



NUI therapeutic serious games with metrics validation based on wearable devices

Publisher: IEEE

[Cite This](#)[PDF](#)Vítor Viegas ; Octavian Postolache ; J. M. D. Pereira ; P. M. S. Girão [All Authors](#)7
Paper Citations272
Full
Text Views

Export to

Collaborate

Alerts

Manage

Content Alerts

Add to Citation
Alerts**More Like This**

An adaptive sketching user interface for education system in virtual reality

2009 IEEE International Symposium on IT in Medicine & Education

Published: 2009

Evaluation of Graphical User Interfaces Guidelines for Virtual Reality Games

2020 19th Brazilian Symposium on Computer Games and Digital Entertainment (SBGames)

Published: 2020

[Show More](#)**Abstract**

Document Sections

Downl
PDF

I. Introduction

II. Therapeutic
Serious Game
FrameworkIII. Virtual
GoniometerIV. Results and
Discussions

V. Conclusions

Authors

Figures

References

Citations

Keywords

Metrics

More Like This

Abstract: The physical rehabilitation community has been demonstrating serious interest for therapeutic serious games (theragames). The paper presents a framework for theragames en... [View more](#)

Metadata**Abstract:**

The physical rehabilitation community has been demonstrating serious interest for therapeutic serious games (theragames). The paper presents a framework for theragames enriched by a natural user interface (NUI) and materialized by Kinect. A set of 3D virtual reality (VR) scenarios motivate patients to perform upper limb rehabilitation and provide arm motion metrics in an unobtrusive way. The measurements are verified using a set of wearable inertial measurement units (IMU) attached to the upper limbs. The framework is planned to be included as part of a remote physiotherapy service that may improve the physical rehabilitation process. Experimental results and appropriate data processing is included in the paper.

Published in: 2016 IEEE International Instrumentation and Measurement Technology Conference Proceedings

Date of Conference: 23-26 May 2016 **INSPEC Accession Number:** 16176676

Date Added to IEEE Xplore: 25 July 2016 **DOI:** 10.1109/I2MTC.2016.7520550

ISBN Information:**Publisher:** IEEE**Conference Location:** Taipei, Taiwan

Contents

I. Introduction

The healthcare community has been demonstrating a great interest for therapy approaches based on serious games (theragames). The concept of serious games refers to the use of computer games without the main purpose of providing pure entertainment [1]. Healthcare rehabilitation is emerging as a leading target area for serious games, raising the expectations of patients, health caregivers and public in general [2]. Several theragames have appeared, which shows a wide general interest in improving and sustaining this technology. Furthermore, the efficiency of this approach is demonstrated by projects and studies in diverse domains [1]. Among the theragames, the exergames [3] are a form of physical activity that requires the user to move at least a part of the body in order to interact and best experience the game.

[Authors](#)



[Figures](#)



[References](#)



[Citations](#)



[Keywords](#)



[Metrics](#)



IEEE Personal Account

Purchase Details

Profile Information

Need Help?

Follow

[CHANGE USERNAME/PASSWORD](#)

[PAYMENT OPTIONS](#)

[COMMUNICATIONS PREFERENCES](#)

US & CANADA: +1 800 678 4333



[VIEW PURCHASED DOCUMENTS](#)

[PROFESSION AND EDUCATION](#)

WORLDWIDE: +1 732 981 0060

[TECHNICAL INTERESTS](#)

[CONTACT & SUPPORT](#)

[About IEEE Xplore](#) | [Contact Us](#) | [Help](#) | [Accessibility](#) | [Terms of Use](#) | [Nondiscrimination Policy](#) | [Sitemap](#) | [Privacy & Opting Out of Cookies](#)

A not-for-profit organization, IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity.

© Copyright 2021 IEEE - All rights reserved. Use of this web site signifies your agreement to the terms and conditions.

IEEE Account

Purchase Details

Profile Information

Need Help?

» [Change Username/Password](#)

» [Payment Options](#)

» [Communications Preferences](#)

» **US & Canada:** +1 800 678 4333

» [Update Address](#)

» [Order History](#)

» [Profession and Education](#)

» **Worldwide:** +1 732 981 0060

» [View Purchased Documents](#)

» [Technical Interests](#)

» [Contact & Support](#)

[About IEEE Xplore](#) | [Contact Us](#) | [Help](#) | [Accessibility](#) | [Terms of Use](#) | [Nondiscrimination Policy](#) | [Sitemap](#) | [Privacy & Opting Out of Cookies](#)

A not-for-profit organization, IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity.

© Copyright 2021 IEEE - All rights reserved. Use of this web site signifies your agreement to the terms and conditions.