

# Reliability and Safety Issues of Telepresence and Teleoperated Robots

**Virgil L.M. ILIAN, Ioan C. BACIVAROV**

EUROQUALROM Laboratory – Politehnica University of Bucharest, Romania  
ilianvlm@euroqual.pub.ro

## **Abstract**

While telecommuting and teleconferencing started to take root at the end of the 20th century it has only recently started to become mainstream as VoIP solutions have become commonplace and easy to deploy by taking advantage of the ever-increasing bandwidth of users worldwide. Robotics has also enjoyed a similar development with industrial robotics blooming the late 20th century and personal robotics gaining a foothold in both the office and the home environment in recent years. The combination of these emergent technologies are the teleoperated and telepresence robots that are being developed at the moment. Applications range is very wide, from industrial (dam inspection, interventions in hazardous environments etc. ), to architectural (inspection, construction), to healthcare (remote visiting) and home or office etc. Along with new technologies and applications come new issues of reliability and safety. Old standards may not be adequate for the new situations that arise not to mention completely new unforeseen challenges that are certain to manifest themselves. This paper analyses the current situation of the field of telepresence and teleoperated robots, highlights potential issues that need to be resolved and proposes possible solutions that can be implemented to assure a high quality and safe experience when using such system.

**Keywords:** Robot, Reliability, Safety, Desirability, Telepresence, Teleoperation.

## **References:**

- [1] [http://online.wsj.com/article/NA\\_WSJ\\_PUB:SB126102247\\_889095011.html](http://online.wsj.com/article/NA_WSJ_PUB:SB126102247_889095011.html).
- [2] [http://www.informationweek.in/Archive/09-05-01/Is\\_Wire\\_less\\_Secure.aspx](http://www.informationweek.in/Archive/09-05-01/Is_Wire_less_Secure.aspx).
- [3] Sami Haddadin, Alin Albu-Schaffer and Gerd Hirzinger, The Role of the Robot Mass and Velocity in Physical Human-Robot Interaction – [http://www.phriends.eu/ICRA\\_08b.pdf](http://www.phriends.eu/ICRA_08b.pdf).
- [4] H. Choset, W. Burgard, S. Hutchinson, G. Kantor, L. E. Kavraki, K. Lynch and S. Thrun, „Principles of Robot Motion: Theory, Algorithms, and Implementation“, MIT Press, April 2005.
- [5] P.W. Singer, „Wired for War“, Penguin Press HC, January 22, 2009.
- [6] B.M. Dickens, R.J. Cook, „Legal and ethical issues in telemedicine and robotics“, International Journal of Gynecology and Obstetrics, Published by Elsevier Inc., Volume 94, Issue 1, Pages 73-78 (July 2006).