Abstract: Patient safety and surgical accuracy can now be 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 paid to the use and development of Head-Mounted Displays (HMDs) for surgical navigation. Current limitations in performing manual tasks under direct view using available HMDs will be also described and motivated.

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