



eVIDIAC:

AI-Based Automated Airway Classification from Videolaryngoscopy

Background & Innovation

Difficult airway management is one of the most critical challenges in anesthesia and emergency medicine. **Previous airway difficulty is the strongest predictor of future intubation problems.**

Although videolaryngoscopy is widely used in routine clinical practice, assessment of glottic view and intubation difficulty remains largely subjective, observer-dependent, and inconsistently documented. Established grading systems, such as the Cormack–Lehane classification, are inconsistently applied and show limited reproducibility in clinical practice.

The presented technology (**eVIDIAC**) introduces an **AI-based method for automated airway classification** using videolaryngoscopy recordings. The approach enables structured and reproducible classification of airway anatomy and intubation difficulty based on video data acquired during routine intubation procedures.

Technical Description

During routine videolaryngoscopy, video sequences of the patient's airway are recorded and provided to the system as graphical input. Using **trained machine learning and artificial intelligence models**, the system automatically analyzes the video data to detect clinically relevant anatomical airway landmarks (e.g. glottis, epiglottis, arytenoids, vocal cords) as well as procedure-related landmarks, such as instruments used during intubation. Based on the detected landmarks, the method determines a **standardized classification of the airway for intubation**, wherein the classification is indicative of the degree of difficulty of intubation, in line with validated videolaryngoscopic grading concepts (VIDIAC).

The resulting classification provides an objective summary of airway conditions and can be displayed, stored and integrated into clinical documentation and information systems to support **planning, preparation and evaluation of airway management in future intubation procedures.**

Potential for Cooperation

The technology has reached **Technology Readiness Level (TRL) 4**, with feasibility demonstrated in a **prospective clinical pilot study** using the validated VIDIAC score. At this stage, further development towards a market-ready product requires collaboration with an industrial partner.

Future steps include **broader training and validation of the AI using** additional clinical use cases and datasets. Expanding the range of application scenarios is essential to further improve robustness and scalability of the technology.

Competitive advantage

- **Objective, AI-based airway classification**
- **Automated detection of critical anatomical landmarks**
- **Reducing risks associated with difficult intubation**
- **Standardized and reproducible documentation of airway conditions**
- **Support for anesthesia and emergency teams through structured airway classification**

FOCUS SECTORS

- Medtech
- Anesthesia & perioperative medicine
- Emergency and intensive care medicine
- Medical technology & digital health documentation
- Clinical decision support

PROJECT KEY WORDS

- Videolaryngoscopy
- Airway Classification
- VIDIAC Score
- Digital Airway Documentation
- Medical Video Analysis

DEVELOPMENT STATUS

- TRL 4 - Feasibility evaluated in a prospective clinical pilot study using videolaryngoscopy data

PATENT PROCEDURE STATUS

- EP Patent application filed (17.12.2025)

POTENTIAL FOR COOPERATION

- R&D Cooperation
- Licensing
- Transfer of rights



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