



Funded by:

PV Validation Hub

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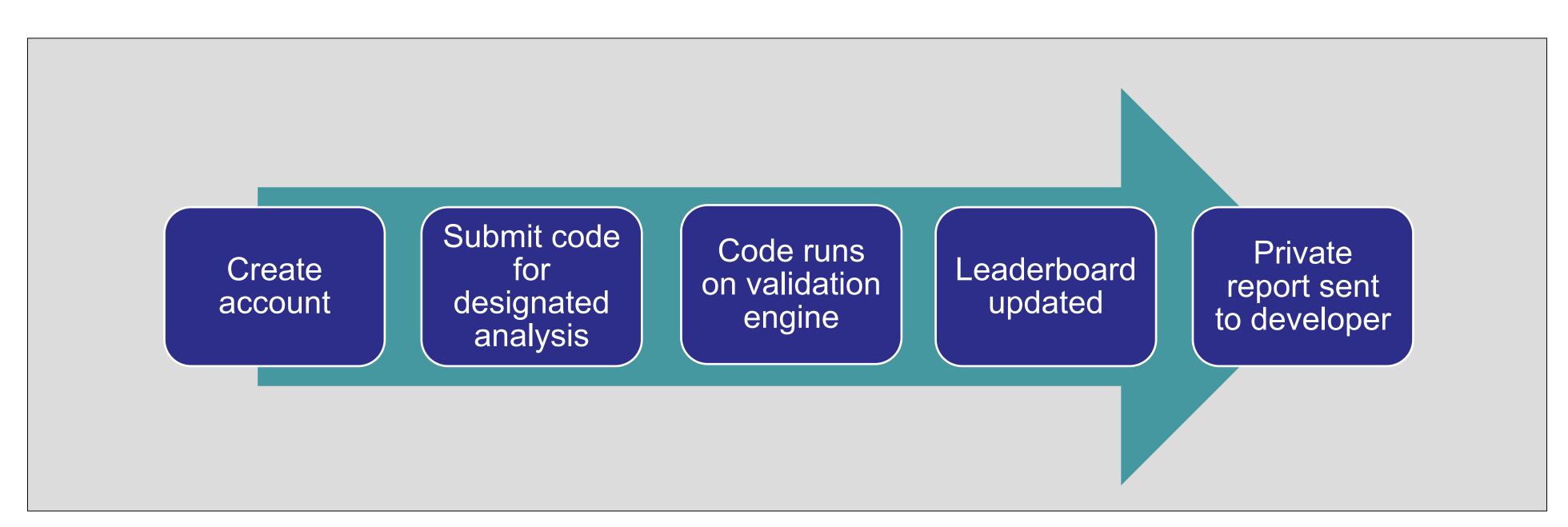
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Purpose

- Allow developers to submit PV analytics algorithms for validation.
- Degradation, soiling, tilt/azimuth estimation, etc.
- Well-curated validation data sets and procedures
- Consistent labeled data sets allow for side-by-side comparison of different algorithms
- Public leaderboards and documentation facilitate tech transfer
- Enables rapid development and benchmarking of solar algorithms

Validation Hub algorithm submission process



Plans to generate validation tests for the following types of analyses:

- Estimating system degradation
- Estimating soiling rate/ratio
- Detecting time zone/shift issues
- Estimating azimuth and tilt of a PV system
- Determining inverter 'clipping' intervals
- And more!

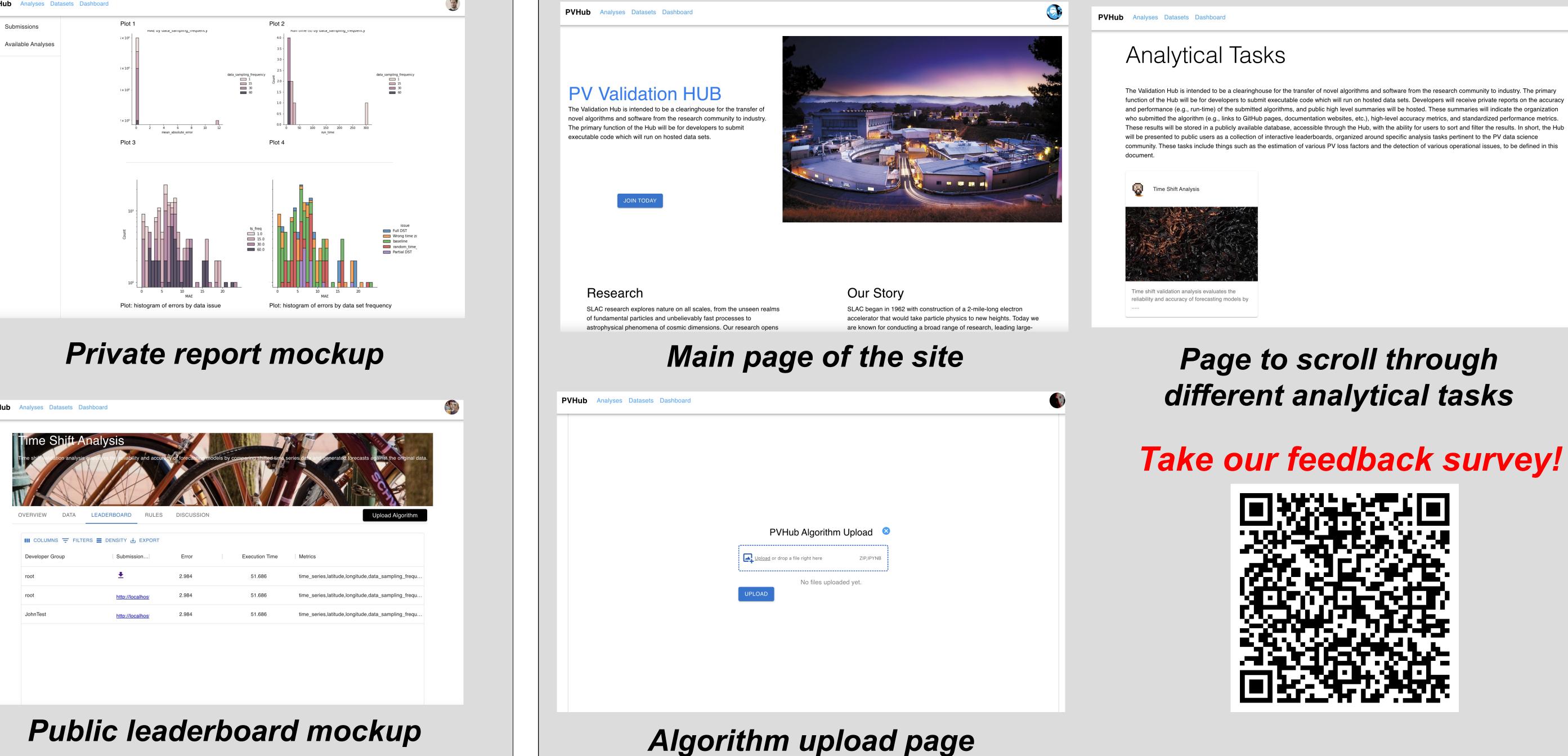
Robust Ground Truth Data Sets

- Labeled measured data
- Synthetic data sets with typical field data issues (capacity issues, outages, soiling, shading, etc.)

Validation Hub User Roles

Developer Role

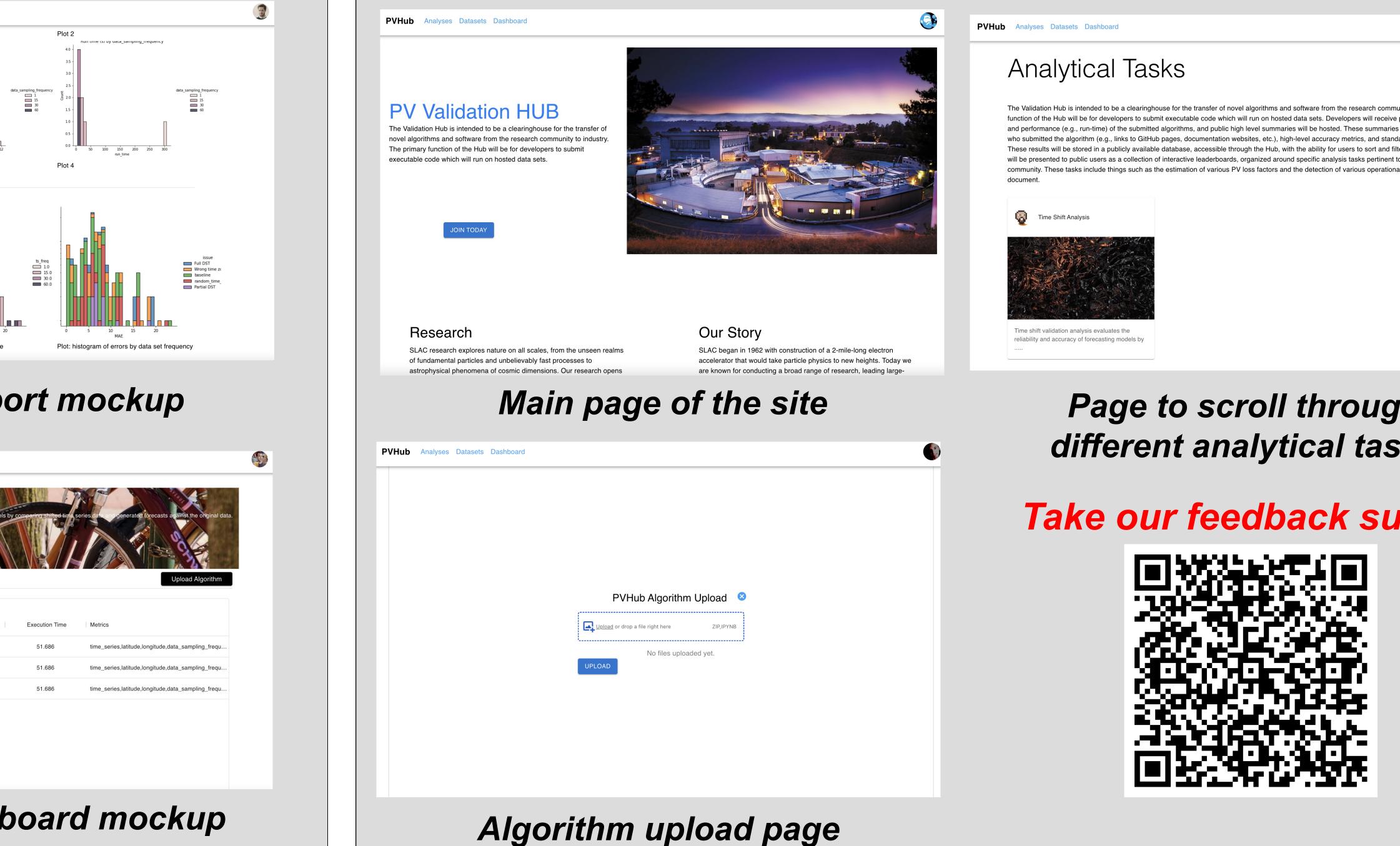
- Public reporting: Scoreboard benchmarking all submitted algorithms' performance
- Private reporting: Detailed results returned to the developer, including how the algorithm performs in certain



Validation Hub In Action

- Plan to have the Validation Hub available for public use by the end of 2023 (tentatively)
- Currently benchmarking functions in the Python Solar-Data-Tools and PVAnalytics packages and using this as a framework for initial testing in the Validation Hub

Prototype website screenshots:



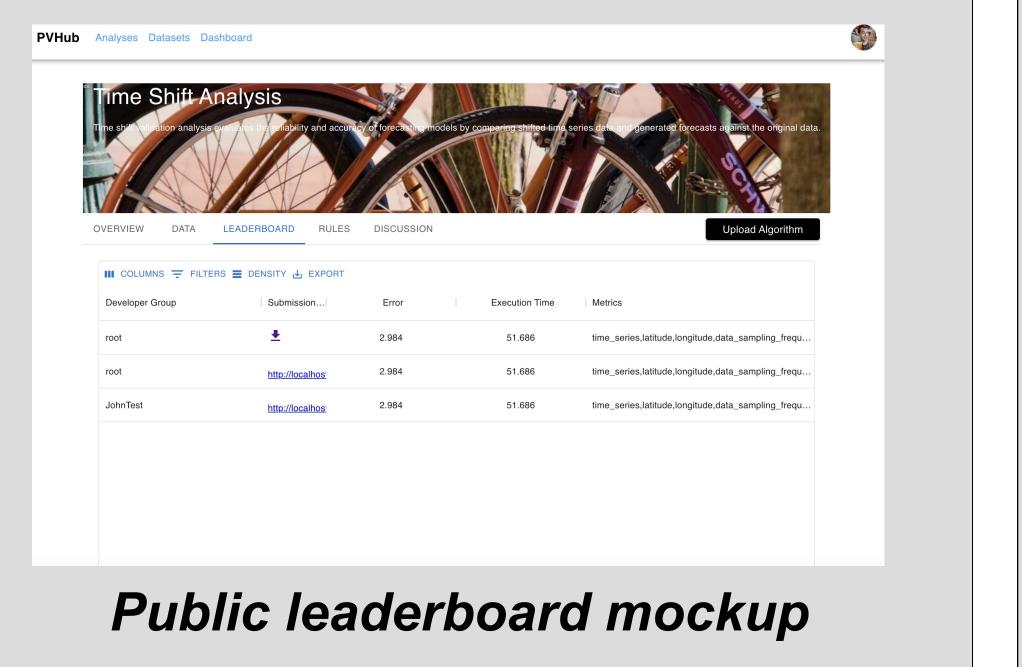
ne Hub will be for developers to submit executable code which will run on hosted data sets. Developers will receive private reports on the accurate sults will be stored in a publicly available database, accessible through the Hub, with the ability for users to sort and filter the results. In short, the Hu will be presented to public users as a collection of interactive leaderboards, organized around specific analysis tasks pertinent to the PV data science community. These tasks include things such as the estimation of various PV loss factors and the detection of various operational issues.



scenarios (ex: data at different sampling frequencies)

User Role

View leaderboards and access submitted algorithm solutions for each category



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