The two loops of building algorithmic products

(experimental)

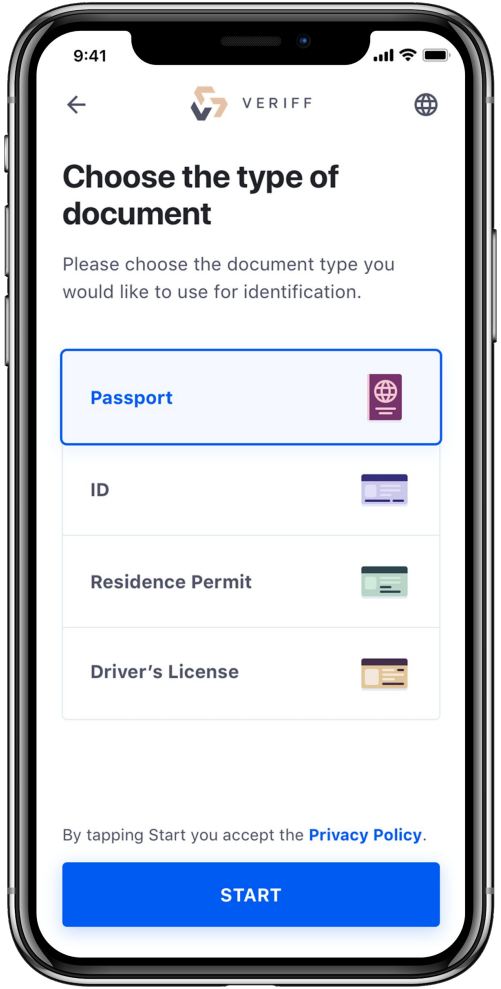
Taivo Pungas, Automation Lead
taivo.pungas@veriff.com

Our Product

Follow instructions given.

Show face and document.

Get verified!



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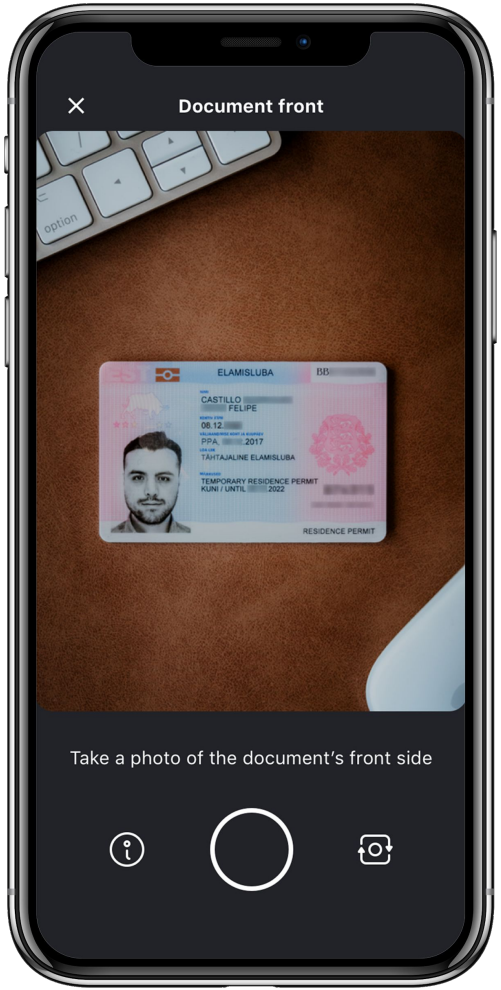

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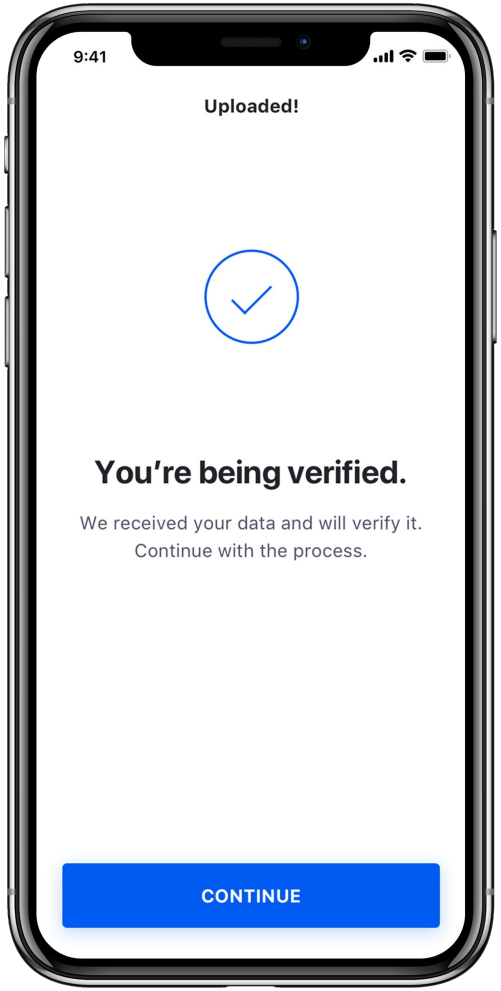

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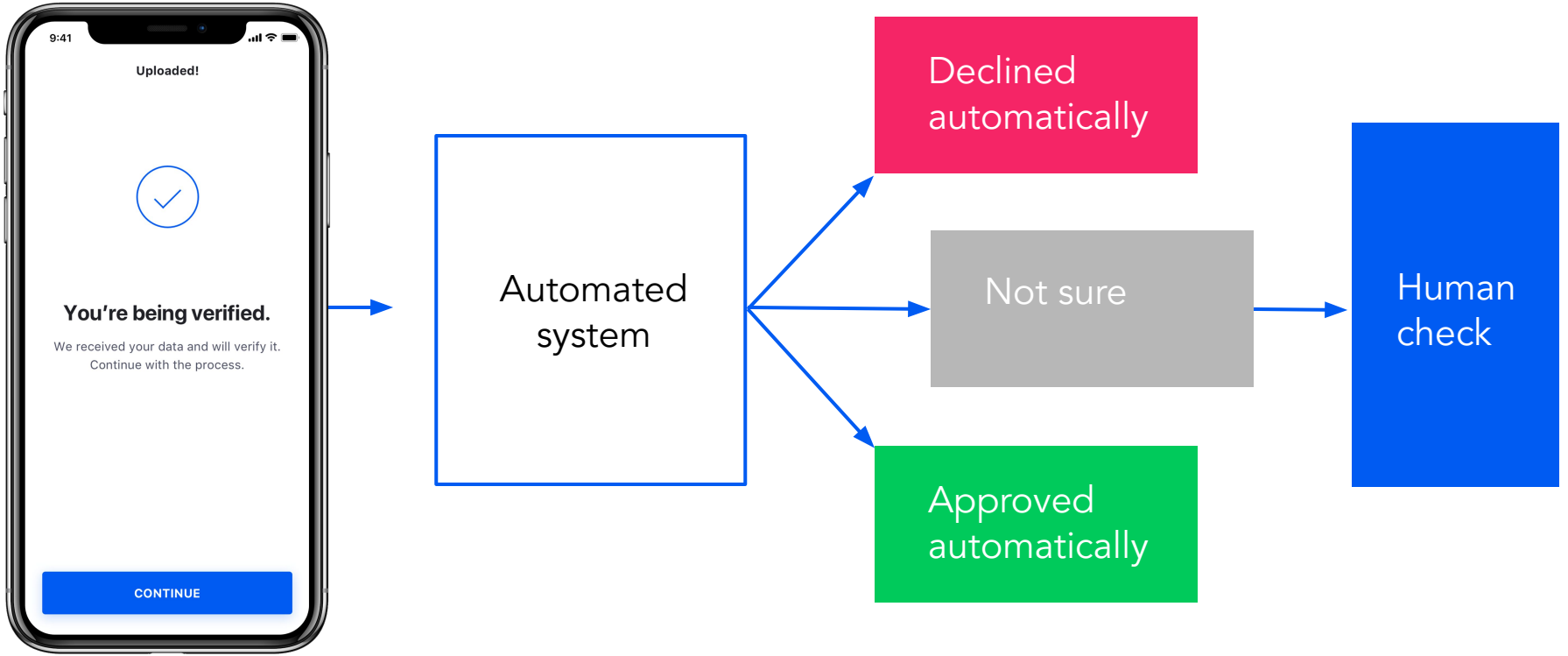
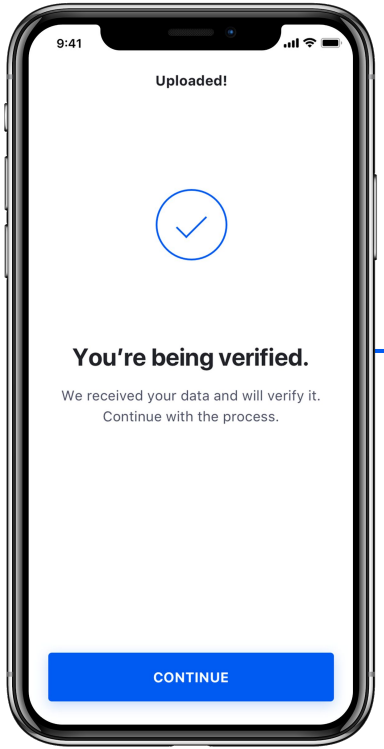
Gradual automation



Algorithmic product



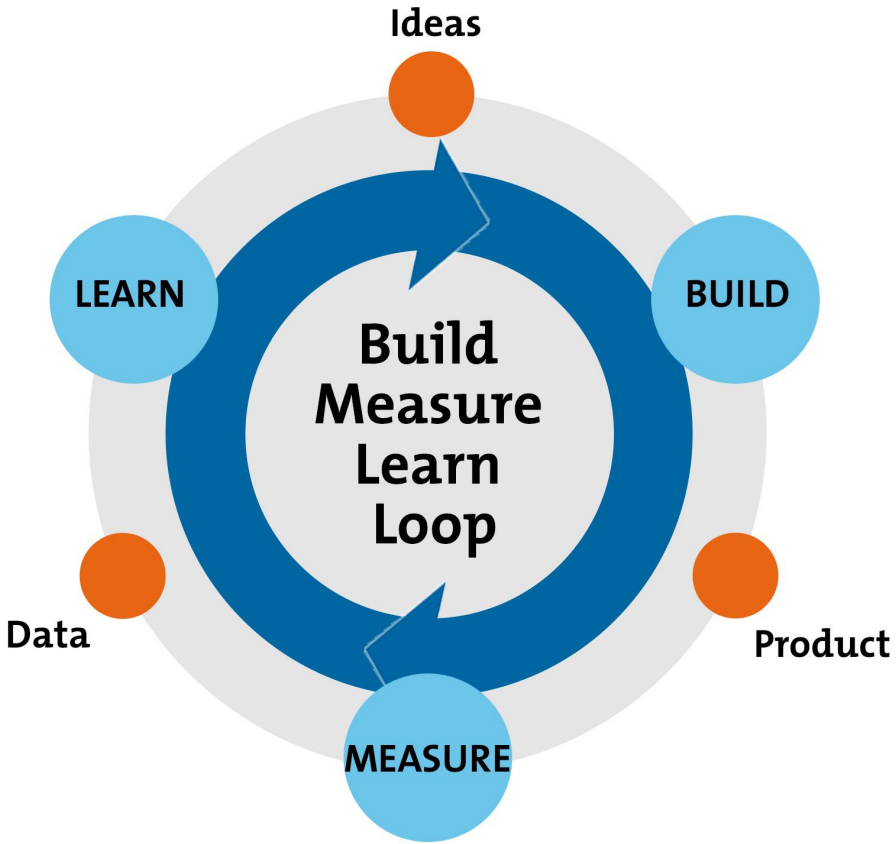
Automated system

Declined automatically

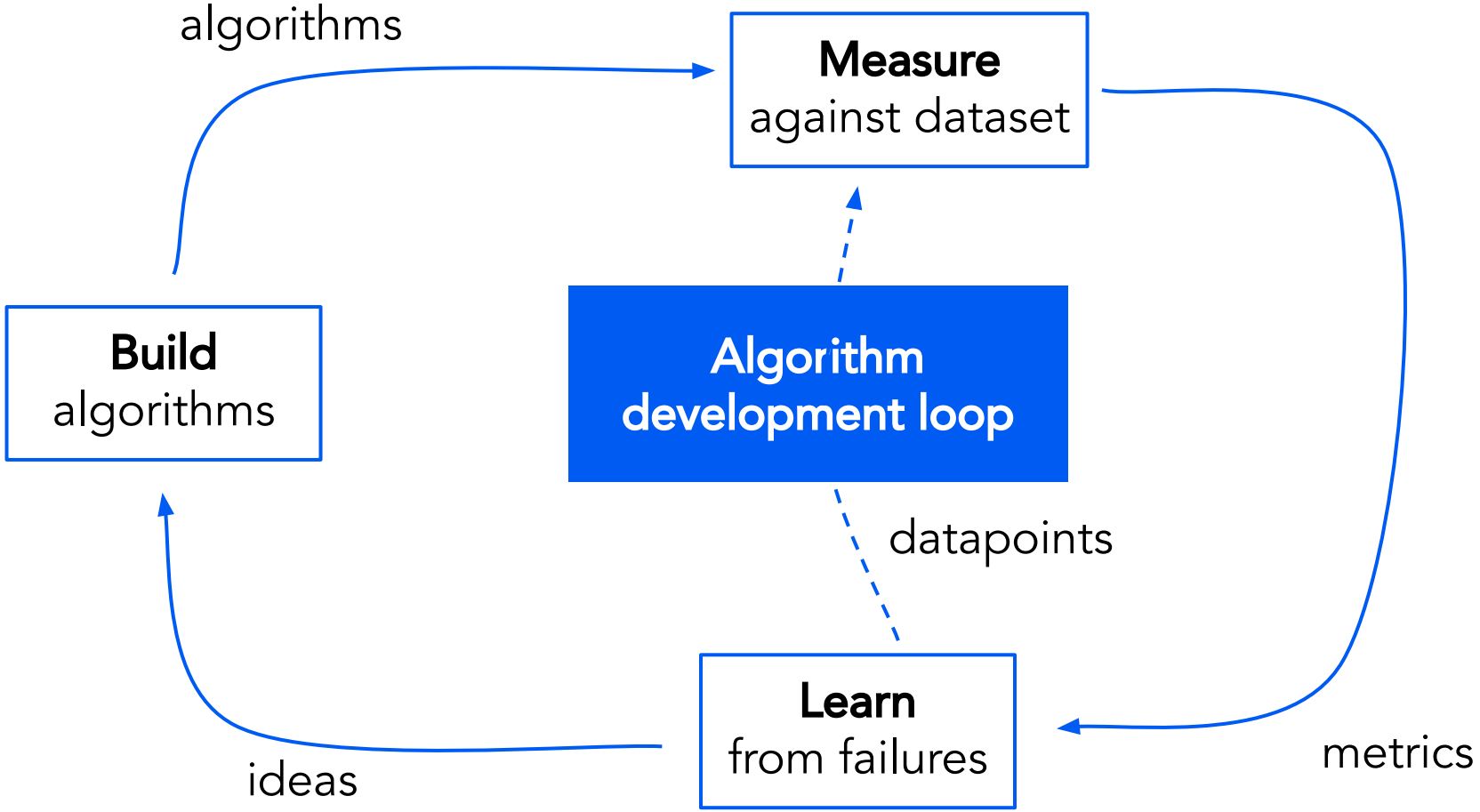
Not sure

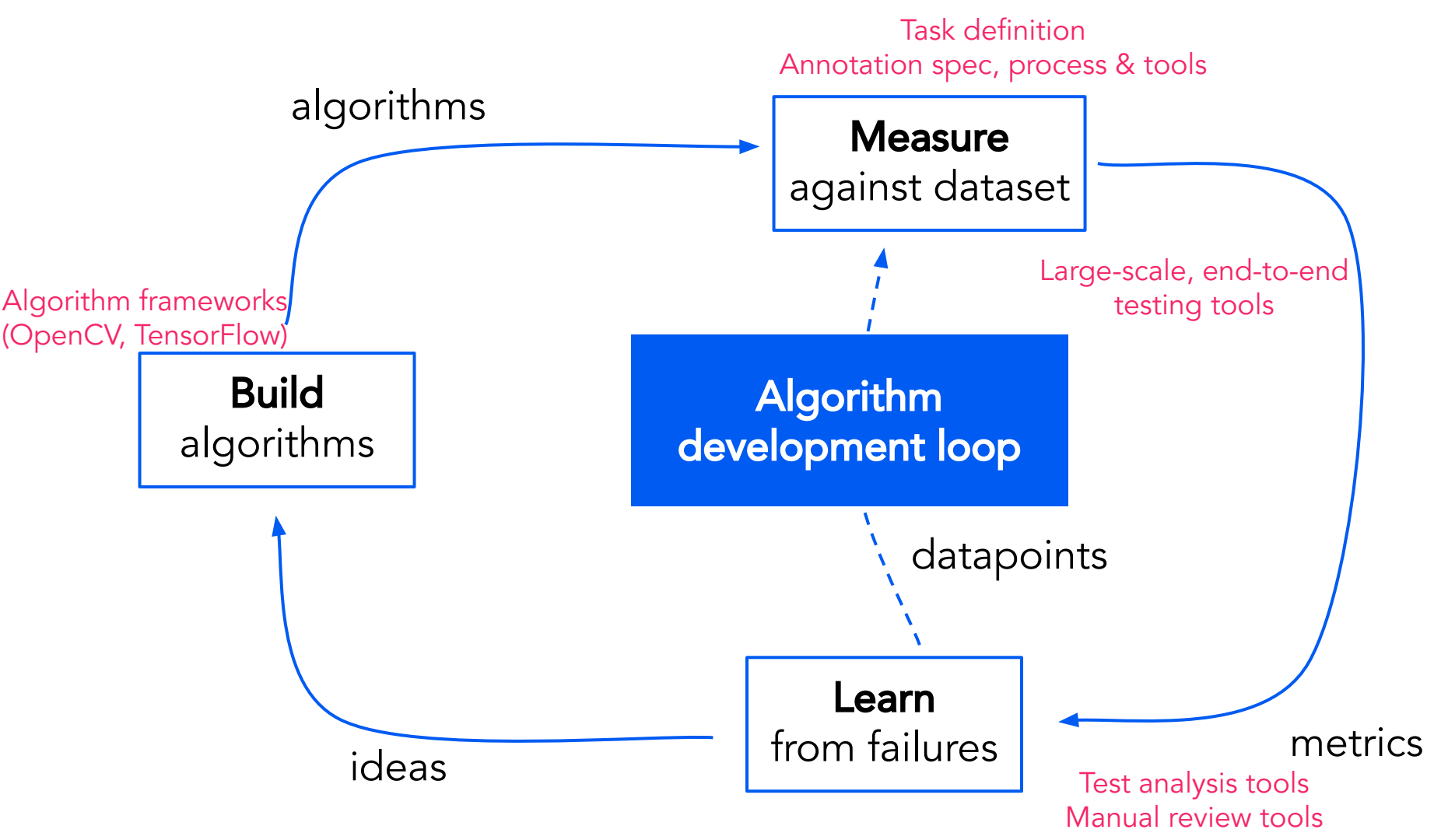
Approved automatically

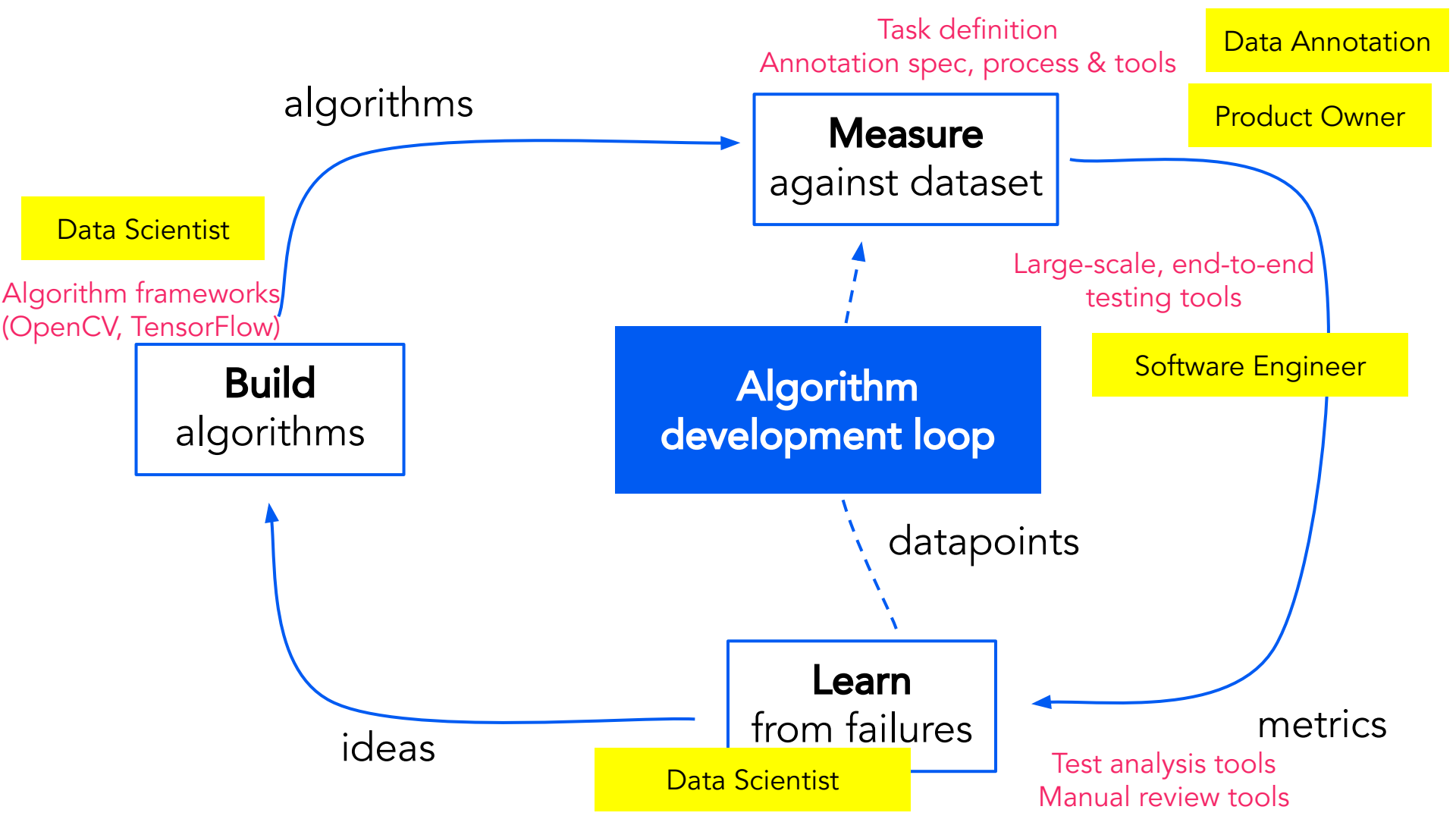
Human check


Ideas
LEARN
BUILD
Build
Measure
Learn
Loop
Data
Product
MEASURE

Loop 1:
Algorithm development


algorithms
Measure
against dataset
Build
algorithms
Algorithm
development loop
datapoints
Learn
from failures
ideas
metrics


Task definition
Annotation spec, process & tools
algorithms
Measure
against dataset
Large-scale, end-to-end
testing tools
Algorithm frameworks
(OpenCV, TensorFlow)
Build
algorithms
Algorithm
development loop
datapoints
Learn
from failures
metrics
ideas
Test analysis tools
Manual review tools


Task definition
Annotation spec, process & tools
Data Annotation
Product Owner
algorithms
Measure
against dataset
Data Scientist
Algorithm frameworks
(OpenCV, TensorFlow)
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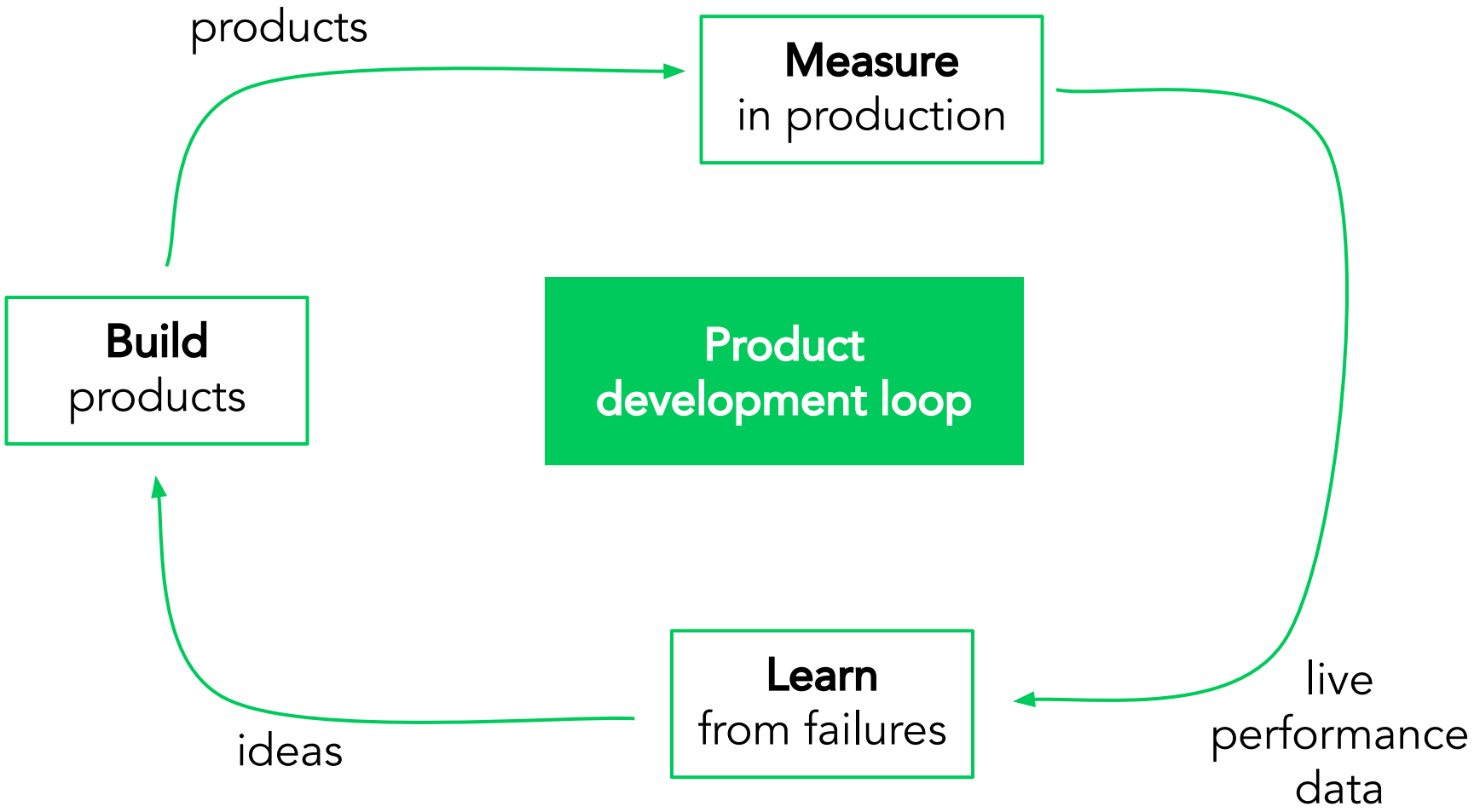
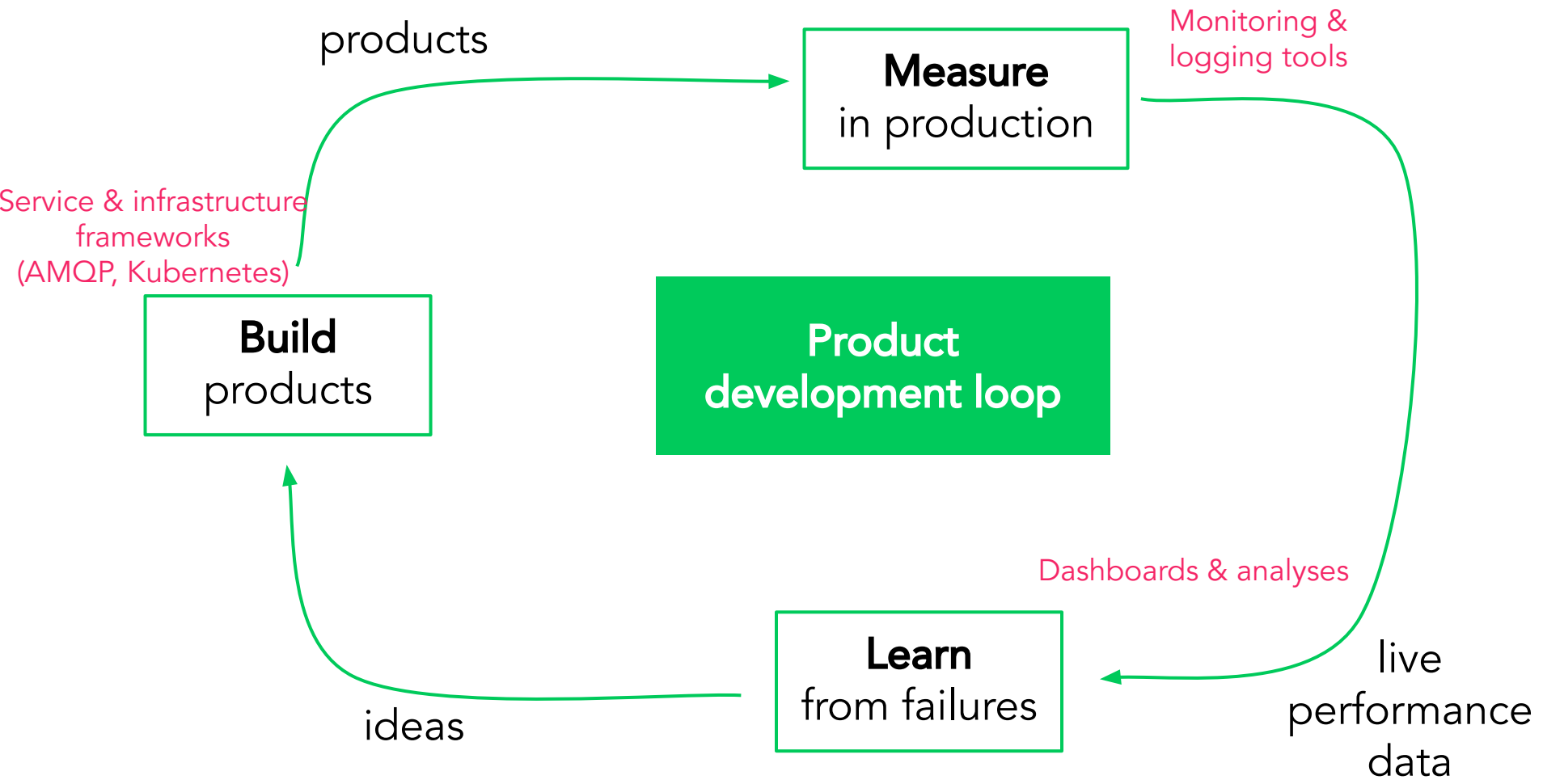
testing tools
Software Engineer
Build
algorithms
Algorithm
development loop
datapoints
Learn
from failures
metrics
ideas
Test analysis tools
Manual review tools
Data Scientist

Loop 2:
Product development


products
Measure
in production
Build
products
Product
development loop
Learn
from failures
ideas
live
performance
data


products
Measure
in production
Monitoring &
logging tools
Service & infrastructure
frameworks
(AMQP, Kubernetes)
Build
products
Product
development loop
Dashboards & analyses
Learn
from failures
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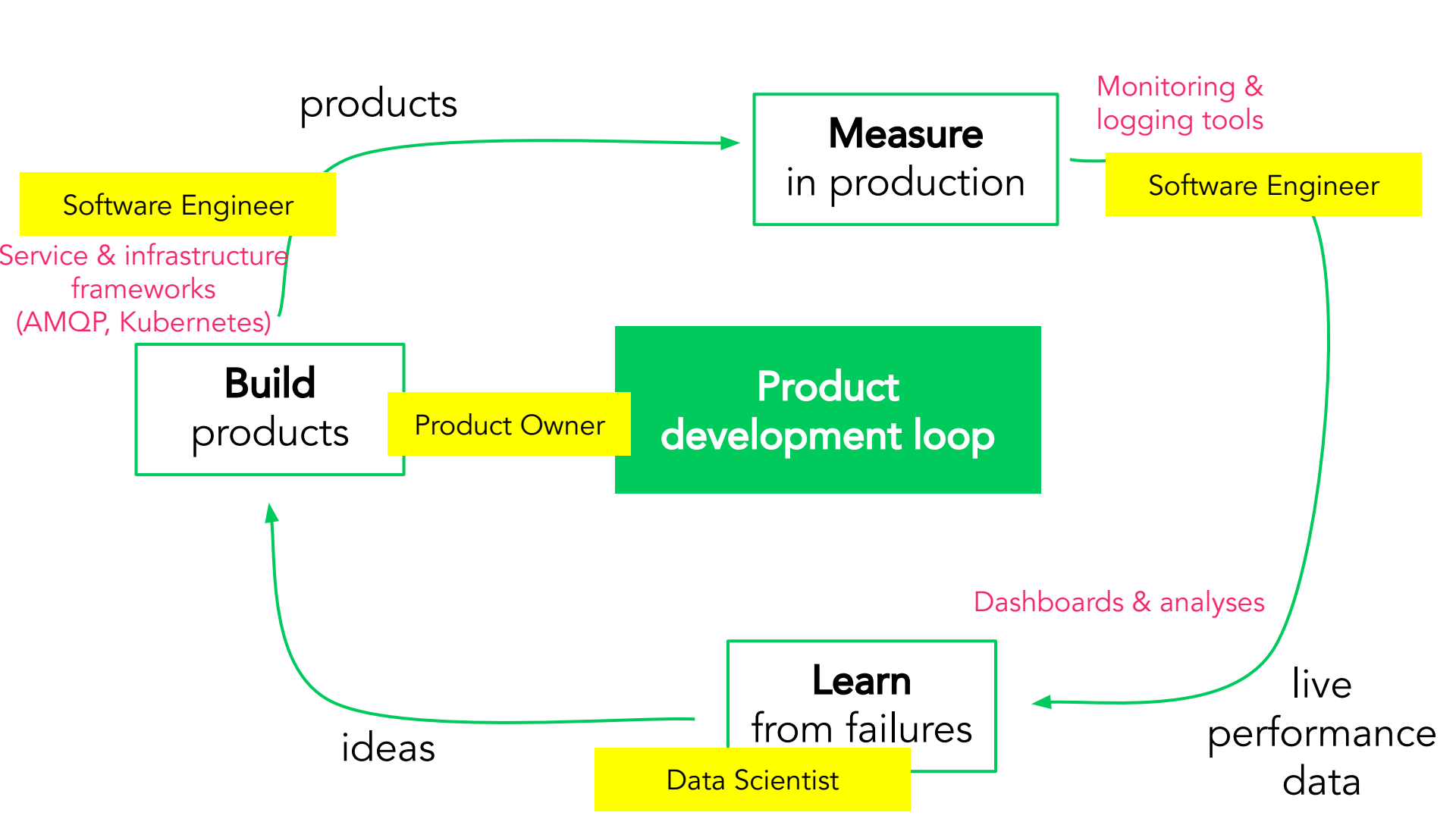
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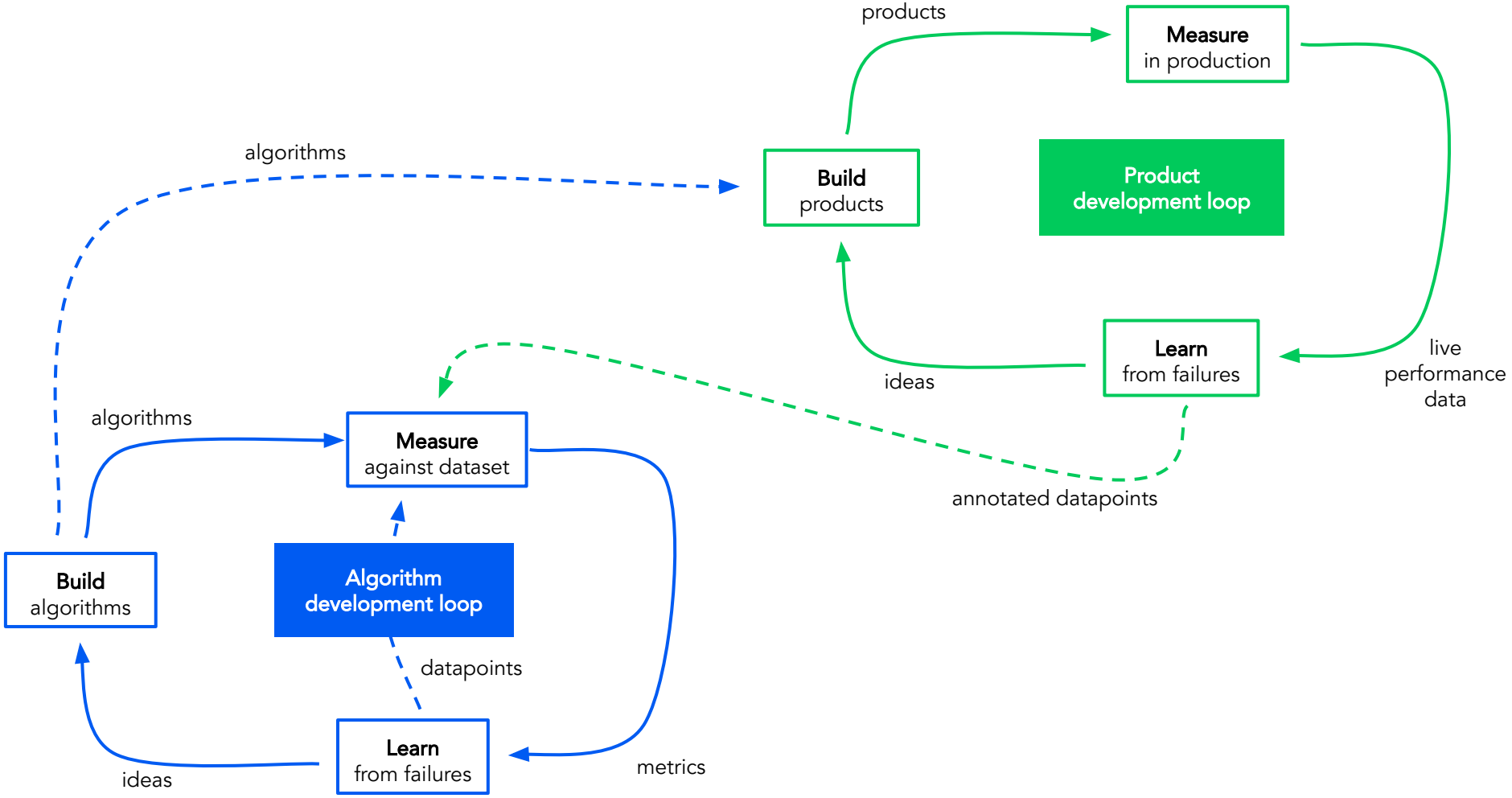
How do the two loops work together?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live
performance
data
annotated datapoints
algorithms
Measure
against dataset
Build
algorithms
Algorithm
development loop
datapoints
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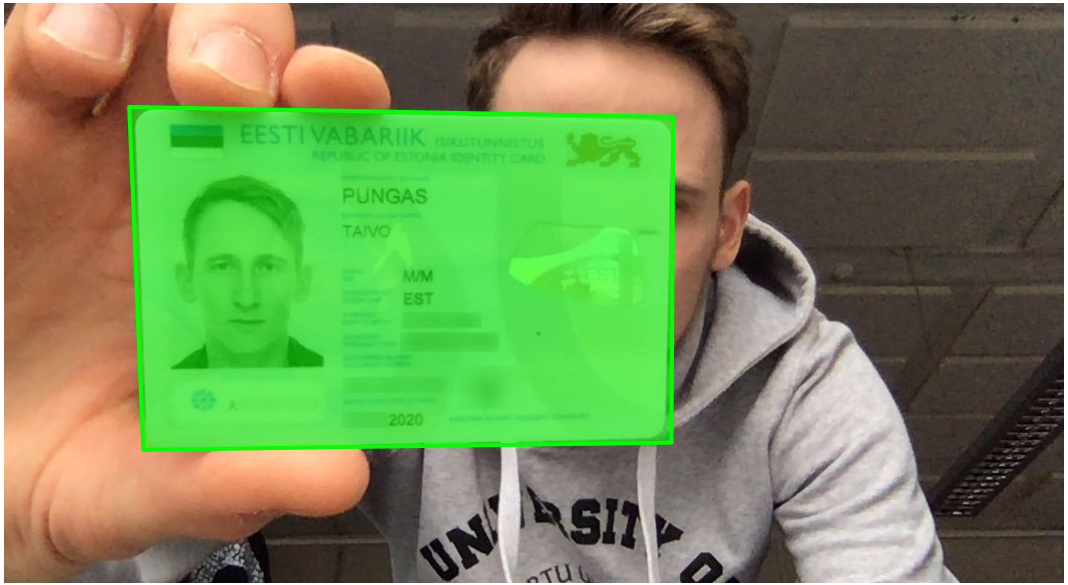
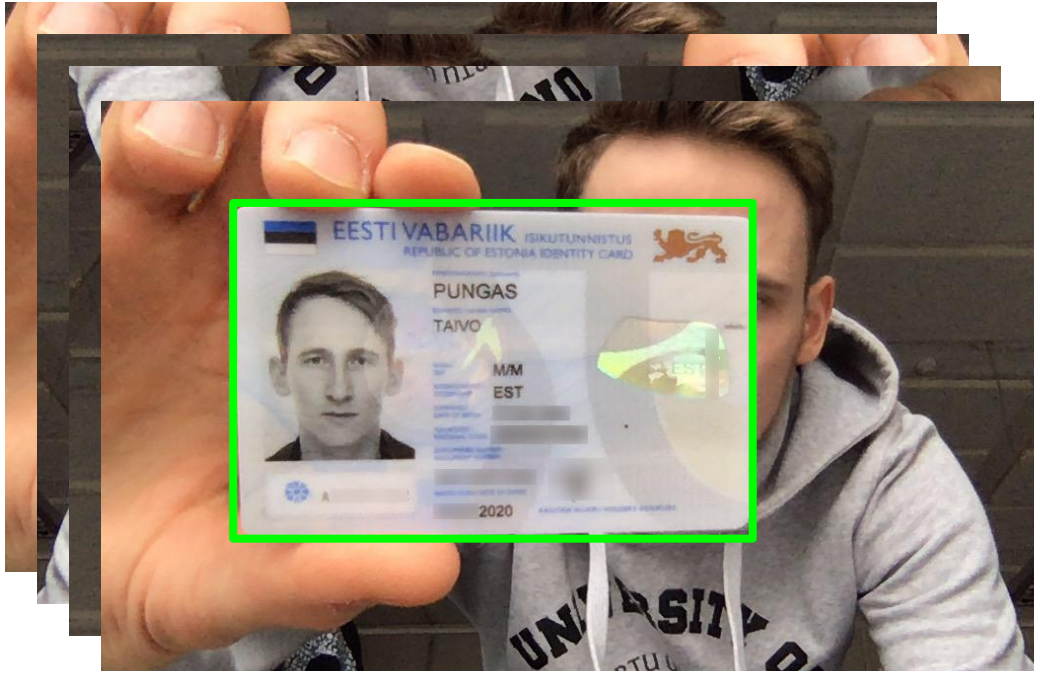
metrics

Example: document localisation



Step 1: dataset for training CNN

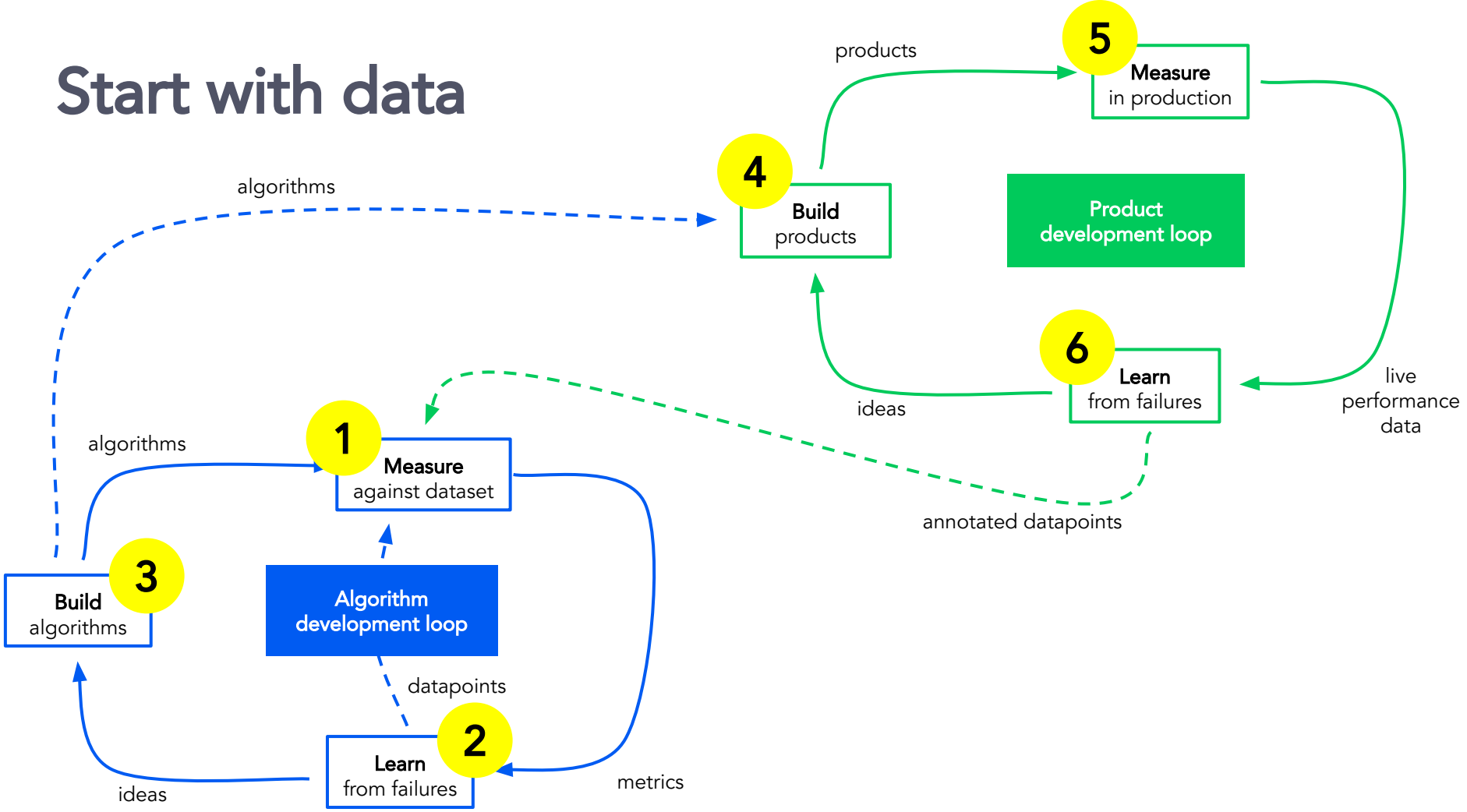


x1000

+

TensorFlow

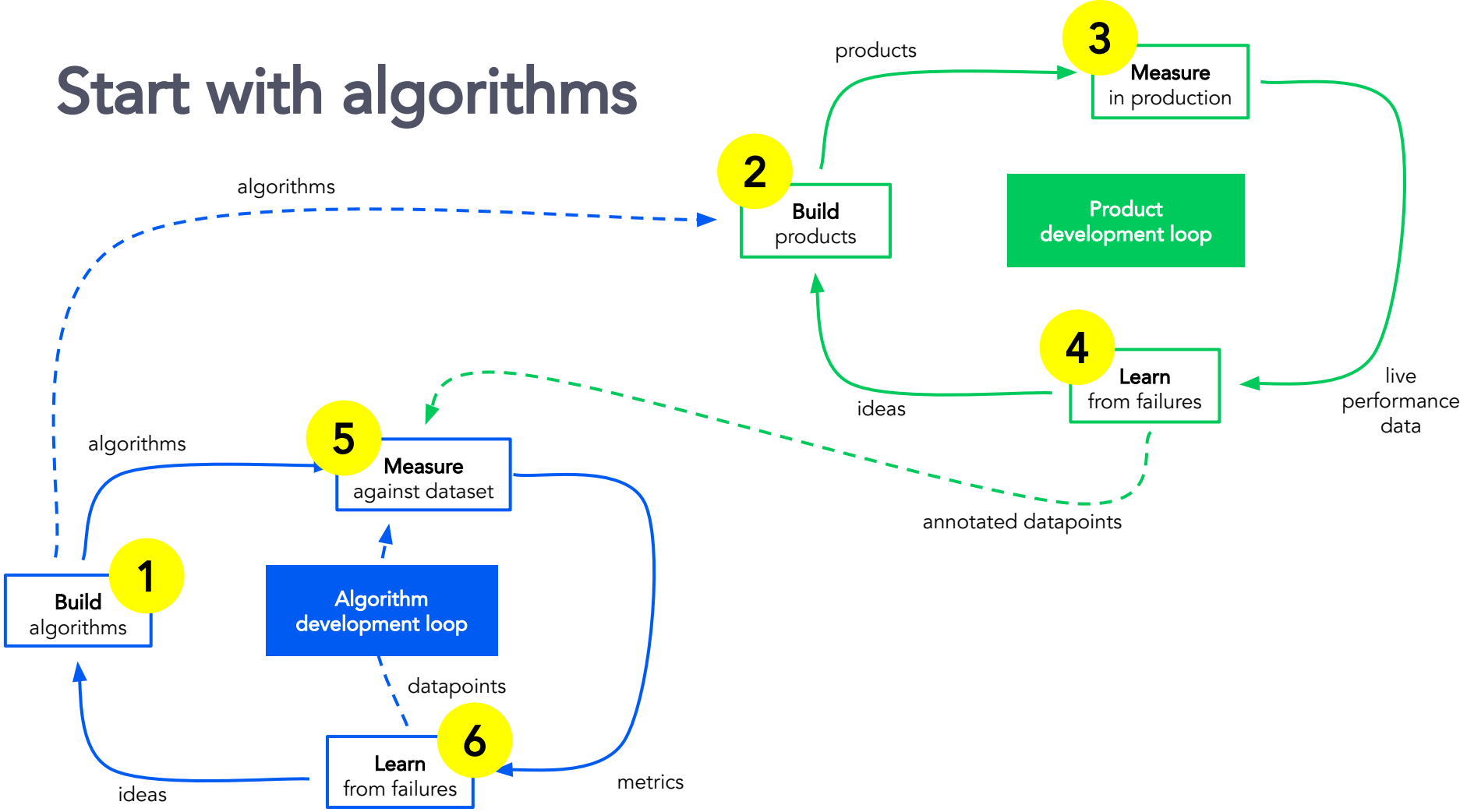
Start with data



Step 1: two lines of code

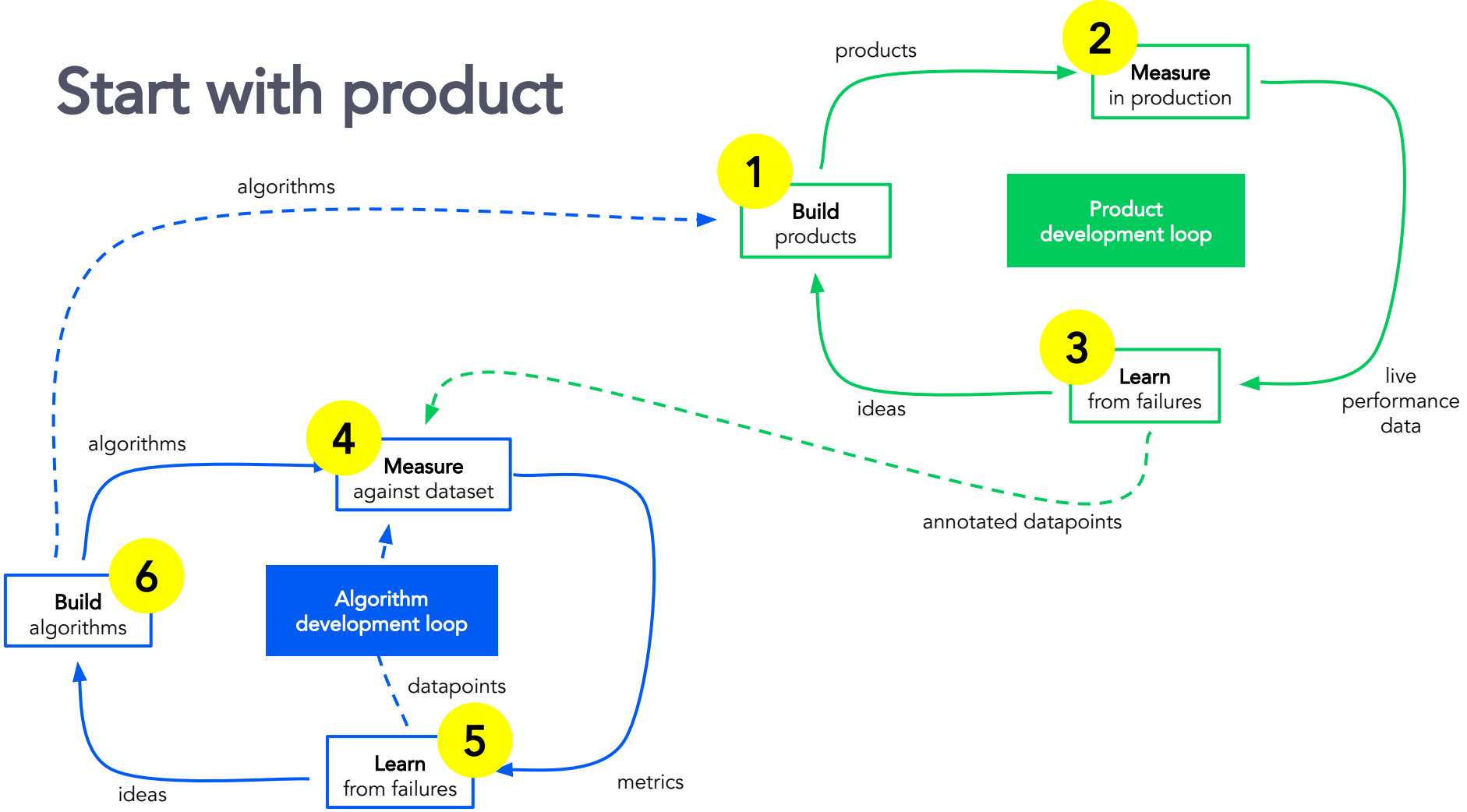
```
from skimage.feature import match_template
result = match_template(image, template_image)
```

Start with algorithms



Step 1: 100% human product

Start with product



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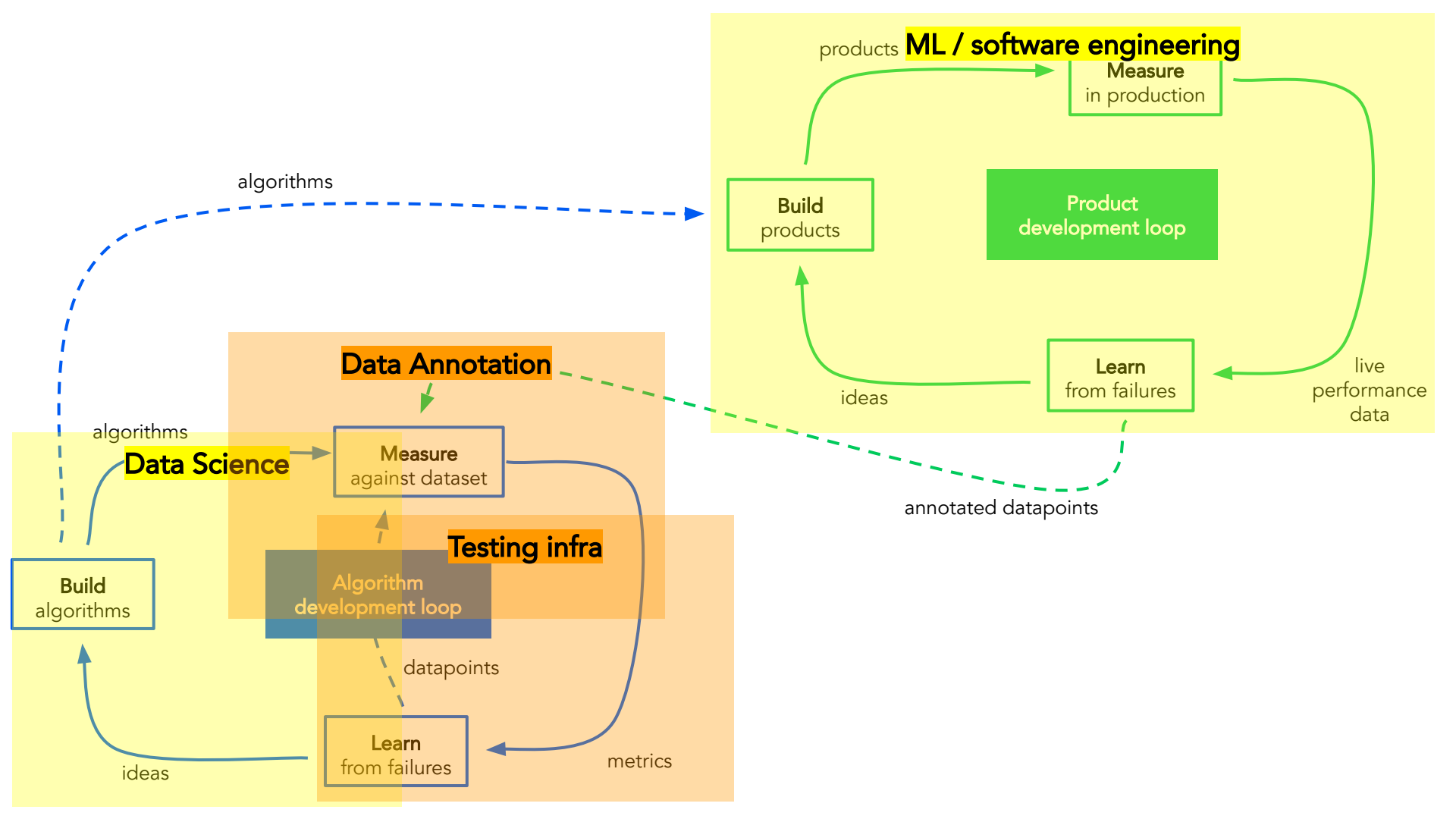
The hardest part?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veriff.com/careers

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