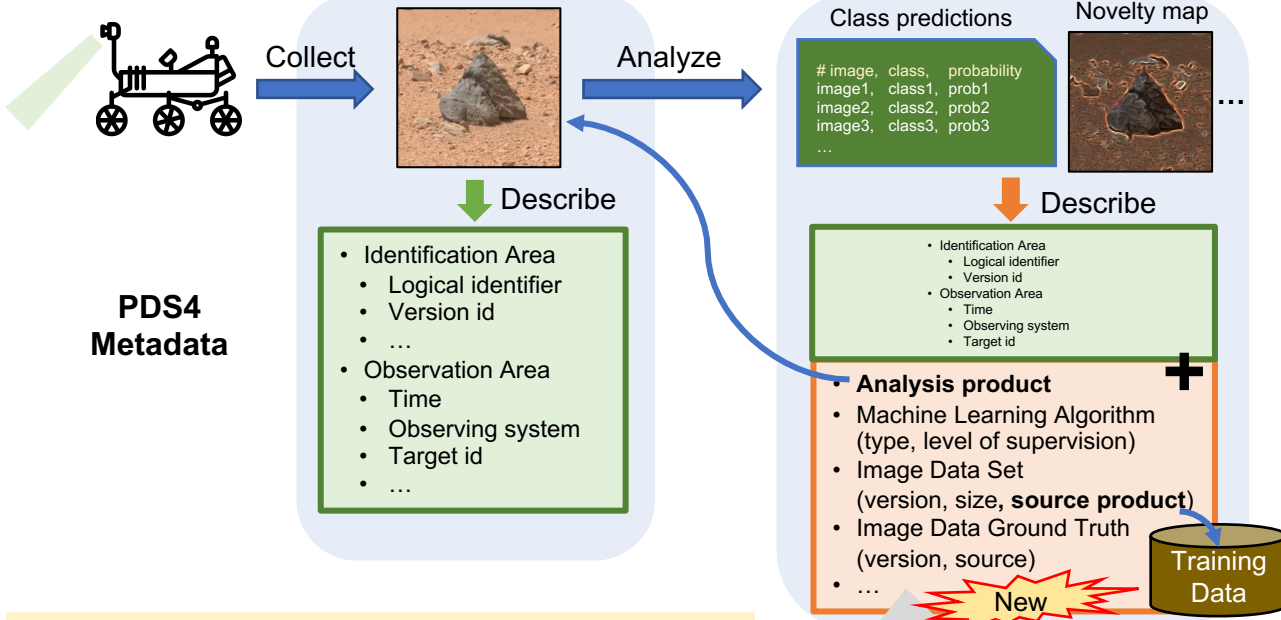


The PDS4 information model enables description of products generated by instruments. How can it be extended to describe products generated by machine learning systems?

### Data acquisition

### Observational products

### Machine learning products

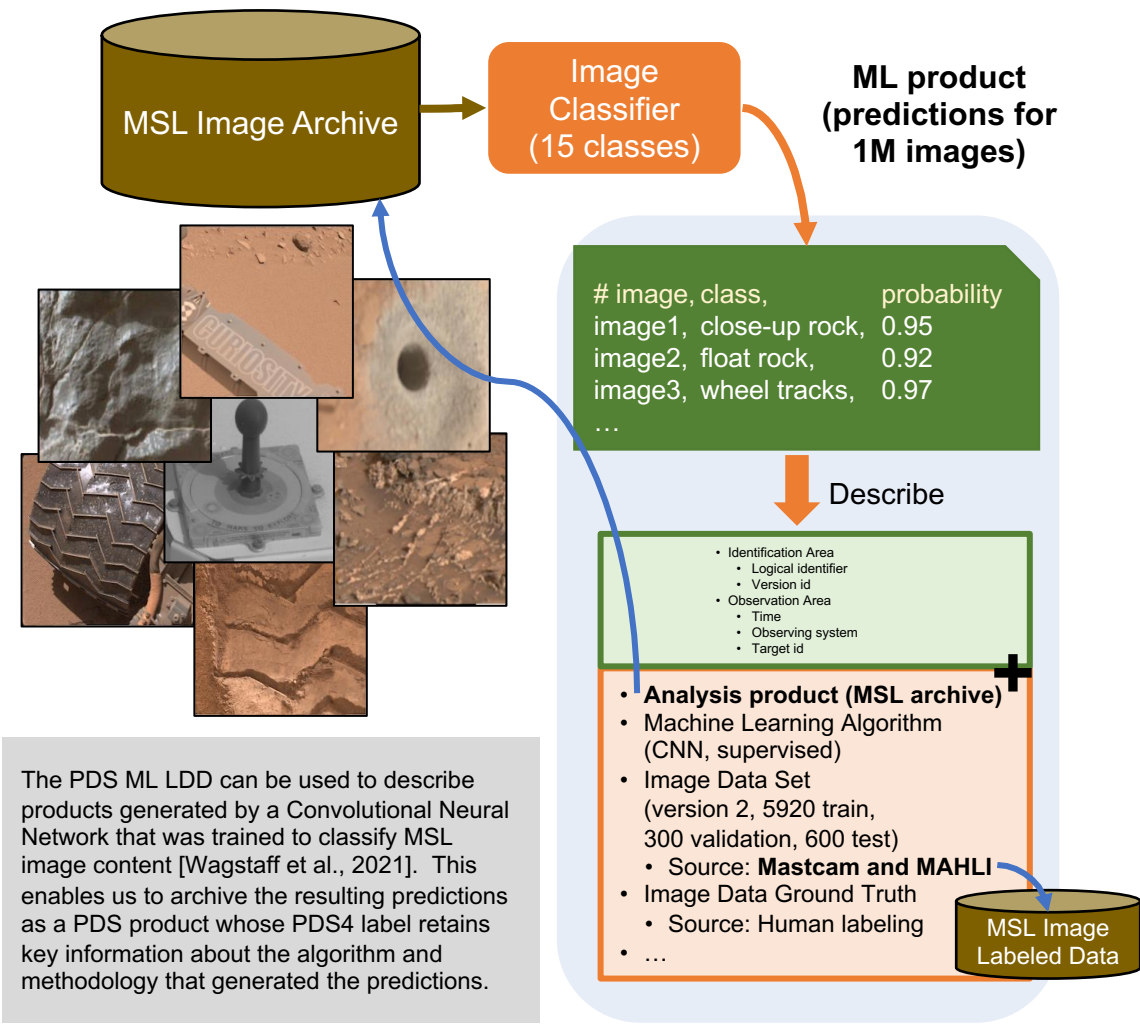


- Benefits of the PDS Machine Learning Local Data Dictionary**
- ML products can be archived as regular products in the PDS – leading to increased visibility of ML products
  - LDD provides structure for future ML product deliveries (e.g., PDART)
  - New metadata terms enable traceability/provenance to increase understanding and use of ML products
  - PDS users can search/filter ML products by attributes of interest

The PDS ML LDD adds terms to capture more metadata for ML products. It enables producers to describe the algorithm, data, and ground truth used to train the model.

The PDS ML Local Data Dictionary is under development.  
 Contact us with your ideas about other useful ML product metadata to include!  
 Email us or visit: <https://github.com/pds-data-dictionaries/ldd-ml>

Example: Mars Science Laboratory image classification products



The PDS ML LDD can be used to describe products generated by a Convolutional Neural Network that was trained to classify MSL image content [Wagstaff et al., 2021]. This enables us to archive the resulting predictions as a PDS product whose PDS4 label retains key information about the algorithm and methodology that generated the predictions.