Clinical grading by Machine vision
and
Machine learning

Machine learning or known as Artificial intelligence

As with any new and disruptive technology, the following three stages occur:

1) "This is not the way we have done it in the past"
2) "Well actually, we knew this method was better all along"
3) Everybody denies stage one ever happened

We at Brightex Bio-Photonics believe that the AI is the way of the future in this digital world.

BTBP has validated its technology at a clinical level and in the consumer mobile space. Brightex has been building and selling 2D and 3D clinical systems for over 10 years, confirming and verifying their use in clinical environments. The company has achieved this by correlating results to live visual grading and image grading, which has been the prior norm in the cosmetics industry.

Live visual grading and image grading suffer from typical human errors: inconsistency between graders, fatigue, boredom, recension etc. Whereas training Artificial Intelligence (AI) for the same tasks, results in a level of reproducibility beyond human capability. AI has advanced far enough where self-driving cars are a reality.

The simplest way to explain how AI works is to think of the way a child is taught to recognise a colour or the shape of an object; you say, "*Look, this is red and it's a rectangle*". In a similar manner, we can train computers through algorithms developed for machine learning. Computers learn from millions of images an hour, whereas humans may learn and remember just a few colours and shapes in the same time span. Brightex's technology enables machines to learn, remember and be reproducible beyond human capability.

How is the skin area photographed and ensured to be the same before and after.

BTBP technology not only delivers the same region of interest with its clinical systems but also in the consumer space via mobile apps.

Clinical systems take the following three-step approach:

1. Mechanical positioning

The clinical systems have a chin and headrest to position and align faces with the three cameras inside the systems. All facial profiles are captured simultaneously: front, left and right.

2. Real-time guidance

A silhouette is generated from a subject's baseline image capture. This silhouette is overlaid onto the live feed from the camera, to help align the subject in subsequent time points. Before images are saved, the system verifies the subject is aligned with the silhouette.

3. Image registration

BTBP's algorithms recognize over 150 unique points on each subject's face. These points are used to position regions of interest on the face repeatable. Combined with the steps one and two, this allows the system to analyse the same regions with great accuracy.

BTBP has been working in this industry and with AI for many years. Today with our technology, we can track regions of interest in real time for measurements and recognition. Furthermore, we can recognise people's gender, age, skin photo-type via images and video streams with BTBP's AI.