

## MACHINE LEARNING

The machine learning (ML) field uses artificial intelligence (AI) algorithms to allow computers to automatically “learn” how to perform a specific task without being explicitly programmed to do so.

Ovizio’s services can create custom ML models to suit your specific needs.

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The OsOne software includes machine learning algorithms for tracking specific objects or cell states.

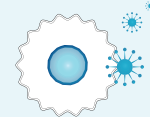
For example some of the current OsOne ML models allow the detection of:



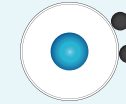
DEAD CELLS



ACTIVATED CELLS



VIRAL INFECTION



BEADS



CUSTOM DETECTION

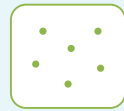
A ML model is built by showing the computer examples of data related to the desired task.

1 Data set creation

Image acquisition & reference measurements



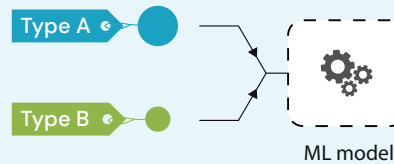
100% cell type A



100% cell type B

2 Model training

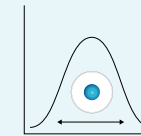
Creation of a training set of examples to build the ML model



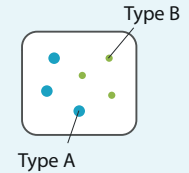
ML model

3 Model evaluation & prediction

Prediction at a single-cell level

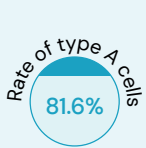


Real-time measurements



Type A

Cell culture parameters

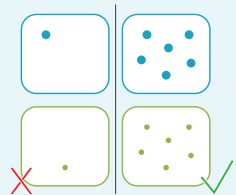


Rate of type A cells

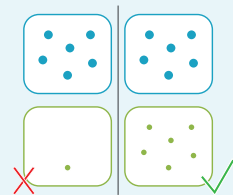
81.6%

The effectiveness of the resulting ML model relies on the quality of the training data set.

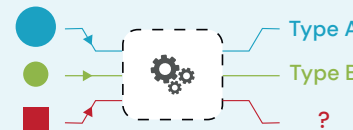
To ensure robust models, the ideal training set must be:



Sufficiently large



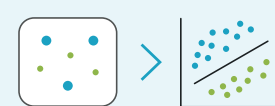
As balanced as possible



Representative of the data to be processed



High enough quality to capture relevant cell features



Visibly different between the population types