

# 3D FACIAL CLINIC

A COLLABORATION BETWEEN POLITECNICO DI TORINO (SYSBIO GROUP) AND UNIVERSITY OF TORINO (DIPARTIMENTO DI SCIENZE CHIRURGICHE)



## WHY

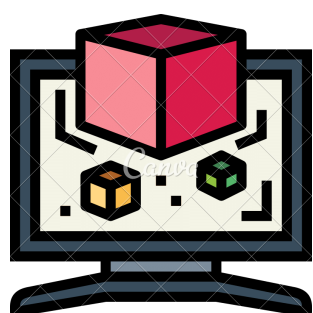
The implementation of standards in daily clinical practice has been a constant challenge for clinicians since dentistry was born.

The traditional approach in this domain is to create wax models or similar artifacts to help the patient to visualize the result.

## WHAT

Provide the clinicians an instrument to display patients the effect of prosthetic rehabilitation.

The advance in computer graphics techniques, machine learning and artificial intelligence has the potential to significantly impact this domain.

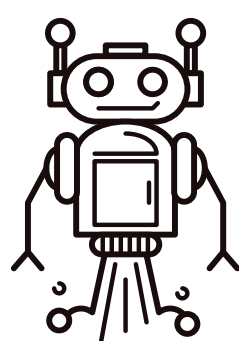
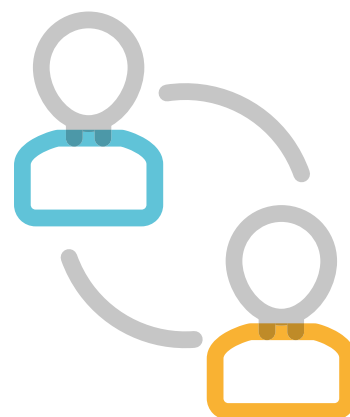


## HOW — 3D MODELING

Build 3D facial models starting from 2D pictures taken with commercial low cost cameras.

## HOW — CLUSTERING AND ARCHIVING

Clustering 3D facial models of healthy individuals based on a set of facial aesthetics metrics in order to create a library on which training advanced classification models.



## HOW — MATCHING

Match the 3D facial model of a patient to a cluster of compatible models in the constructed library.

## HOW — RECONSTRUCT

Reconstruction of the damaged portion of the patient face by exploiting the matched models.



INVOLVED TECHNOLOGIES: 3D GRAPHIC PROCESSING ALGORITHMS, DEEP LEARNING MODELS, PARALLEL COMPUTING

WE ARE LOOKING FOR MOTIVATE STUDENTS WORKING AT ALL LEVELS OF THIS PROJECT.

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