

ICORR 2009 Pre-conference workshop

WS#2 Tuesday June 23rd 10.00 – 13.00

Room #CS2

Title:

Application of control theory and motor learning to rehabilitation robotics

Objectives:

Neuro rehabilitation contributes to motor relearning and as a consequence the recovery of lost function. Literature indicates that motor relearning is influenced by several key elements; intensity, task-specificity, active-initiation, motivation and feedback. In past decades different innovative technologies have emerged that extend the potential to integrate these key elements in rehabilitation, such as robotics and virtual reality.

This multidisciplinary workshop will bring together leaders in the field of motor (re) learning, both at a neurophysiological and behavioural level, human motor control, design and application of control systems and application of robots in rehabilitation.

The objective of the workshop is to examine how design of the next generation of rehabilitation robot systems and therapy programmes can be informed by knowledge and understanding of: neuroplasticity, motor-learning, control systems and clinical evidence. In the workshop we will debate topics such as: how to translate laboratory studies into clinical practice, how to foster a better cross-disciplinary understanding to answer questions like 'how much information is needed for control in motor-re-learning?'

The workshop is designed to combine 30 minute lectures with a lively debate

Organiser:

Prof Jane Burridge
School of Health Sciences
Building 45, Highfield,
University of Southampton
Southampton,
SO17 1BJ
UK

Intended audience: Therapists and medical practitioners, neurophysiologists, behavioural psychologists, designers, control engineers.

About 40 people

Programme:

Prof. Jane Burridge

- Neurophysiology and motor recovery in stroke (pdf file: 1MB)

Dr Gerdienke Prange

- Application of principles of motor learning to rehabilitation robotics in Stroke:

Dr. Ir. Herman van der Kooij

- Neurobiomechanics; assessment of functional recovery

Prof. Eric Rogers

- Control systems for rehabilitation robots

Dr Ann-Marie Hughes

- Combining robot therapy with other interventions (pdf file: 1.5MB)