Licensing Opportunity

pactt technology transfer

Partner for an Innovative Word

AUTOMATIC PREDICTION OF DIFFICULT ENDOTRACHEAL INTUBATION

Induction of general anesthesia leads to apnea, rendering tracheal intubation mandatory to provide artificial breathing and keep the patient alive. Difficult tracheal intubation is a major cause of anesthesia-related injuries with potential life threatening complications. Nowadays, up to one third of all deaths attributed to anesthesia are consecutive to the inability to either ventilate or intubate. Detection and anticipation of difficult airway in the preoperative period is, thus, crucial for the patients' safety, the optimization of clinical resources and the legal compliance.

Automatic face extraction/face analysis and prediction of difficult endotracheal intubation [1]

DESCRIPTION

Based on an automated database of 2'700 patients including photos, videos and ground truth data, specific statistical face models have been designed to provide an automated parametrization of the facial morphology.
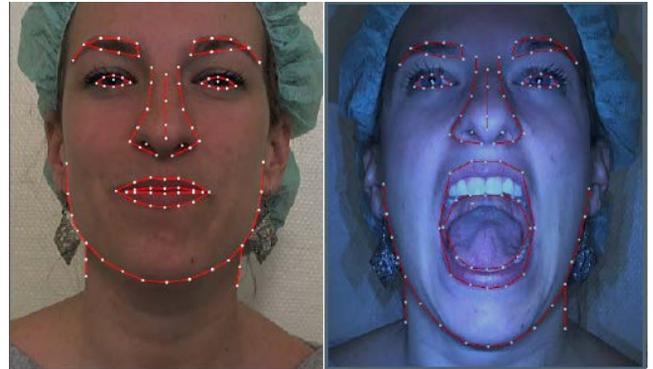
Inventors have designed a solution, by combining hardware and software, which is able to predict intubation difficulty with their automated face-analysis approach.

This solution leads to significant advantages in patients' safety, reduction of patients' injury, while allowing optimal usage of hospital resources leading to operational efficiency. Moreover the automatic patient's specific morphologic data acquisition provides clinical substantiations in case of litigation.

A smartphone APP version (in development) will widen the application fields to also include rescue and ambulance teams ; early risk detection of sleep apnea and more.

STAGE OF DEVELOPMENT

An initial version validated on 900 patients is available for assessment.

COMPETITIVE ADVANTAGES

- Completely automatic & noninvasive predicting system for difficult intubation/ventilation detection.
- Validated in preoperative clinical assessments; can be broaden to emergency & intensive care units.
- Strengthening patient's safety (major enhancement with KPI of 300 % on precision, 125 % on sensitivity and 250 % on time vs reference method combining Mallampati score and Arné).
- Drastic improvement in clinical efficiency (cost savings of 1.25 Million US $ /Y for a University Hospital with typically 25'000 Pre-operative consultations).
- Automatic patient's specific morphologic data acquisition provides clinical substantiations in case of litigation.
- Screening/Decision support tool for small hospitals with limited anesthesiology's resources.

INTELECTUAL PROPERTY

International pub. WO2015/052683; Priority date October 10, 2013; Granted EP 3054844B1; Applicant University Hospital of Lausanne (CHUV); Inventors Schoettker Patrick et al.

PUBLICATION

[1] Facial Image Analysis for Fully-Automatic Prediction of Difficult Endotracheal Intubation; Cuendet et al., IEEE Transactions on Biomedical Engineering, Volume: 63 Issue 2. 2016

COLLABORATION TYPE

Exclusive or non exclusive license to industrial partners able to develop & commercialize the technology.

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