Creating Intelligent Cyberinfrastructure for Democratizing AI: [Provide specific subtitle] at the NSF-AI Institute ICICLE

Distributing ICICLE Research as CI/Software Components

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Overview

- ICICLE Releases
  - Release overview,
  - ICICLE CI Catalog
  - ICICLE GitHub
- Steps to release your CI/Software
- Tips/Suggestions & Future Release
ICICLE Releases

- View our catalog
  - https://icicle.ai/cyberinfrastructure/software

- We encourage everyone to use our CI/Software for their components

- We have tools to help with,
  - Authentication
  - Managing Tapis Services
  - Deploying containerized application/services
  - Interacting with Knowledge Graphs
  - Estimating the execution time for an application
  - More!

<table>
<thead>
<tr>
<th>Release</th>
<th># of Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>2023.04</td>
<td>11</td>
</tr>
<tr>
<td>2023.06</td>
<td>14</td>
</tr>
<tr>
<td>2023.10</td>
<td>8</td>
</tr>
</tbody>
</table>
ICICLE CI Catalog

- https://components.pods.icicle.tapis.io

- Allows people to see all the components we have available in one table.
  - Can sort by thrust, release, or Maturity

- Tracks over 100 Attributes
  - Including relationships between components

- 4 Maturity Types
  - Prototype, Alpha, Beta, and Production
ICICLE GitHub

- https://github.com/icicle-ai

- Please use it. Makes it easier for us to track metrics that we are evaluated on
  - # of Clones, Page Views, Release Downloads, etc

- Helps me with managing all the components

- Complete Git Basic Training Module to gain access
  - Important skill to have as well.
Overview

- ICICLE Releases

- Release Process
  - Release Meetings
  - Feature Freeze
  - QA Testing
  - Final Preparations for the Release

- Tips/Suggestions & Future Release
Release Meetings

- They will begin at least a month before the Feature Freeze
  - Will continue throughout testing ad hoc

- Attend them and let us know of any plans to release components **BEFORE** the feature freeze.

- We discuss
  - Roadmap for the release
  - Which components are added to the release
  - Go/No-go Decisions
  - Testing Results
  - Communicate with the developers

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**2023-10: ICICLE CI/Software Release Roadmap**

<table>
<thead>
<tr>
<th>CI/Software Release: 2023-10</th>
<th>Progress</th>
<th>Start date</th>
<th>Due date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products ready/code freeze</td>
<td>Started</td>
<td>7/1/2023</td>
<td>8/15/2023</td>
</tr>
<tr>
<td>Software and Component Testing</td>
<td>Not started</td>
<td>8/15/2023</td>
<td>10/2/2023</td>
</tr>
<tr>
<td>Go/no go Decision</td>
<td>Not started</td>
<td>10/2/2023</td>
<td>10/2/2023</td>
</tr>
<tr>
<td>Finalize Component Catalog</td>
<td>Not started</td>
<td>10/4/2023</td>
<td>10/4/2023</td>
</tr>
<tr>
<td>Software Release</td>
<td>Not started</td>
<td>10/6/2023</td>
<td>10/6/2023</td>
</tr>
<tr>
<td>Website updates for Software Components</td>
<td>Not started</td>
<td>10/6/2023</td>
<td>10/6/2023</td>
</tr>
</tbody>
</table>

8/15/2023 Products ready/code freeze
10/2/2023 Go/no go Decision
10/6/2023 Software Release
10/2/2023 Software and Component Testing
10/4/2023 - Finalize Component Catalog
10/6/2023 Website updates - Software Components
Feature Freeze

• Freeze the current status of your component
  – No more new features

• Utilize Git branches to do so.
  – Complete Intro to Git Module to learn more.

• No new features will be tested or released.
QA Testing

- Phase lasts 1-1.5 months.
- Testing for **OVERALL**,  
  - Functionality  
  - Performance  
  - Reliability  
  - Stability  
  - Compatibility
- I am **NOT DOING** doing any type of Unit Testing.  
  - That is your responsibility to do before the feature freeze.
- Tests are different for each component,  
  - Please let us know beforehand so I can prepare a plan for yours.
- I keep a spreadsheet you can view to see the current status of your component.  
  - Red means tests failed  
  - Yellow means in progress  
  - Green means tests passed and ready to be released!
- Important for you to have time to make any necessary changes and to keep communication with me.
Final Preparations for the Release

- Decide which components are a go or no-go for this release.
  - Use results from QA Tests

- Gather component metadata and update the CI Component Catalog
  - Where I bug you to complete the YAML file if you have not done so.

- Gather Release Notes and Changelog
  - If this is your first version, I just need 2-4 sentence summary of your component.
  - If this is a new version of a previously released component, I need your changelog for this version. (You need to provide this)

- Once I have your YAML file and release notes or changelog.
  - We begin to update the website
  - Mark GitHub repositories for release.
    - Use Git Tags and GitHub Releases to bundle everything.
    - Update and Freeze the main branch of the repo in our GitHub
  - Send the announcement email for the release.
Overview

- ICICLE Releases
- Release Process
- Tips/Suggestions & Future Release
Tips/ Suggestions

• Make sure your component is easy to use and install
  – Remember that you are developing software for others to use
  – Abstract parts directly exposed to users to simplify them.

• Comment your code
  – Good practice to do so. There is a reason it is heavily graded in school
  – Especially important if it’s Open-Source.
  – You may collaborate with others.

• Think about how you will distribute your component.
  – Container
  – PyPI Package
  – Web App
  – AI Model
  – Dataset
  – etc
Tips/ Suggestions

- **Python Users: DO NOT install packages globally.**
  - Get in the habit of using environments
  - Easier to get dependencies
  - Helps when preparing for containerization

- **Test your code**
  - Black-Box Testing
  - White-Box Testing

- **Do your own QA Tests**
  - Start from a fresh environment
Future Release

- Next release will most likely be in January 2024
- We are looking of doing a Feature Freeze right before Thanksgiving Break.
- New Maturity Model is projected to be in effect.
  - New YAML file you would need to fill for the CI Component Catalog
- New Training Catalog that will hold documentation for each component
  - Looking to have tutorials for each component.
Thank You

Any questions?