



## Seminar Announcement

February 11th, 2016 - Room 9, 3:00 p.m.

# Human Movement Analysis: past, present and future

**Speaker: Prof. Ugo Della Croce**

**Abstract:** The roots of human movement analysis have always found rich soil in the Italian scientific culture. Over time, such roots allowed to maintain the growth of the discipline very strong, thanks to the Italian researchers' contribution. In particular, in the last 40 years, the human movement analysis Italian school played a primary role worldwide. The seminar will present how the discipline has been developing in the last decades highlighting the role of the Italian contribution. From the times focusing on the description of movement as a function, the discipline has been recently expanding toward human movement monitoring applications for everyday life, opening a wide range of possibilities for engineering solutions based on physiological and pathological knowledge. In this context, a number of well established applications developed by the research group led by Professor Della Croce in the recent years will be presented together with the future developments. They range from the development of methodologies for the improvement of the measurements obtained from optical motion capture systems and from wearable inertial sensors, to the technological development of motor rehabilitation protocols based on virtual reality environments, from the analysis of the interactions between of the visual and musculoskeletal system during movement, to the development of indoor localization methods based on wireless technology.

**Bio:** Electrical Engineering MS degree, University "La Sapienza", Rome (1992). PhD in Bioengineering, University of Bologna (1995). Since 2006 full professor at the University of Sassari, Italy. Since 2003 visiting associate professor, PM&R Department, University of Virginia and, since 2004 lecturer at the PM&R Department, Harvard Medical School, Boston. Research activity: methods to improve the quality of quantitative human movement measurements, including video, dynamometry and inertial sensing; rehabilitation engineering. Author of more than 100 international publications. Invited by European and Northamerican institutions to hold dozens of lectures and seminars in human movement analysis. Winner of the Sidney Licht Award, American Congress of Rehabilitation Medicine (1997) and of the "Excellence in research writing award" of the American Journal of PM&R (1998). Elected in the Council of SIAMOC (2001). Elected President of SIAMOC (2011), currently Past President. Member of conference scientific committees: 14<sup>th</sup> ISEK, Vienna (2002); 15<sup>th</sup> ISEK, Boston (2004); SIAMOC, Pisa (2005); SIAMOC, Bellaria (2012); SIAMOC, Pisa (2013); ESMAC, Rome (2014); SIAMOC, Padua (2015). In 2012, President of the Scientific Committee of XII International Symposium on the 3-D Analysis of Human Movement. Chaired the "1st Symposium on Human Movement Science" at Italian Embassy in the USA (2005). President of SIAMOC conference, Alghero (2009). Coordinator of the "Biomechanics and Robotics" theme at the EMBC, Boston (2011) and in Milan (2015). Associate Editor: Journal of NeuroEngineering and Rehabilitation since 2005, and edited a special issue (2006).

