









## What is Duck Duck Punch?

- Duck Duck Punch is a low-cost, post-stroke upper extremity rehabilitation game system using the Microsoft Kinect for upper extremity (upper arm) therapy, designed in collaboration with stroke therapy experts.
- Stroke survivors play the game by making reaching motions with their impaired arm which is tracked by the Microsoft Kinect and mimicked by the virtual arm seen in the game.
- The system compensates for each patient's individual level of impairment to allow both unimpaired gameplay and different levels of challenge.

## The Problem: Stroke Disability

- Worldwide, stroke is the second leading cause of permanent disability.
- **75%** of stroke survivors have arm disability too severe to be helped by conventional rehabilitation.
- Those who can participate in therapy often do not follow through and do not complete tasks they find frustrating and tedious.

## **What Stroke Rehabilitation Looks Like Today**

- Today, rehabilitation for upper extremity impairment is repetitive practice of reaching and grasping tasks to stimulate the brain to "relearn" motor skills.
- Research suggests that stroke survivors need to make **300-1000** movements **daily** to recover movement, but only receive **20-40** per **week** in conventional rehabilitation.
- Rehabilitation does not include promising research called "mirror therapy".

## **How Duck Duck Punch Can Help**

- Motivating game environment encourages extended practice sessions needed for better recovery.
- No expensive motion-capture hardware for arm tracking or attached sensors to encumber already impaired movement.
- Incorporates promising "mirror therapy" research not found in conventional rehabilitation.

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**Patrick Dukes** 

Ph.D. Student psdukes@clemson.edu patrickdukes.weebly.com

**Austen Hayes** 

Ph.D. Student ahayes@clemson.edu www.austenhayes.net **Dr. Larry F. Hodges**Director, School of Computing
LFH@clemson.edu

www.clemson.edu/~lfh

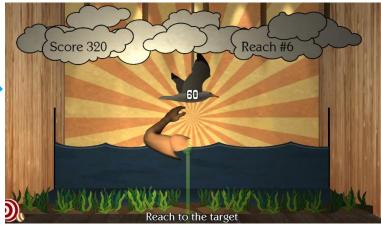




ost-Stroke Upper Extremity
Rehabilitation Using the
Microsoft Kinect







Stroke Survivor



Microsoft Kinect For Upper Extremity Movement Tracking

