

SEARCH

BROWSE

searching **Health Collection** [CHANGE DATABASES](#)[BACK TO TABLE OF CONTENTS](#)

Peer Reviewed

Citation only



Haptic Rendering for VR Laparoscopic Surgery Simulation

Australasian Physical & Engineering Sciences in Medicine
Volume 29 Issue 1 (Mar 2006)

McColl, Ryan¹; Brown, Ian²; Seligman, Cory³; Lim, Fabian⁴; Alsaraira, Amer⁵

Abstract: This project concerns the application of haptic feedback to a VR laparoscopic surgery simulator. Haptic attributes such as mass, friction, elasticity, roughness and viscosity are individually modelled, validated and applied to the existing visual simulation created by researchers at Monash University. Haptic feedback is an essential element in an immersive and realistic virtual reality laparoscopic training simulator. The haptic system must display stable, continuous and realistic multi-dimensional force feedback, and its inclusion should enhance the simulators training capability. Stability is a recurring concern throughout haptic history, and will be tackled with the implementation of a stable control algorithm and a passive environment model. Haptic force feedback modelling, systems implementation and validation studies form the principal areas of new work associated with this project.

FULL TEXT PDF (BUY NOW - AU\$4.00 + GST (424KB))

Institutional users [Login](#) to access article

To cite this article: McColl, Ryan; Brown, Ian; Seligman, Cory; Lim, Fabian and Alsaraira, Amer. Haptic Rendering for VR Laparoscopic Surgery Simulation [online]. [Australasian Physical & Engineering Sciences in Medicine](#), Vol. 29, No. 1, Mar 2006: 73-78. Availability: <http://search.informit.com.au/documentSummary;dn=456525836010323;res=IELHEA> ISSN: 0158-9938. [cited 11 Apr 16].

Personal Author: [McColl, Ryan](#); [Brown, Ian](#); [Seligman, Cory](#); [Lim, Fabian](#); [Alsaraira, Amer](#);

Source: Australasian Physical & Engineering Sciences in Medicine, Vol. 29, No. 1, Mar 2006: 73-78

Document Type: Conference Paper, Research

ISSN: 0158-9938

Subject: [Laparoscopic surgery](#); [Virtual reality in medicine](#); [Perceptual-motor processes](#); [Surgery--Computer simulation](#);

Affiliation: (1) Electrical and Computer Systems Engineering, Monash University, Clayton, VIC, 3800, Australia ryan.mccoll@eng.monash.edu.au

(2) Electrical and Computer Systems Engineering, Monash University, Clayton, VIC, 3800, Australia ryan.mccoll@eng.monash.edu.au

(3) Electrical and Computer Systems Engineering, Monash University, Clayton, Victoria, 3800, Australia ryan.mccoll@eng.monash.edu.au

(4) Electrical and Computer Systems Engineering, Monash University, Clayton, Victoria, 3800, Australia ryan.mccoll@eng.monash.edu.au

(5) Electrical and Computer Systems Engineering, Monash University, Clayton, Victoria, 3800, Australia ryan.mccoll@eng.monash.edu.au

Database: HEALTH COLLECTION

View desktop version
Informit v4.0 Copyright © 2015