

nViso receives grant from Swiss CTI to apply breakthrough 3D Facial Imaging technology to predictive analytics in health care applications

Initial results showing significant accuracy improvements in tracheal intubation screenings to be displayed at World Medtech Forum.

LAUSANNE, SWITZERLAND, September 24, 2012 – nViso, a leading provider of emotion recognition software, today announced it has received a grant from the Swiss Commission for Technology and Innovation (CTI) to extend its pioneering facial analysis technology to provide new levels of predictive analytics in health care applications that will improve the accuracy of patient evaluations. The project, valued at 750,000 USD, will run for 18 months and initially focus on leveraging nViso's artificial intelligence-based face imaging capabilities to develop an automatic prediction process that will more accurately categorize patients who require tracheal intubation for surgeries involving general anesthesia, thus reducing costs and risks for this type of procedure.

Initial results and a demonstration of the pilot project, which involves the anesthesiology department at Lausanne University Hospital (CHUV) under the responsibility of PD Dr. Patrick Schoettker, and the Signal Processing Laboratory of the Ecole Polytechnique Fédérale de Lausanne (EPFL) lead by Prof. Jean-Philippe Thiran will be displayed at the World Medtech Forum in Lucerne, Switzerland September 25-27. (nViso will be located in Halle 4, Stand A 406.)

The results of the pilot project, which collected data from 800 patients, include a 97% classification accuracy in predicting the Mallampati score for patients requiring tracheal intubation, a score routinely used by anesthesiologist to predict difficult airway management.

"The leading cause of morbidity and death in general anesthesia are a result of difficulties in intubation. This stems directly from inaccurate assessment of patients that leads to inappropriate choice of material and plan for anesthesia. The results we have been able to achieve demonstrate that automated predictive analytics can offer better and more efficient ways to assess and characterize patients, compared to traditional manual and subjective approaches. Better accuracy in pre-operative detection, particularly in airway management, allows optimal preparation and reduces patients' risks and health care costs," said PD Dr. Schoettker of CHUV.

The grant will be used to conduct further research and development in this area. nViso's advanced image processing and computer vision algorithms, which to date have been primarily used to analyze emotional responses to marketing stimuli, will be extended to evaluate dynamic features of the face, mouth, and neck, which are critical to predicting potential intubation problems. The recorded biometric data will be then analysed with mathematical algorithms to generate a prediction score that is more accurate and efficient than existing methods.

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<http://www.nviso.ch>

“We are extremely pleased to have passed a rigorous screening process of the CTI Medtech board to be able to apply our face analysis and artificial intelligence technology to new areas and develop the predictive capabilities it can offer to life-critical applications such as this. This project will allow us to extend the capabilities of our software through enhancements such as side profile tracking and the addition of more than 100 new measurement points on the face. And, it demonstrates its applicability to a variety of use models that can benefit from this type of automated predictive analytics,” said Tim Llewellynn, CEO of nViso. “The combination of our deep understanding and experience in human facial modeling combined with our partners’ expertise in pre-operative detection of critical anatomical factors will result in a solution that can significantly improve the safety and costs involved in tracheal intubation.”

ABOUT NVISO

nViso is a leading provider of emotion recognition software that interprets human facial micro-expressions and eye movements captured through video. Its solutions use proprietary 3D facial imaging technology with artificial intelligence to track hundreds of different facial points to recognize human emotions. The company uniquely combines the latest advancements in computer science, engineering and behavioral sciences to make automatic emotion recognition a viable reality using any image based device. Its proprietary analytical techniques are based on theoretical work by Dr. Paul Ekman, which demonstrates that emotions can be precisely recognized by minor changes in micro-expressions in the face. nViso is based at the Swiss Federal Institute of Technology in Lausanne, Switzerland (EPFL). More information can be found at www.nviso.ch.

ABOUT CHUV

CHUV (Centre Hospitalier Universitaire Vaudois), based in the Canton of Vaud, is one of the leading University hospitals in Switzerland. The division of Neuro, Ear-Nose-Throat and Emergency Anesthesia of the CHUV, directed by PD Dr Patrick Schoettker, performs close to 3000 general anesthesia with a difficult airway identified in 17% of the patients, due to injuries such as tumors or trauma to the airway or anatomical dysmorphias necessitating reconstructive surgery. The head of the division is a leader in the field of difficult airway among the Swiss Society of Anesthesia and Resuscitation and belongs to the pool of European and American experts. Numerous international publications (Articles and book chapters) have issued from this division and research projects on the difficult airway are underway.

ABOUT EPFL

The signal Processing Lab of EPFL (LTS5), directed by Prof. Jean-Philippe Thiran, counts about 30 researchers, both PhD students and post-doctoral fellows. LTS5 core expertise is in the development of innovative image analysis methods, ranging from image segmentation to feature extraction and machine learning techniques. In terms of applications, LTS5 is active in medical image analysis, facial image analysis, video image analysis, object detection and tracking.