

Kinect Based Therapy For Stroke Patients

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Introduction

- National Institute of Neurological Disorders and Stroke estimates 700,000 < strokes/year
- ~ 66% survive and need rehab or therapy

Traditional Therapy/Rehab

- Patient goes to specialist/doctor at hospital or facility
- Time consuming
- Expensive for patient/insurance
- Transportation and inconvenience
- Not enjoyable

Low- Cost Interactive Alternative

- Comfort of own home (non intrusive)
- Enjoyable and self achieving
- Lowers cost to patients and Insurers
- Potential increase in better/ more diverse types of therapy
- Real-time/logged data for therapists and doctors

Motivations

- Something new
- Potential to save people stress and time
- Bring the therapy to patient, not vice versa
- Keeping patients more motivated

Related Works

- University of Southampton - created sensor to monitor movements to screen, needed separate device
- University of Ulster - Chase The Rabbit game variation or wack-a-mole

Approach

- Use Microsoft Kinect as main device (low cost, easily attainable, well supported)
- TWO choices of device sdk to incorporate use of device
- NITE library to turn device input into useable data from tracking hands, and limbs
- Imaging, Scoring, Evaluating

Timeline

Milestone 1 : Get I/O from device working with usable images (~1-2 months)

Milestone 2 : Narrow down skeletal vertices, reasonable sample rates, motion tracking sessions, Finalize scoring method (~1 months)

Milestone 3 : Synchronize with server team, test storage and retrieval (~1 months)

Milestone 4 : Refine UI (~1 months)

