Symmetry Measures for Facial Reconstruction

PROJECT DESCRIPTION

Tumor resection for patients with head and neck cancer can leave large defects in the bone structure of the face requiring extensive reconstruction. One of the primary objects of this type of reconstructive surgery is to restore the patient's function in terms of breathing, swallowing, and speech. However, another important consideration is to restore the aesthetics for such patients, which can be quantified by examining the symmetry of facial features after reconstruction. The overall aim of this project is to apply 3D measures to evaluate symmetry after facial reconstruction surgery. We first aim to quantify symmetry of the underlying bone structure using 3D models developed from computed tomography (CT) scans. Secondly, we aim to quantify post-operative facial symmetry from 3D photogrammetric models of the face. Finally, we aim to asses correlations between the symmetry of the outside of the face with symmetry of the underlying bone structure and to assess correlations between symmetry measures and functional outcomes for speech and swallowing.

FACULTY-DEPARTMENT

Engineering - Mechanical Engineering

OPEN TO STUDENTS FROM THE FOLLOWING INSTITUTIONS

Chinese universities participating in the *Double First-Class Initiative*.

DESIRED FIELD OF STUDENT STUDY

Mechanical engineering. However, any engineering or science discipline could be acceptable.

INTERNSHIP LOCATION

Edmonton Campus

NUMBER OF INTERNSHIP POSITIONS

1

INTERNSHIP DATES

Start: July 2, 2019

End: October 2, 2019

ARE THE DATES FLEXIBLE?

Yes, I am flexible regarding the internship dates. Selected students can contact me to request a date change.