much as code contributions.

Put documentation and code in the same project repo.

Make documentation a requirement for a merge or release milestone.

Have a consistent contribution process for code and documentation.

Have well-documented processes for contributing to documentation.

# Types of Documents

The README File  
(showcase)

Why Would I Use It?  
FAQ

How do I Install This  
Project and Use Its  
Code?

The Reference File  
(technical details)

What are Its Functions and  
What Do They Do? FAQ

The Guide File  
(takes used by the hand)

The Cookbook File  
(how-tos and instructions for  
specific tasks)

The Blog Post  
(answers to why questions)

# Documentation Practice

## DevoWorm Suggested Community Standards

Figure and graph creation for publications [.md file](#)

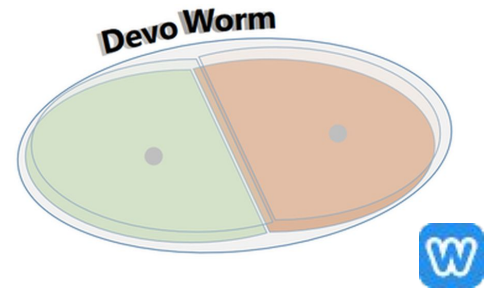
How to use Jupyter notebooks [.md file](#)

Instructions for Video Extraction [.md file](#)

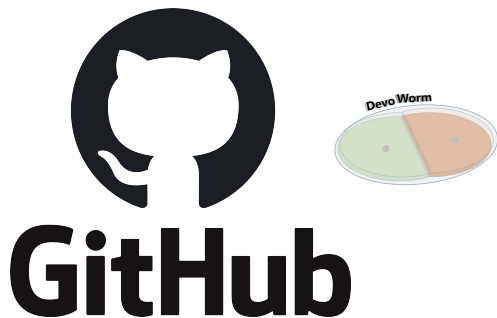
Instructions for Composing Live Video Streams [.md file](#)

Verification steps for creating open datasets [.md file](#)

Basic *C. elegans* biology [.md file](#)



# Documentation (con't)



63 lines (54 sloc) | 7.55 KB

## DevoWorm

The DevoWorm group website is located at [devoworm.weebly.com](http://devoworm.weebly.com). The website features links to educational, academic, media-related and collaborative opportunities associated with the project. The DevoZoo is located at [devoworm.github.io](http://devoworm.github.io), and features content relevant to community education and engagement. DevoWorm is affiliated with the [OpenWorm Foundation](#) and the [Orthogonal Research Laboratory](#). We engage in Open Science, an encourage the use of Jupyter Notebooks, short video descriptions of research, and demos.

## Roadmap

DevoWorm is currently divided into three loosely-knit interest areas: developmental dynamics, cybernetics and digital morphogenesis, and reproduction and developmental plasticity. While our main interest is in the nematode *Caenorhabditis elegans*, we are also interested in cross-species comparative work. We also have three additional types of initiative which cross-cut the interest areas: theory-building, education, and open science. These initiatives are infused into our interest areas.

**Developmental Dynamics** currently involves using secondary data collected from embryos along with bioinformatic and data science techniques to answer questions regarding the process of early embryogenesis and the timing of later morphogenesis. To address these problems, we have used number of innovative approaches.

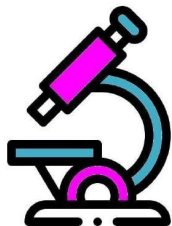
**Cybernetics and Digital Morphogenesis** has involved using platforms such as Morphozoic and theoretical approaches such as Multicell Systems and Braltenberg Vehicles to better understand physical interactions during embryogenesis and morphogenesis. We have also explored the use of cybernetic models and concepts to better understand the general process of embryogenesis.

**Reproduction and Developmental Plasticity** involves utilizing an evo-devo approach to understand *Caenorhabditis elegans* more generally. Our existing datasets and papers include a focus on larval development and life-history processes. This area of the project also features primary empirical data, based on formal experimental design.

Objective	Examples
Developmental Dynamics (DD)	
DD	<a href="#">Comparative Quantitative Embryogenesis</a>
DD	<a href="#">Differentiation Trees and Maps</a>
DD	<a href="#">Embryo Networks and Developmental Connectomes</a>

<https://github.com/devoworm/README/blob/master/DevoWorm-overview.md>

# Documentation (con't)

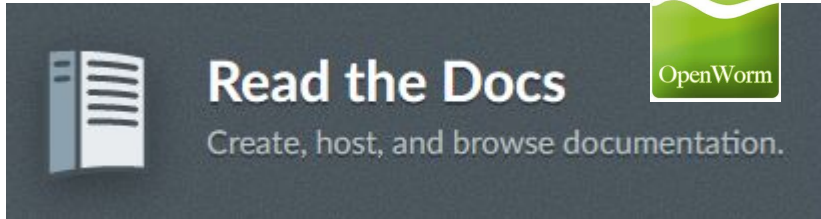


A screenshot of the GitHub repository page for Devolearn. The page title is "README.md". The header features the Devolearn logo, which is a microscope icon followed by the text "DevoLearn". Below the logo is the tagline "Accelerate data driven developmental biology research with computational learning models". A navigation bar includes links for "tests (passing)", "codecov (100%)", "issues (0 open)", "contributors (20)", "last commit (February)", "Slack", and "Open in Colab". The "Contents" section lists: "Example notebooks", "Segmenting the C. elegans embryo", "Generating synthetic images of embryos with a GAN", "Predicting populations of cells within the C. elegans embryo", "Contributing to Devolearn", "Links to datasets", and "Contact us". The "Installation" section shows the command "pip install devolearn". The "Example notebooks" section displays three small thumbnail images of cell segmentation and a 3D scatter plot of data points. On the right side, there is a "Contributors" section showing 20 contributors and a "Languages" section showing Python at 92.0% and TeX at 8.0%.

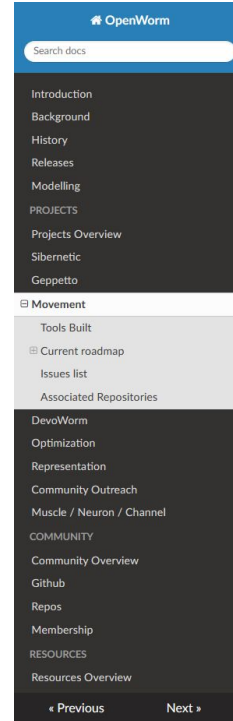
<https://github.com/DevoLearn/devolearn>



# Documentation (con't)



<https://readthedocs.org/>

This is a screenshot of the OpenWorm documentation sidebar. At the top, there is a blue header with the OpenWorm logo and the text 'OpenWorm'. Below the header is a search bar with the placeholder text 'Search docs'. The sidebar is divided into several sections: 'Introduction' (with sub-items: Background, History, Releases, Modelling), 'PROJECTS' (with sub-items: Projects Overview, Sibernetica, Geppetto), 'Movement' (with sub-items: Tools Built, Current roadmap, Issues list, Associated Repositories), 'DevWorm' (with sub-items: Optimization, Representation, Community Outreach, Muscle / Neuron / Channel), 'COMMUNITY' (with sub-items: Community Overview, Github, Repos, Membership), and 'RESOURCES' (with sub-item: Resources Overview). At the bottom of the sidebar, there are navigation links: '< Previous' and 'Next >'. The sidebar has a dark grey background with white text.

Docs » Projects » Movement

## Movement Analysis

In order to know that we are making meaningful scientific progress, we need to validate the model using information from real worms. The movement analysis team is working with an existing database of worm movement to make the critical comparisons.

The main goal of the Movement Analysis team is to finish a test pipeline so the OpenWorm project can run a behavioural phenotyping of its virtual worm, using the same statistical tests the Schafer lab used on their real worm data.

### Tools Built

- Open Worm Analysis Toolbox
- Tracker-Commons file format

For more information, please visit the above pages.

### Current roadmap

**STORY: Build a test suite for the simulation from WormBehavior database**

As a scientist or developer, I want to be able to run a test suite against the simulation that will show me how close the model is to real data.

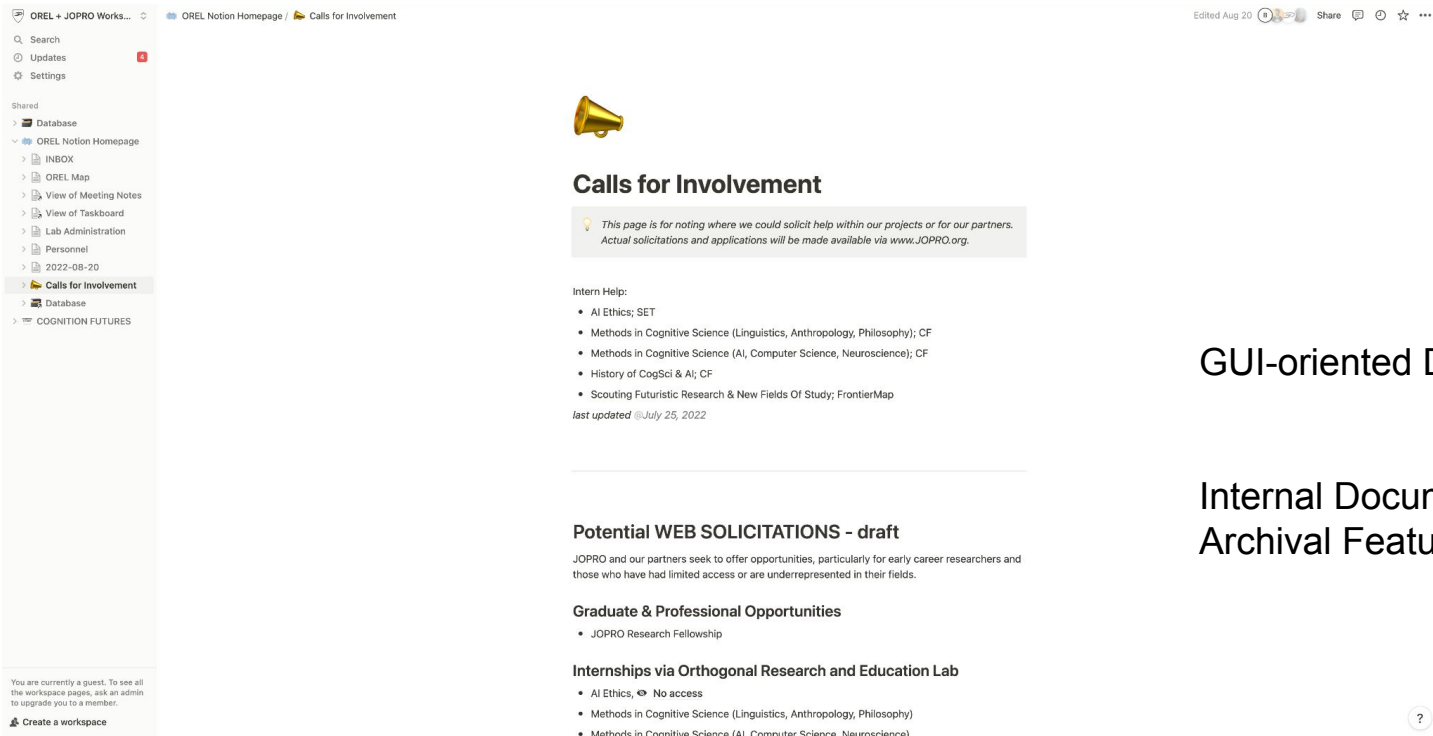
In order for a model to demonstrate scientific value, it has to make falsifiable predictions. The target data to be able to predict will be drawn from the WormBehavior database. This milestone will involve working with these data, creating a code base that can compare movement output from the simulation with ground truth from the database and produce an accuracy score.

This story breaks down the epic to predict behavior from the WormBehavior database.

**EPIC: Correctly predict 80% of wild type (N2) behavior in WormBehavior database**

<https://docs.openworm.org/Projects/worm-movement/>

# Notion Documents



The screenshot shows a Notion workspace page titled "Calls for Involvement". The left sidebar contains a navigation menu with "Calls for Involvement" selected. The main content area features a yellow megaphone icon, a title "Calls for Involvement", and a callout box with a lightbulb icon containing the text: "This page is for noting where we could solicit help within our projects or for our partners. Actual solicitations and applications will be made available via [www.JOPRO.org](http://www.JOPRO.org)." Below this is an "Intern Help:" section with a bulleted list of topics: AI Ethics; SET; Methods in Cognitive Science (Linguistics, Anthropology, Philosophy); CF; Methods in Cognitive Science (AI, Computer Science, Neuroscience); CF; History of CogSci & AI; CF; and Scouting Futuristic Research & New Fields Of Study; FrontierMap. A note indicates the page was last updated on July 25, 2022. Further down, there are sections for "Potential WEB SOLICITATIONS - draft", "Graduate & Professional Opportunities" (listing JOPRO Research Fellowship), and "Internships via Orthogonal Research and Education Lab" (listing AI Ethics, Methods in Cognitive Science, and Methods in Cognitive Science (AI, Computer Science, Neuroscience)).

OREL + JOPRO Works... OREL Notion Homepage / Calls for Involvement

Edited Aug 20

Search  
Updates  
Settings

Shared

- Database
- OREL Notion Homepage
  - INBOX
  - OREL Map
  - View of Meeting Notes
  - View of Taskboard
  - Lab Administration
  - Personnel
  - 2022-08-20
  - Calls for Involvement**
  - Database
- COGNITION FUTURES

**Calls for Involvement**

*This page is for noting where we could solicit help within our projects or for our partners. Actual solicitations and applications will be made available via [www.JOPRO.org](http://www.JOPRO.org).*

Intern Help:

- AI Ethics; SET
- Methods in Cognitive Science (Linguistics, Anthropology, Philosophy); CF
- Methods in Cognitive Science (AI, Computer Science, Neuroscience); CF
- History of CogSci & AI; CF
- Scouting Futuristic Research & New Fields Of Study; FrontierMap

last updated @July 25, 2022

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**Potential WEB SOLICITATIONS - draft**

JOPRO and our partners seek to offer opportunities, particularly for early career researchers and those who have had limited access or are underrepresented in their fields.

**Graduate & Professional Opportunities**

- JOPRO Research Fellowship

**Internships via Orthogonal Research and Education Lab**

- AI Ethics, No access
- Methods in Cognitive Science (Linguistics, Anthropology, Philosophy)
- Methods in Cognitive Science (AI, Computer Science, Neuroscience)

You are currently a guest. To see all the workspace pages, ask an admin to upgrade you to a member.

Create a workspace

Share

GUI-oriented Database

Internal Documents, Planning,  
Archival Features.



# Notion Documents (con't)

OREL + JOPRO Works... COGNITION FUTURES / Reading Group - CFRG Edited Sep 7 Share

Search Updates Settings

Shared Database Project Management: ... Meeting Notes Reference Materials People Glossary & Concept L... Groups and Institutions Library - Admin Docs Topical Collections OREL Notion Homepage INBOX OREL Map View of Meeting Notes View of Taskboard Lab Administration Personnel 2022-08-20 Calls for Involvement Database COGNITION FUTURES Reading Group - CFRG CogSci Methodology ... CF Timeline AAI POST

**Reading Group - CFRG**  
6 backlinks

**Materials Covered**

- Explanation and Integration in Mind and Brain Science (2017)
- Logiciel (2022)
- Ecology of the Brain (2017)
- On Becoming Aware (2002)

**Other Notes & Documents**

- CF Reading Group YT Playlist
- Potential Papers to Write
- Ecology of Brain GDoc
- \*On Becoming Aware\* GDoc

**Meeting Information**

Below is a table of materials from specific meetings. Some meetings link on notes are compiled into the most recent page/date.

Table

**Meeting Notes**

Meeting Type	Date of...	Host Group	Materials Mentioned	People	+	...
CFRG 033	2023/02/15	Cognition Futures	Ecology of the Brain (2017)			
CFRG 032	2023/02/08	Cognition Futures				
CFRG 031	2023/02/01	Cognition Futures				
CFRG 030	2023/01/25	Cognition Futures				
CFRG 029	2023/01/18	Cognition Futures				
CFRG 28	2023/01/11	Cognition Futures				
CFRG 27 - New Year Planning	2023/01/04	Cognition Futures				
CFRG 026	2022/12/14	Cognition Futures				
CFRG 025	2022/12/07	Cognition Futures				
CFRG 024	2022/11/30	Cognition Futures				

You are currently a guest. To see all the workspace pages, ask an admin to upgrade you to a member.

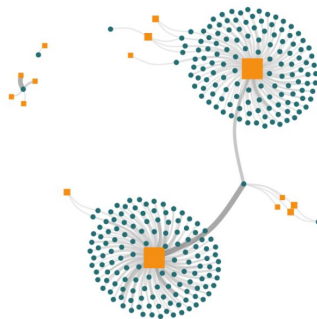
Create a workspace

?

## How teams use Coda: a few different patterns

# Coda.io

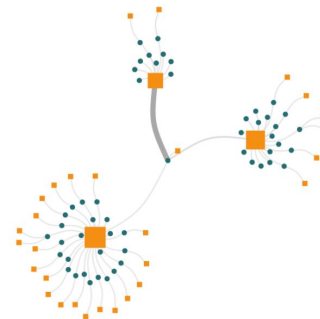
“The Usernova”



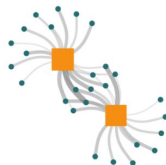
“The Docspllosion”



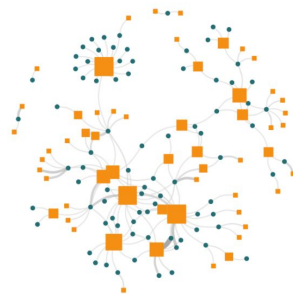
“The Classroom”



“A Tale of Two Docs”



“#squadgoals”



“The Archipelago”

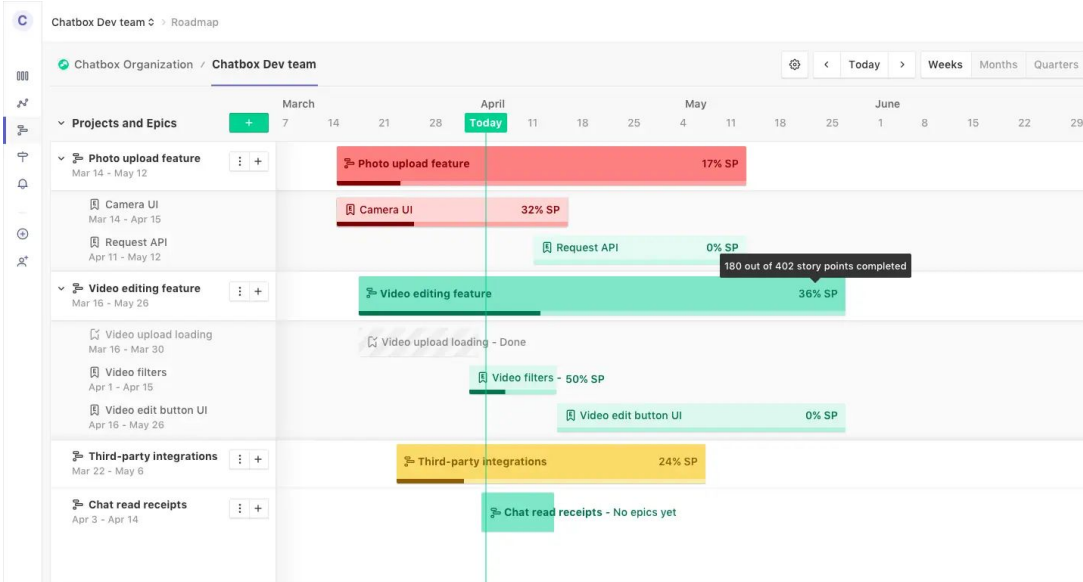


■ Docs ● Users



<https://coda.io/@coda/simpler-cleaner-faster-coda-2-0-is-ready-for-your-team>

# Zenhub Roadmaps and Epics



< Code Issues 86 Pull requests ZenHub Actions Wiki

Repos (2/2) Labels Milestones Assignees Epics Releases Estimat

1 Issue - 0 Story Points  
Icebox

8 Issues - 18 Story Points  
Epic

6 Issues - 19 Story Points  
Priority Epics

ZenHub-Demo #418  
markdown enhancements  
Enhancement

ZenHub-Demo #171  
API Interface  
Sprint 45  
Client Project 1  
Webinar Release Project  
New Feature A  
Demo Release  
Filter by Epic Issues

Blocked: Design Design  
User Story

ZenHub-Demo #340  
Dashboard updates  
Sprint 45  
Filter by Epic Issues

Epic

Getting-Started-Demo #7  
UI Updates and Bugs  
Sprint 45  
Test Epic ZenHub 101  
Release 1  
Sample Release IBM Demo  
Filter by Epic Issues

ZenHub-Demo #134  
credit card payments

High priority  
ZenHub-Demo #22  
Dashboard updates  
Sprint 50  
Sample Epic  
Sample Title for Shane  
Q2 - Project Planning: Testing...  
Q2 - New Payment System  
Payments Release  
Webinar Release Project  
Demo Release  
New Feature A  
Filter by Epic Issues

45mins Epic Feature  
High Priority

High priority  
ZenHub-Demo #135  
Create a new payments  
dashboard  
Sprint 45  
Q3 - Project Epic  
Epic X  
Q2 - New Payment System  
Payments Release  
Webinar Release Project  
New Feature A  
Filter by Epic Issues

<https://www.zenhub.com/>

# ZenHub: beyond visual timelines

Zenhub is a tool that allows you to organize milestones from a set of Github issues. There is both a timeline view and a Kanban board view, which can be helpful for seeing the big picture.

Organizing tasks using a timeline view allows us to track milestones, which are essential for complex tasks like public events.

# ZenHub: beyond visual timelines

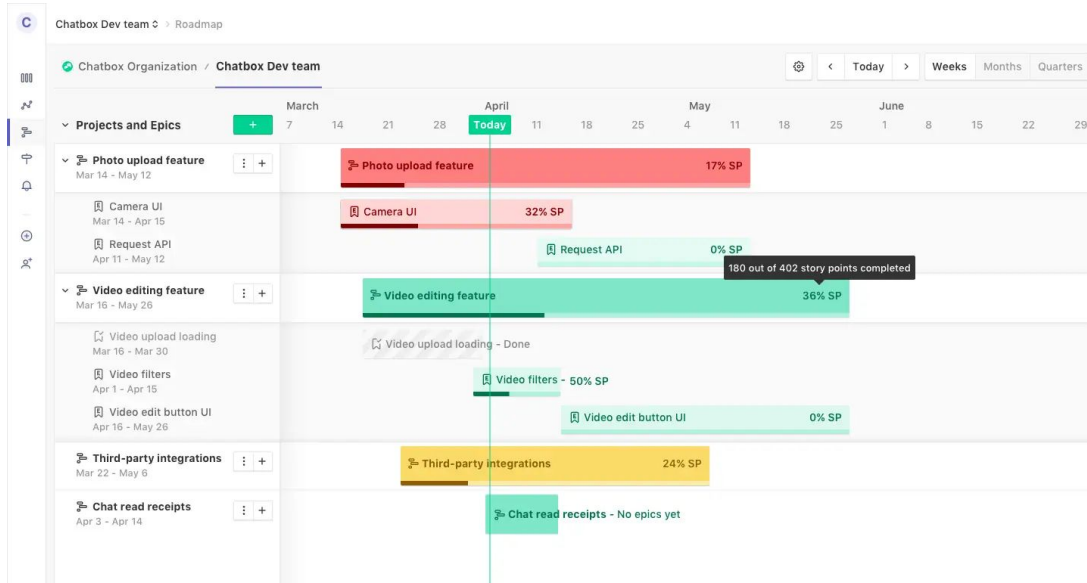
Zenhub is a tool that allows you to organize milestones from a set of Github issues. There is both a timeline view and a Kanban board view, which can be helpful for seeing the big picture.

Organizing tasks using a timeline view allows us to track milestones, which are essential for complex tasks like public events.

Milestones: specific points on a project timeline.

- anchors or as concrete goals with an associated date. Prospective milestones can be flexible, depending on how much is achieved. Focuses efforts.
- milestones define points at which other team members might give input. Deliverable dates, dates when other dependencies are expected to be available.
- a good tip for timeline building is to have parallel activities going on. If a dependency delays you or otherwise ties up your resources, you can focus on another task or milestone.

# Zenhub Roadmaps



Tip for timeline building: include parallel activities.

If a dependency delays you or otherwise ties up your resources, you can focus on another task or milestone.

<https://www.zenhub.com/>



# ZenHub Epics

ZenHub also uses a type of organization called *epics*, which encapsulates a theme of work.

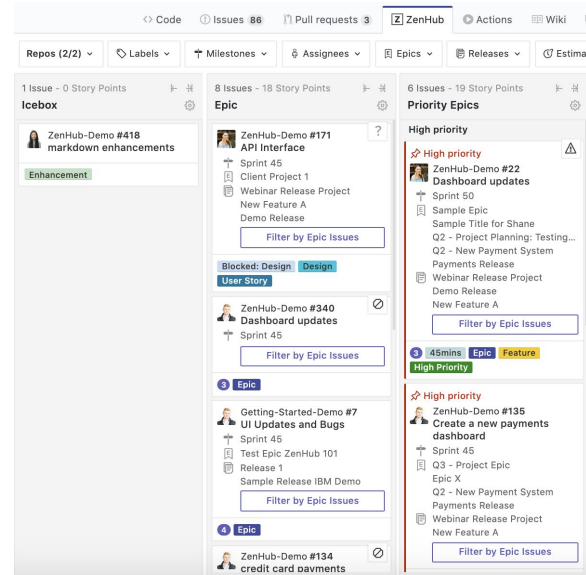
## **An Introduction to Zenhub Epics**

<https://help.zenhub.com/support/solutions/articles/43000010341-an-intro-to-zenhub-epics>

## **Working with Epics in Github**

<https://blog.zenhub.com/working-with-epics-in-github/>

# ZenHub Epics (con't)



Epics are similar to Github issues in that they are both organized by subject. Epics introduce dependencies to your Github issues, and they can be used in tandem.

Issues, and Epics together can be a very powerful way to synchronize community contributions and reduce conflicts with a top-down software development cycle.

# Further Readings

## **More on Milestones (GitLab documentation)**

<https://docs.gitlab.com/ee/user/project/milestones/>

## **The role of Milestones in Agile project management**

<https://blog.zenhub.com/what-is-a-milestone-in-agile-project-management/>

## **Sprints vs. Milestones**

<https://medium.com/@confeurhq/sprints-vs-milestones-6fe700d101f9>

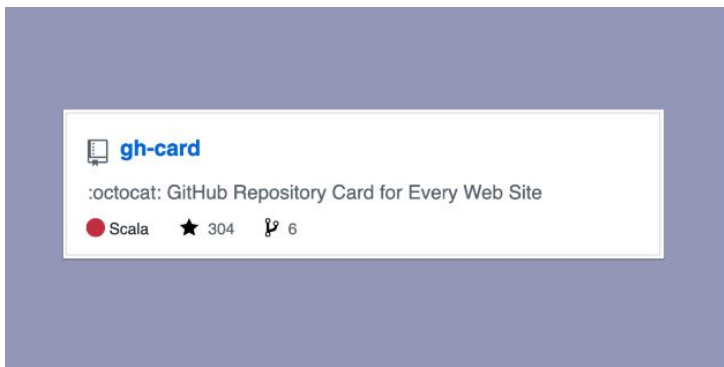
## **A set of completed milestones from the Open Source Design project**

<https://opensource.design.net/milestones>

## **My favorite open project management tools**

<https://opensource.com/article/21/3/open-source-project-management>

**Signals to non-contributors and how to keep the  
barrier to entry low**

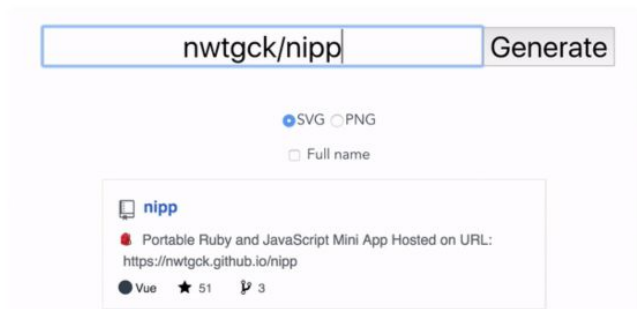


## GitHub Repository Cards

June 14, 2019 by Eric L. Barnes

GitHub Repository Cards is a utility that allows you to create a Github style card of your project that you can then embed on your own site. You enter your username/repo and then it generates an SVG or PNG with the source you can copy and paste into your site.

Here is a demo of how it works:



# Repository Cards

<https://dotdev.co/github-repository-cards/>

# Shields.io: badges as a service

<https://github.com/badges>

DOI (permanent identifier)

Useful project information

# Github Badges

Shields.io: badges as a service

<https://github.com/badges>

master fliscopt / README.md

Agrover112 Update README.md ✓ Latest commit 681de82 on Aug 24, 2022 History

4 contributors

152 lines (126 sloc) | 7.03 KB

## Fliscopt

DOI 10.5281/zenodo.7018486

stars 35 forks 11 license MIT issues 5 open Made with Python Open Source Maintained? yes PRs welcome pypi v0.3.0 tweet say thanks

FLight Scheduling OPTimization or *fliscopt* is a simple optimization library for flight scheduling and related problems in the discrete domain. The library supports plotting, asynchronous multiprocessing, and unimodal optimization benchmarks. The following repository contains code for the paper "XYZ". The experiments were performed in PyPy3.7 and CPython 3.8.10.

<https://github.com/Agrover112/fliscopt/blob/master/README.md>





# Github Badges

<https://github.com/DevoLearn/devolearn>



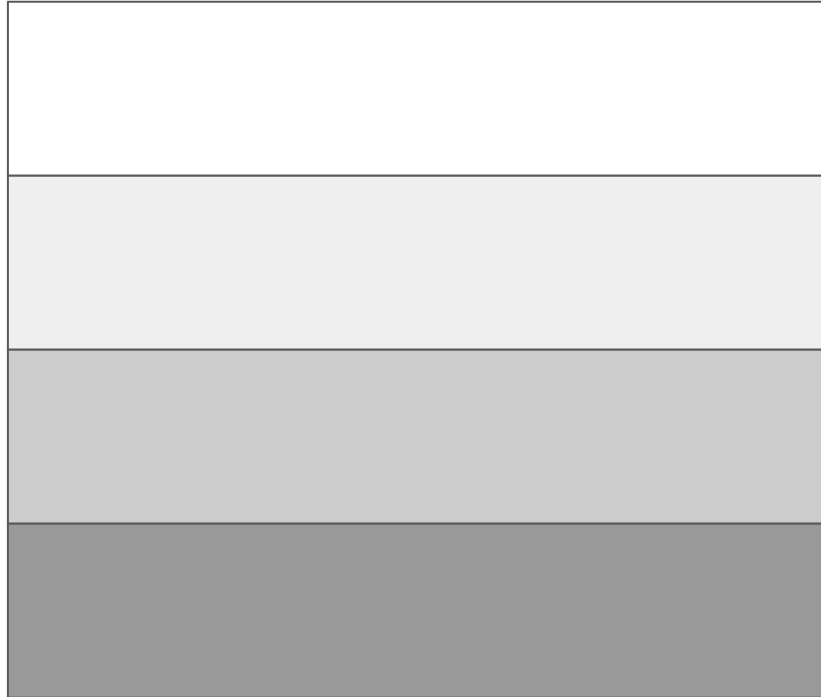
Accelerate data driven developmental biology research with computational learning models



Continuous Integration  
(tests at PR)

Option to Run Repository  
Code in a Notebook

# Different Levels of Contribution



**No-code (No Expertise)**

**Bug Reports (Low Expertise)**

**Refactoring (High Expertise)**

**Architecture (Expert)**

# Turing Way (from the Turing Institute): how to work open and collaboratively



Fig. 1 The Turing Way project illustration by Scriberia. Zenodo.  
<http://doi.org/10.5281/zenodo.3332807>

<https://the-turing-way.netlify.app/>

# No-code Development

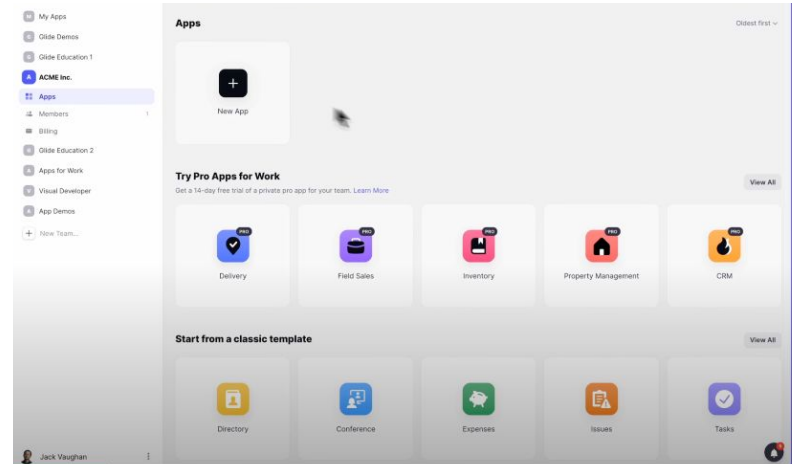
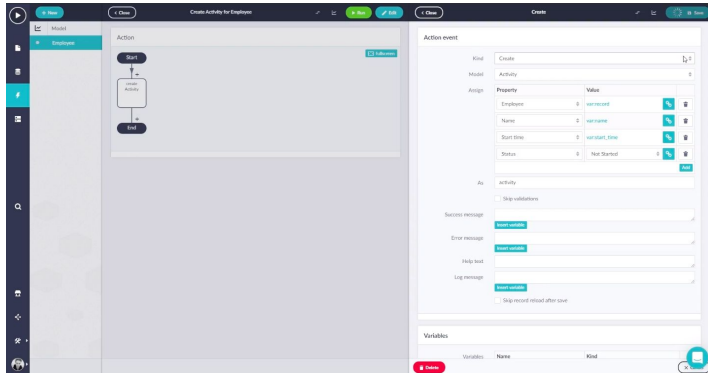
## OpenAI Codex

We've created an improved version of OpenAI Codex, our AI system that translates natural language to code, and we are releasing it through our API in private beta starting today. Codex is the model that powers GitHub Copilot, which we built and launched in partnership with GitHub a month ago. Proficient in more than a dozen programming languages, Codex can now interpret simple commands in natural language and execute them on the user's behalf—making it possible to build a natural language interface to existing applications. We are now inviting businesses and developers to build on top of OpenAI Codex through our API.

START USING CODEX

## OpenAI Codex (no-code tool)

## Betty Blocks (no-code tool)



## Glide (no-code tool)