

Enhance Preoperative Evaluation of Cochlear Implants Surgery by Deep Learning Image Processing

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Cochlear implants (CI) are hearing aids that help people with hearing loss regain aural comprehension. The principle of CI is that the electrodes implanted in the patient's cochlea directly stimulate the auditory nerve to produce hearing. Due to the high complexity of the surgery, the surgeon must perform a series of acoustic and physiological examinations. Among these, a cross-sectional view of the left and right cochlea, mastoid cavity, and critical landmarks from low-dose CT Images. In this study, we exploited a deep learning algorithm to obtain low noise images in preoperative stage for reducing the risk of facial nerve injury during CI surgery.