

Friday, November 20th 2020

5.00 pm (Italian time)

Official language: English

## Welcome

It is our great pleasure to welcome you to the VOSTARS WEBINAR - Experience Augmented Reality which will be held on Friday, November 20th 2020, on the ZOOM platform, at the following link:

<https://us02web.zoom.us/j/88927377184?pwd=Rm1keEhmK1dvRmUyNW95blAwWWZ5Zz09>

Meeting ID: 889 2737 7184

Passcode: 572006

This online activity will be a great opportunity to learn more about the Augmented Reality in Maxillofacial Surgery and discuss indications and tips and tricks directly with the experts from technical and surgical point of views.



*Prof. Ing. Vincenzo Ferrari*  
Pisa University



UNIVERSITÀ DI PISA

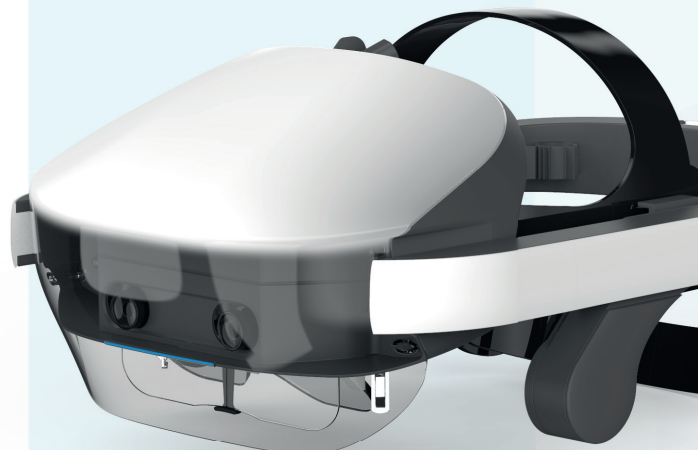
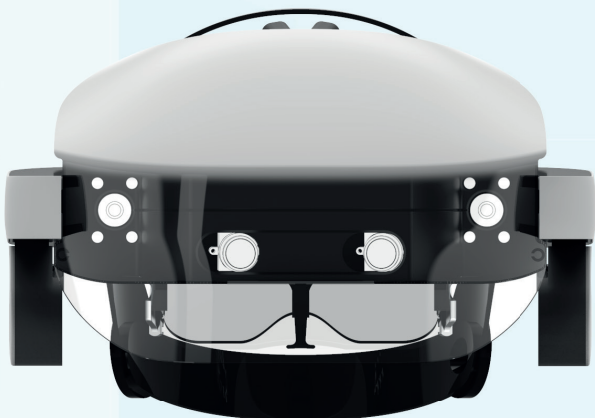
## How and why VOSTARS permits an accurate augmented reality surgical guidance

Patient safety and surgical accuracy can be nowadays significantly improved thanks to the availability of patient-specific information contained in medical images.

Augmented Reality (AR) is considered an ergonomic way to show the patient related information during the procedure, as demonstrated by the hundreds of works published in the last years.

To develop useful AR systems for surgery there are many aspects to take into account from a technical, clinical and perceptual point of view.

During the talk, particular attention will be posed to the use and development of Head-Mounted Displays (HMDs) for surgical navigation during open surgery. Current limitations in performing manual tasks under direct view using commercially available HMDs will be described and motivated. Finally, the precision and accuracy offered by the VOSTARS, available in the early future, will be motivated and described.





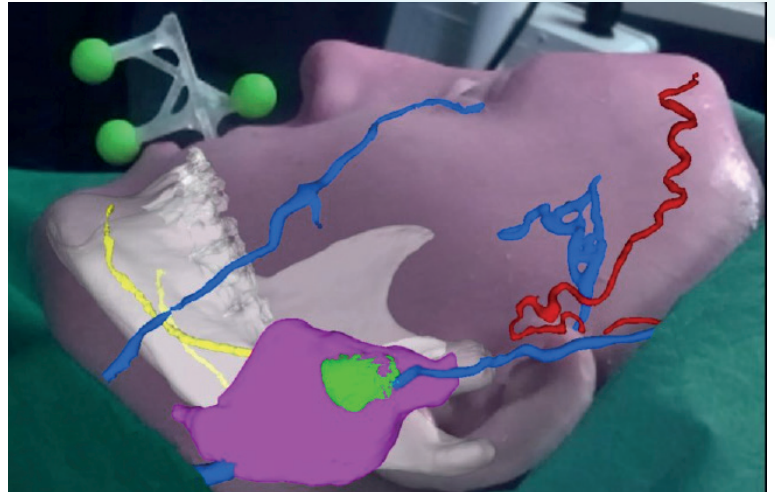
*Dott. Giovanni Badiali*  
University Hospital of Bologna



ALMA MATER STUDIORUM  
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### Experience of the University Hospital of Bologna

In the context of computer guided surgery, augmented reality (AR) represents a disruptive improvement. The VOSTARS is a new AR wearable head-mounted display recently developed as an advanced navigation tool for maxillofacial surgery and other non-endoscopic surgeries. In this webinar, we report results of in-vitro and in-vivo tests with VOSTARS aimed to evaluate its feasibility and accuracy in performing maxillofacial surgical tasks. Seven patients underwent maxillo-facial surgery with the aid of VOSTARS. Le Fort 1 osteotomy was selected as the experimental task to be performed under VOSTARS guidance. Both qualitative and quantitative assessments were carried out. VOSTARS showed excellent tracking robustness under operating room conditions. Moreover, accuracy tests showed excellent results both in “in-vitro” and “in-vivo” tests. In conclusion, our results suggest that the VOSTARS system can be a feasible and accurate solution for guiding maxillofacial surgical tasks, paving the way to its validation in several different clinical scenarios and for a wide spectrum of maxillofacial applications.



### Vade mecum

- During the presentation, all the participants are invited to switch off both the camera and the microphone, to improve the connection and avoid possible interferences.
- To ask a question, all the participants are invited to type a message in the CHAT, specifying their name and the topic of the question. At the end of the presentation, the chairman will call the participants following the requests' order in the chat.
- In case of need and/or problems with the connection/audio, all the participants are invited to type a message in the CHAT. The chairman will handle and solve the issues.

