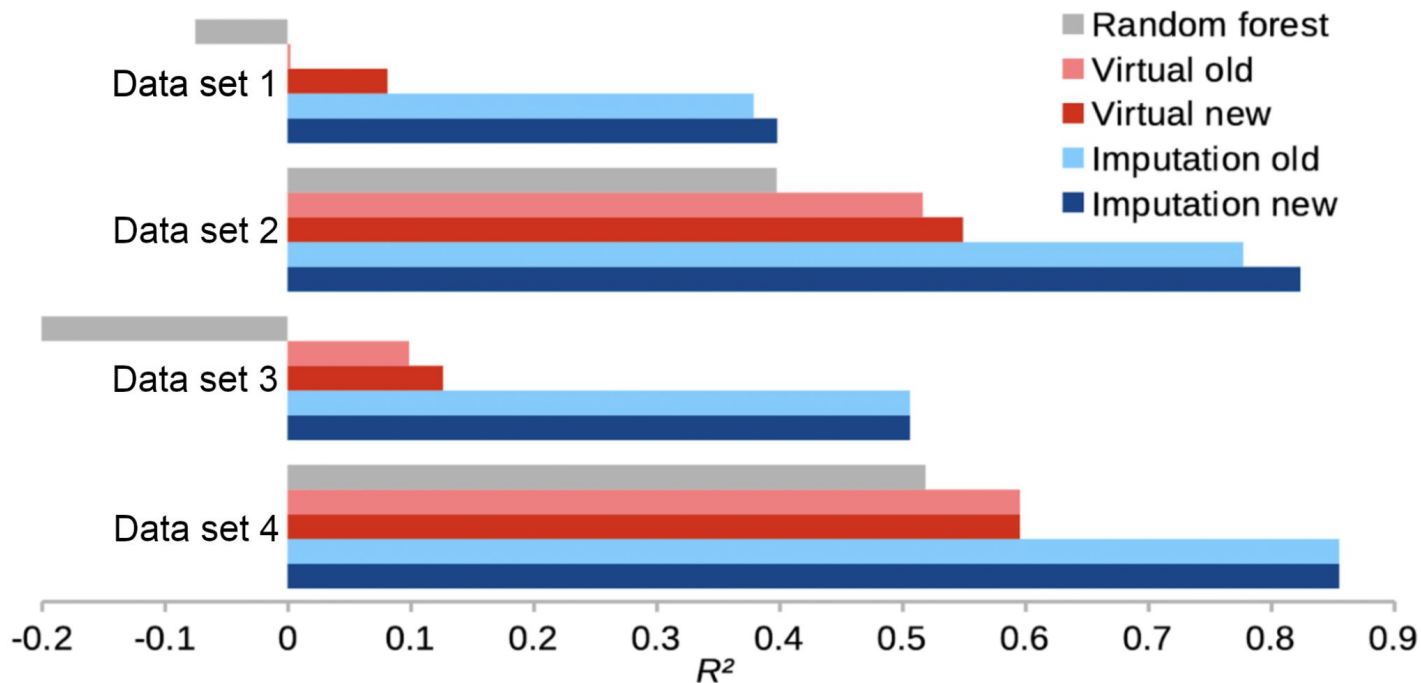




Review Session - Alchemite™ Engine

Dr Gareth Conduit





Improve prediction of new formulations

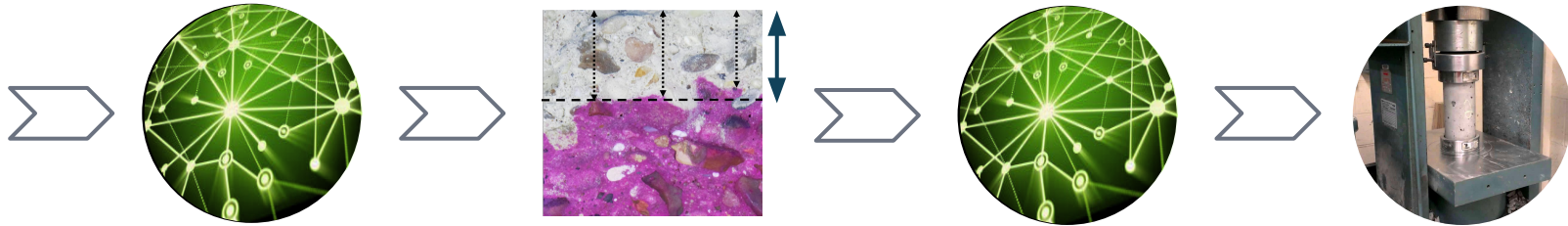


Also improved uncertainty estimates

Extract information from depth







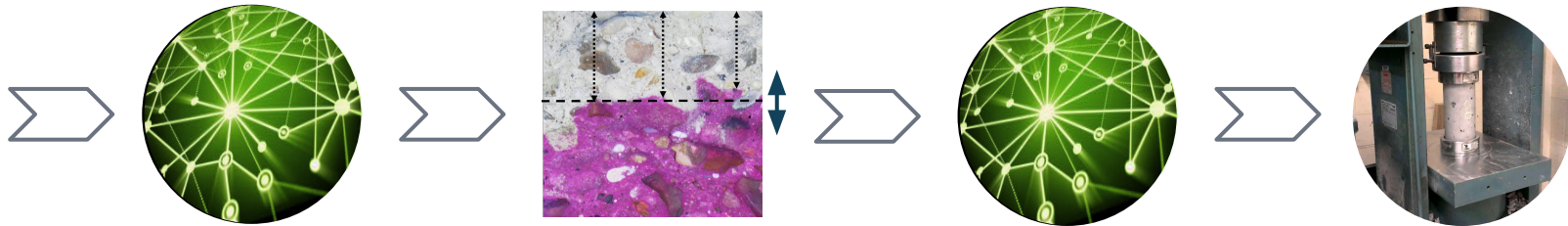
-  Cement
-  Gravel
-  Sand
-  Water



Extract information from uncertainty







-  Cement
-  Gravel
-  Sand
-  Water

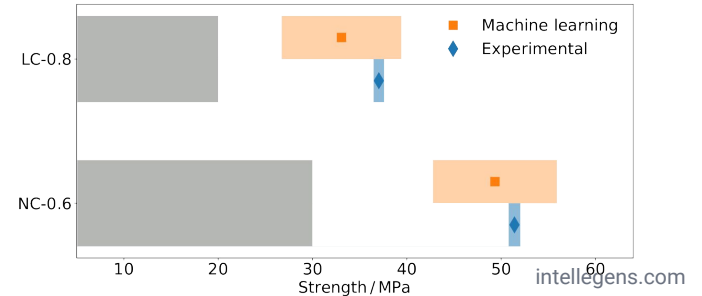
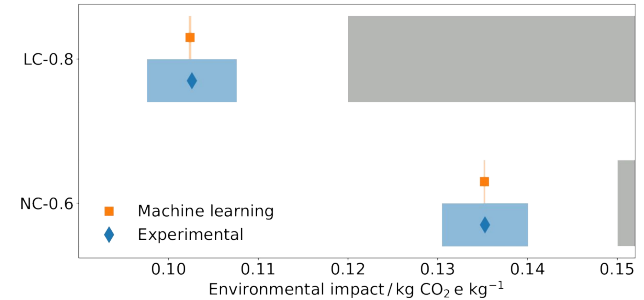
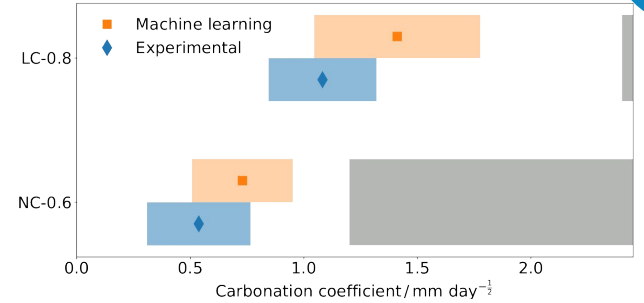


Design and validation of concrete



LC 0.8 **NC 0.6**

	Cement [%]	10.5	14.2
	Gravel [%]	48.4	48.9
	Sand [%]	32.6	28.4
	Water [%]	8.5	8.5



Upcoming: “Best historic” search



Cheapest new product to design is an existing one!

Searches through training dataset for valid candidates that meet specified targets

Can also act as starting point for optimization

intellegens

Search...

additional jobs's metadata

DEL Delete suggest-additional job

GET Get all suggest-historic jobs for a model

POST Suggest historic measurements

GET Get suggest-historic job data

PATCH Update a suggest historic job's metadata

DEL Delete suggest-historic job

GET Get all optimize jobs for given model ID

POST Optimize for specified targets using set of constraints

GET Get optimize job data

PATCH Update an optimize jobs's metadata

Suggest historic measurements

Suggest historic measurements from an existing dataset that are likely to meet user-specified target criteria. Predictions and uncertainties for missing values in the dataset are used to compute the probability that each historic measurement has of meeting the target criteria.

AUTHORIZATIONS: `oauth (alchemiteapi.models.suggest-historic.create)`

PATH PARAMETERS

→ `id` **required** string <uuid>
Example: 00112233-4455-6677-8899-aabbccddeeff
Unique identifier for the model.

REQUEST BODY SCHEMA: application/json

→ `name` string
Optional name to attach to the job.

→ `tags` Array of strings `unique`
Optional tags to attach to the job. Array should contain unique strings.

→ `notes` string
An optional free field for notes about the job.

→ `datasetID` **required** string <uuid>
The ID of a dataset to search within. The dataset must have the same column headers as the model's training dataset.

→ `targetFunction` **required** object (HistoricTargetFunction)
Dictionary of (potentially multiple) targets that returned samples should meet. If more than one target, the cost function from each will be multiplied together. The key value should be a made up name to give the defined target.

Upcoming: Character categoricals



- | | | |
|----|--|--------------------------|
| 1 | | anneal |
| 2 | | carburize |
| 3 | | case harden |
| 4 | | cold work |
| 5 | | cryogenic treatment |
| 6 | | decarburize |
| 7 | | normalize |
| 8 | | precipitation strengthen |
| 9 | | quench |
| 10 | | temper |
| 11 | | through harden |