# Second Screen Hypervideo-Based Physiotherapy Training

## INVITED DEMO PAPER

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## ABSTRACT

Adapting to personal needs and supporting correct posture are important in physiotherapy training. In this demo, we show a dual screen application (handheld and TV) that allows patients to view hypervideo training programs. Designed to guide their daily exercises, these programs can be adapted to daily needs. The dual screen concept offers the positional flexibility missing in single screen solutions.

## Keywords

Hypervideo; Dual Screen; Navigation; Training

## 1. INTRODUCTION

Physiotherapeutic rehabs are an important area for fitness and healthcare applications. After short stays at rehab clinics, patients usually have to continue their exercises at home. Currently, leaflets are a popular form of home rehab support. Yet, they are not optimal for ensuring correct exercise execution. Hypervideos add visualization functions that improve such training. However, single screen hypervideo players like the SIVA Player [2] are hard to use in training situations, where the correct posture has to be kept during exercises. To overcome this issue, we created a dual screen hypervideo application that shows the main video on a TV and control information on a smartphone [1].

## 2. DEMONSTRATION

In this workshop, we demonstrate three smartphone prototypes linked to a TV screen, applied to pelvic floor training for prostate cancer patients: a split-screen concept showing a small preview of the main video, annotations, and control elements on one screen, visually separated by different colors; a tab concept showing the video preview and the control elements on one tab and the annotations on a second tab; and a "drawer" concept (as seen in the Spotify app[1]) that

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[1]https://play.google.com/store/apps/details?id=com.spotify.music&hl=en (8/15/2016)
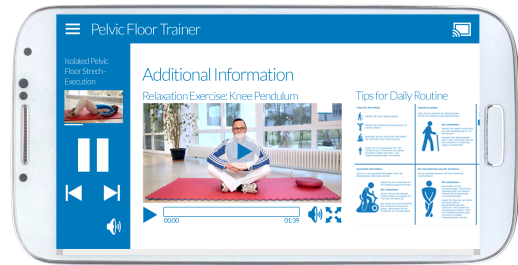
**Figure 1: Mobile control app "drawer" concept.**

distributes the screen space among the currently focused elements (main video preview and video controls vs. additional information) but does not hide one area completely (see Figure 1). The prototypes have screens with selection buttons for follow-up scenes and a table of contents. The TV screen shows the main video scene centered, the title of the scene on top of the screen for orientation in the hypervideo, and the timeline at the bottom of the screen for orientation in the exercise (see [1]).

The prototypes were implemented using a standard TV with an HDMI connector, a Chromecast[2] and an Android smartphone. Chromecast transmits HTML5 content and enables displaying media on the TV. We used PhoneGap[3] to create the prototypical apps from the HTML5 player.

## 3. CONCLUSION

Our dual screen application both allows prostate cancer patients to customize their physiotherapy training while supporting correct exercise posture. Future work will include long-time tests with more users and tests with other patient groups.

## 4. REFERENCES

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[2] B. Meixner, S. John, and C. Handschigl. Siva suite: Framework for hypervideo creation, playback and management. In *Proc. of the 23rd ACM Intl. Conf. on Multimedia*, MM '15, pages 713–716. ACM, 2015.

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[2]https://www.google.com/chromecast/tv/ (8/15/2016)
[3]http://phonegap.com/ (8/15/2016)