



# Artificial Intelligence for Biotech



## Biotech and Artificial Intelligence

Artificial intelligence can provide disruptive solutions in the biotech sector in order to address challenges such as:

- Automating tasks done by human experts.
- Automating a task for which no formal rules are known, or rules seem intrinsically fuzzy.
- Automating a task that no human expert can already achieve.

Applications that meet those conditions include for instance:

- Automatic recognition and characterization of cells from digital images obtained by microscope or virtual slides (the picture below shows automatic processing).
- Automatic extractions and tuning of critical parameters used by medical devices.
- Automatic quality control of cell cultures.

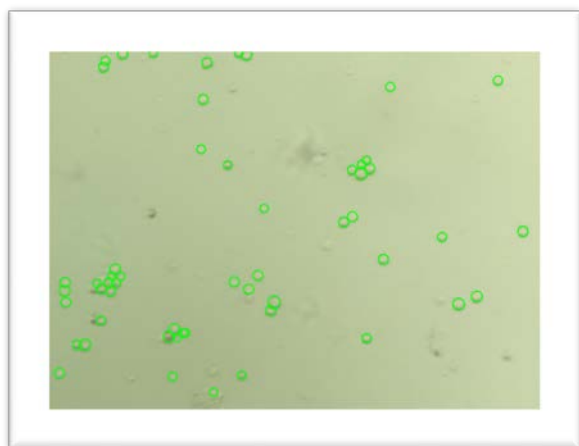


Figure 1: Automatic labelling and characterization of iPS neural cells

## How it works

Artificial Intelligence (AI) systems work (in general) by learning on a set of examples. For instance, this can be:

- a set of skin cancer pictures and the corresponding diagnosis given by an expert or,
- a set of microscopic pictures of contaminated and healthy cells cultures.

The machine learning system is then trained to automatically output the right diagnosis for each of the input images for a selected subset of these examples, called the “training set”.

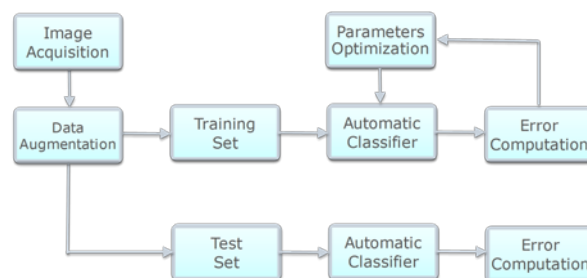


Figure 2: Diagram showing the machine learning process

Once the AI system has successfully learned the training set, it is then tested on a set of pictures it never saw before, called the “test set”. If the conclusions are correct, the system has successfully shown its capability to generalize and can be used on live data. Its training is completed.

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## AlpVision Biotech offering

Our offering is threefold:

- **Expertise:** we perform specific studies on your data, and in particular assess if your system performance can be improved using Artificial Intelligence.
- **Software development:** we provide software application using machine learning which are tailored to your requirements, for PC, Mac, smartphone, embedded systems or in the cloud.
- **New technology:** we design specific machine learning algorithms which are optimal for your application.

## How to start with us

Starting with us is a very simple 2-step process:

1. We sign your standard NDA.
2. We provide a first free assessment of your specific application.

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