

Difficult laryngoscopy prediction in anaesthesia using machine learning

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Machine learning (ML) is an efficient method for predicting laryngoscopic exposure difficulties during anaesthesia; it can identify difficult laryngoscopes quickly and accurately. Transfer learning, which is a special ML tool, is an excellent solution to the problem of limited clinical data caused by blurred images, poor quality or different scanning techniques, etc. Ultrasound predictors of anterior neck soft tissue thickness are usually performed in neck maximum extension, which is dangerous for patients with cervical spondylosis. Image processing can accurately predict the difficulty of laryngoscope during anaesthesia for patients with cervical spondylosis, timely find the difficult laryngoscopy exposure, and select the right way for laryngoscope intubation. This paper collected preoperative lateral X-ray images of 600+ patients with cervical spondylosis who underwent the same perioperative treatment and were exposed to the glottis under Macintosh laryngoscope, and explored the feasibility of image processing data for the analysis of difficult laryngoscopic exposure. Image filters are used to reduce and eliminate unwanted noise or artefacts, crop and resample input data for easier and faster processing of anaesthetic images. Anaesthesia imaging data is one of the richest sources of information about patients, and often one of the most complex. AI could be a valuable ally for anaesthesiologists who want to increase their productivity and potentially improve their accuracy.

Biography

Xiaoxiao Liu is a PhD student at the University of Limerick, and published papers in cooperation with Peking University and Chengdu University of Electronic Science and Technology. She has long-term cooperation with Beijing Third Hospital, one of the top three hospitals in China, and worked for IBM, China Telecom and Docomo.

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