

Software Engineering Seminar

June 1st 13:30-14:30- Online –

<https://us02web.zoom.us/j/84983166453>

Motion capture systems and virtual reality for rehabilitation and tele-rehabilitation

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Abstract:

Virtual Reality opens new frontiers in the medical fields. Low-cost head mounted displays and motion capture systems are available and can be easily integrated in consumer technologies, such as laptops, smartphones and tablets. These technologies can be used in multiple contexts such as, the analysis of rehabilitation tasks using aids (e.g., wheelchairs and walkers), the occupational medicine and the analysis of sports activities.

The web-seminar presents an overview about how to develop innovative VR platforms for improving the medical assessment relative to the rehabilitation tasks of different categories of patients, such as spinal cord injured (SCI) patients and post-stroke patients. Several applications are described: an application for the propulsion analysis of wheelchair of SCI patients, one for cognitive rehabilitation of patients with severe memory loss, one for testing the level of severity of the extra-personal neglect and finally, a web platform for hand motors skills rehabilitation.

Short bio:

Andrea Vitali received his Master's degree in computer engineering received from the University of Bergamo in 2011. Since 2012, he carried out research activities relative to the development of virtual reality applications with augmented interaction for custom-fit products by means of interaction devices at low costs. He has much experience in 3D modelling software and computational geometry, his role is to use innovative ICT for developing innovative applications for virtual prototyping. He defended his PhD in Industrial Engineering in 2016 at the University of Padua. From 2017 to 2019, he is Assistant Professor (type A) at University of Bergamo. Since 2020, he is Assistant Professor Senior at University of Bergamo. Main research topics: Human Modelling, Virtual Reality, Additive Manufacturing, Reverse engineering techniques, IT for Health, IT for Fashion Industry, Computer Graphics and Software Development of 3D modelling applications."