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partial fulfilment of the requirements for the degree  
of Doctor of Philosophy

# **Exhibition of Bridging the Virtual and Physical: from Screens to Costume**

by

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## Introduction

The following webpage is a digital documentation of the physical exhibition for the PhD *Bridging the Virtual and Physical: from Screens to Costume*. The exhibition took place 27–31 May 2019 at SensiLab (G119 Monash University Caulfield) as part of the practice-based PhD examination and closing event.



**Figure 0.1** Exhibition video [\[3\]](#).

My PhD research enables a wide range of designers to engage in a speculative prototyping and presentation of new digital media that addresses the divide between the physical and virtual known as Computational Costume.

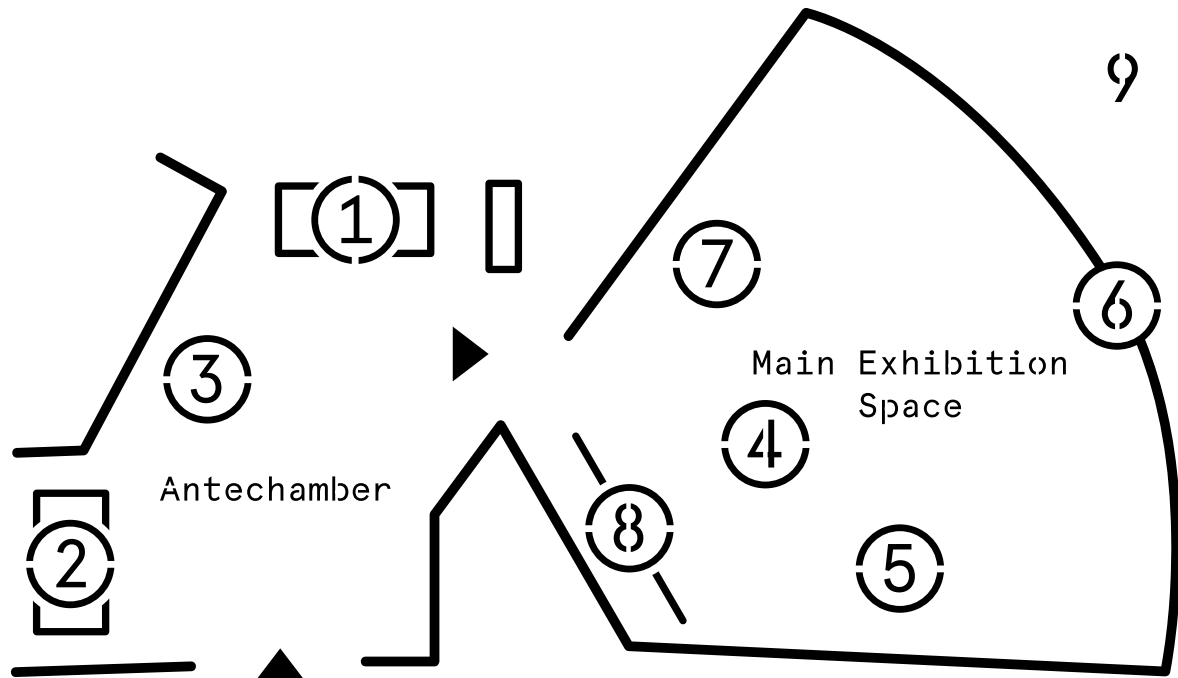
This work has emerged from investigations into: support of people's spatial memory on screen-based devices; ways of supporting people across a range of digital media by interviewing a variety of experienced designers and communicators; reviewing advancements from screen-based devices to ubiquitous and tangible computing; and developing an accessible speculative design process using lo-fi physical materials to imagine wearable virtual identities that ground interactions through digital media.

Domenico Mazza



## Exhibition map

The exhibition was divided into two areas: an antechamber and the main exhibition space. The antechamber foregrounded the work presented ahead in the main exhibition space.



**Figure 0.1** Exhibition map.

Tap on the numbers to see each work.

# 1 Exegesis

Works presented in the exhibition reference specific sections in the exegesis document *Bridging the Virtual and Physical: from Screens to Costume*. The appropriate section numbers are listed in this guide with targeted links.

The exegesis can be viewed at: <https://do.meni.co/phd>

## 2 Memory Menu study



**Figure 2.1** The online Memory Menu study starting screen.

Tap on the image to view it at full size.

To improve interactions through digital media, my research has sought to close the gap between practices in the world and practices conducted through digital devices. Through the Memory Menu I began presenting information that would otherwise be lost on-screen. The Memory Menu study evaluated a subtle application of a highlighting (or 'use-wear') effect on a large menu to support audiences' spatial memory. The effect was applied to guide navigation through a menu by providing a visual reference of what had or had not been explored.

A demonstration of the Memory Menu study can be accessed at:

<https://do.meni.co/phd/memory-menu/>

**Exegesis reference:** § A.1



### 3 Cardboard poster and hand interface

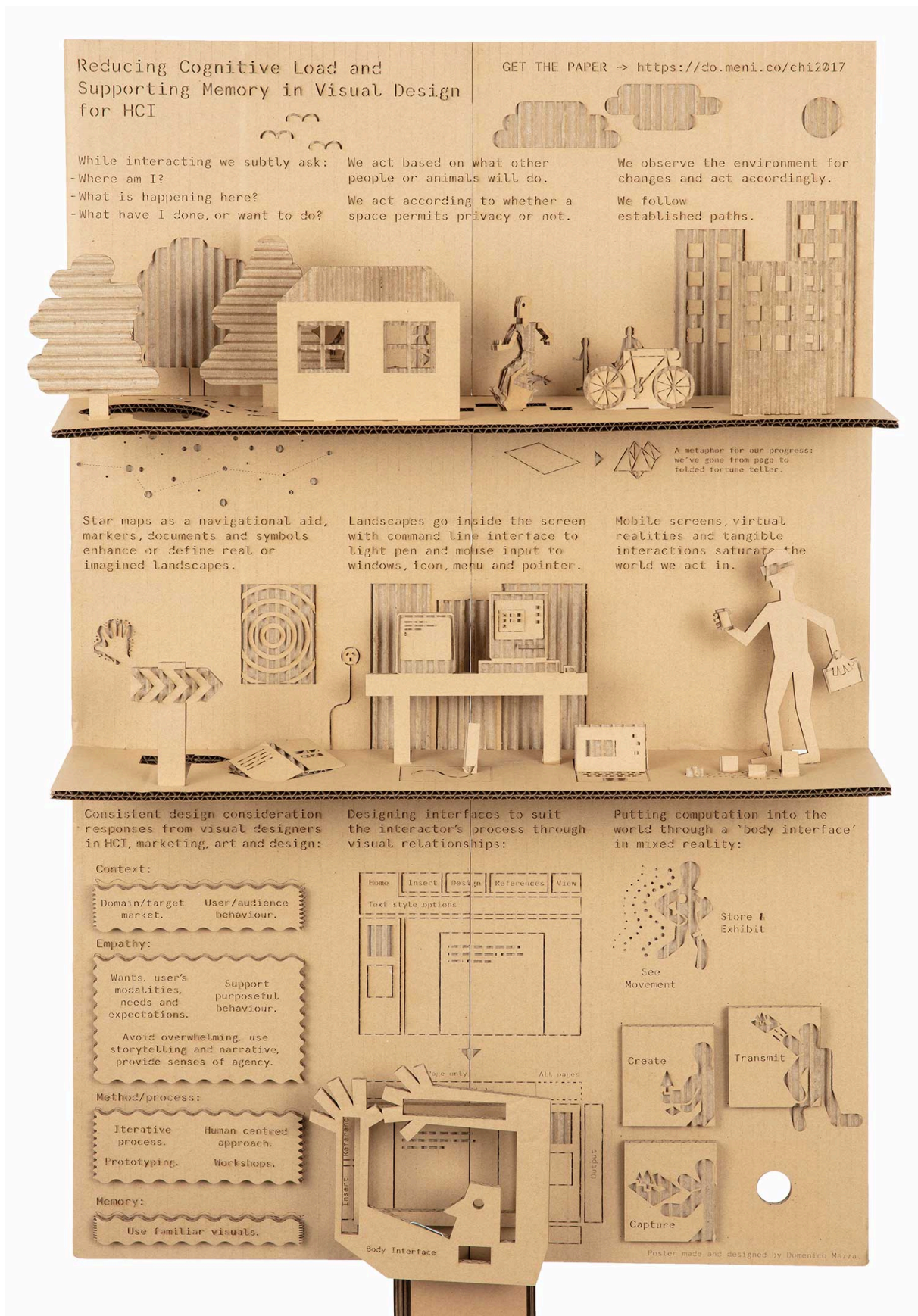


Figure 3.1 The cardboard poster.

Tap on the image to view it at full size.



**Figure 3.2** The hand interface.

Tap on the image to view it at full size.

The cardboard poster and hand interface show how interactions through digital media could more closely integrate into audiences' day-to-day practices. Interactions are grounded by the body and surrounding world, instead of screen-based devices. The poster is a functional conference poster set in an imagined speculative future where augmented reality technology can superimpose visuals onto any surface. The hand interface presents a way for the hand and forearm

to allow the use and selection of modalities for creating, capturing and sharing virtual objects such as the poster. Rotating dials surrounding the fingertips present the lowest level options while the wrists are reserved for switching modality.

The poster and hand interface design marks the beginning of the use of lo-fi physical materials to create and display speculative designs for augmented reality. The approach adopted enables a wide range of designers to develop speculative designs and communicate works to audiences in an accessible way.

A 3D model of the cardboard poster can be accessed at:

<https://do.meni.co/phd/3d-cardboard-poster/>

**Exegesis reference:** § 4.3.2



## 4 Computational Costume v0



**Figure 4.1** Computational Costume v0.

Tap on the images to view them at full size.

Computational Costume v0 builds upon the idea of a speculative whole-body interface as imagined through the cardboard poster and interface. v0 gives form to situations where wearable whole-body interfaces could be useful for particular contexts. The work illustrates how Computational Costume can be useful for work and personal life. Complementary map and timeline tools indicate how areas outside of wearers' visual field can also be accessed. This grounds the viability of the whole-body interface as a replacement for screen-based-device interaction.

**Exegesis reference:** [§ 4.3.3](#)

## 5 Computational Costume v1



**Figure 5.1** Re-enactment video of the Computational Costume v1 performance [\[1\]](#).



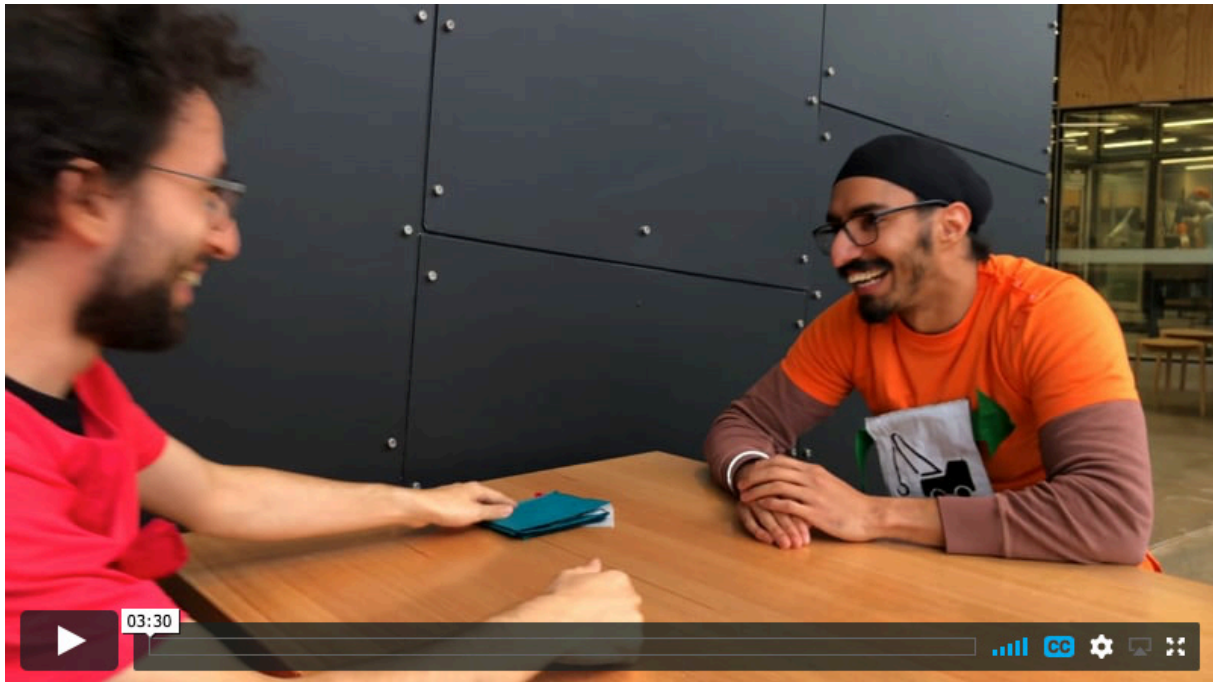
**Figure 5.2** Computational Costume v1 from left to right: personal costume, worksite costume and medical emergency costume.

Tap on the images to view them at full size.

Computational Costume v1 clarifies and builds upon Computational Costume v0 by revealing three distinct costumes for three distinct scenarios. The work engages relatable scenarios and a live-action performance to show the costume in action. The work was originally shown as part of a choreographed performance for a science communication competition. The costumes and objects were designed to be quickly removed and arranged to express how the speculative design would work.

**Exegesis reference:** § 4.3.4

## 6 Computational Costume v2 video



**Figure 6.1** Computational Costume v2 video [\[2\]](#).

Computational Costume v2 presents speculative interaction design ideas through a video of physical props in action. This supports audiences' imagination of how Computational Costume would behave. The accuracy of representation is enhanced through carefully captured perspectives and editing. The use of first-person and third-person perspectives allows audiences to imagine they are using the Computational Costume or observing it in action. This approach contrasts with the choreographed live performance of v1, which only affords viewers one perspective.

**Exegesis reference:** [§ 4.3.5](#)

## 7 Computational Costume v2 props



**Figure 7.1** Computational Costume v2 medical record costume with token in hand. The token allows access to hard-to-reach areas and acts as a key to access the private medical record underneath.

Tap on the image to view it at full size.





**Figure 7.2** Computational Costume v2 medical record layers costume. Layers from left to right: back exercise notes; a back condition with treatment notes; base layer; imaging, test results and prescription for a medical condition; immunisation record; immunisation booster record; and birth record.

Tap on the image to view it at full size.

Props in Computational Costume v2 are used for both filming and complementing the exhibition of the video. In exhibition: the props are imbued with meaning from the video and allow viewers to observe any fine details they may have missed in the video.

**Exegesis reference:** § 4.3.5

## 8 Participatory prototypes



**Figure 8.1** Participatory prototypes.

Tap on the images to view them at full size.

Prototypes preceding Computational Costume v2 indicate modes of participatory engagement for both Computational Costume actors and audiences. These prototypes allow for direct live-action performances and to studying how wearers might use Computational Costume. For live-action: modified coveralls could allow specially made objects to be quickly removed from and attached to a costume. For studies: an easily wearable poncho with clips and pockets could allow wearers to use any lightweight mixed media to make and store imagined objects.

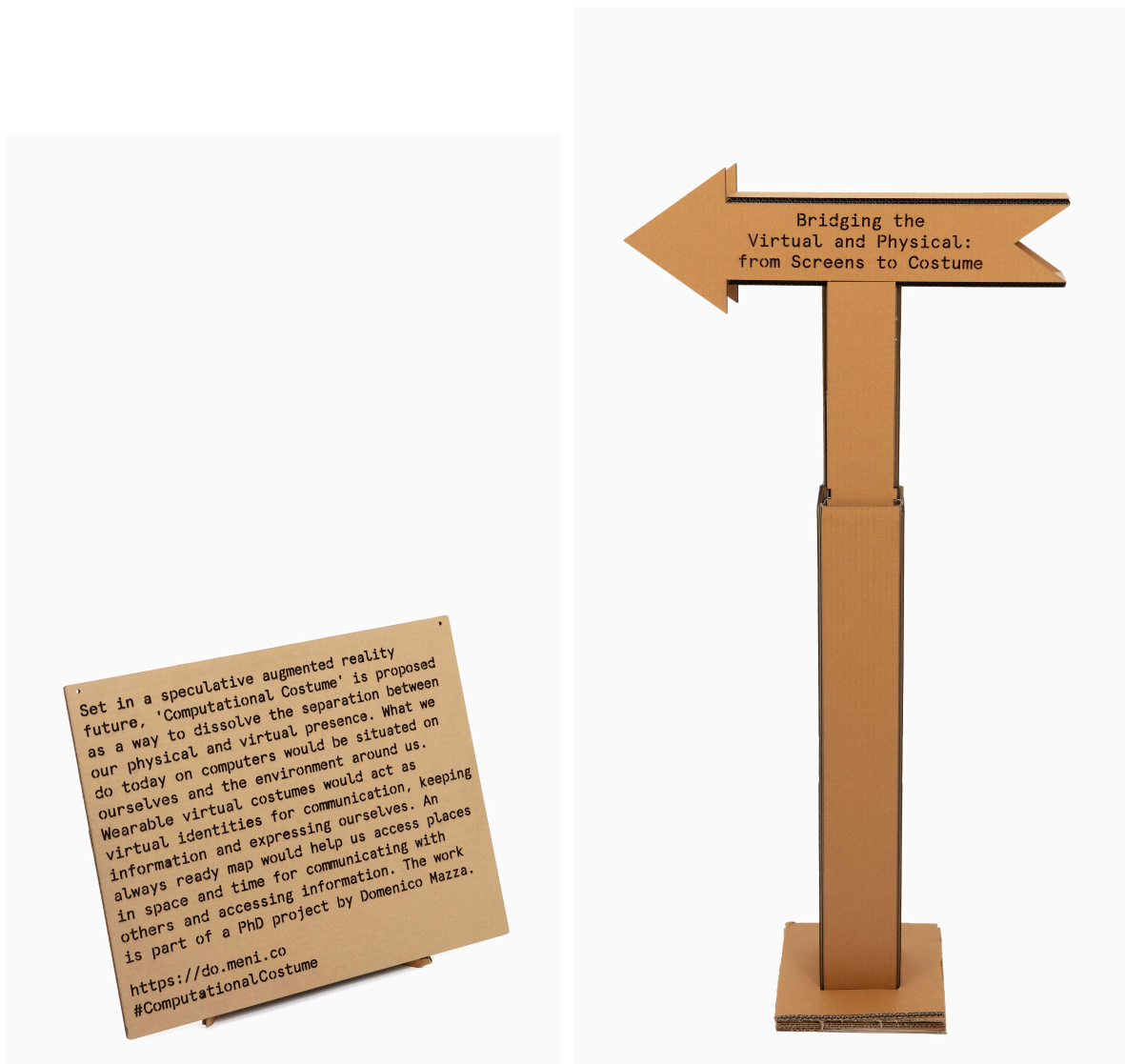
**Exegesis reference:** [§ C.3.2.2](#)

## 9 Exhibition event

The following is a documentation of the exhibition space as it was during examination and at the exhibition closing event.

### 9.1 Cardboard guides

The use of cardboard was extended to exhibition signage and a reusable exhibition guide for the examiners.



**Figure 9.1** A didactic sign (left) and directional sign (right) for the exhibition.





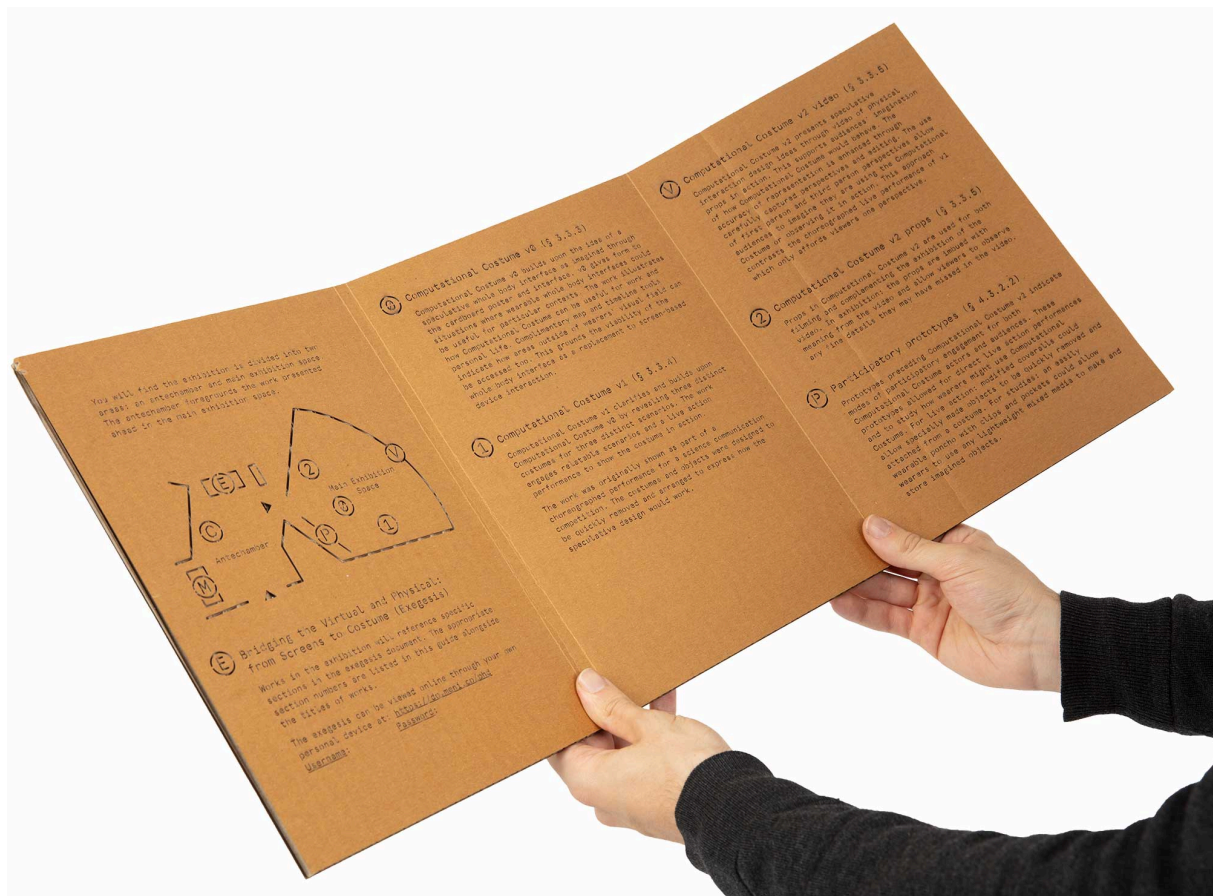
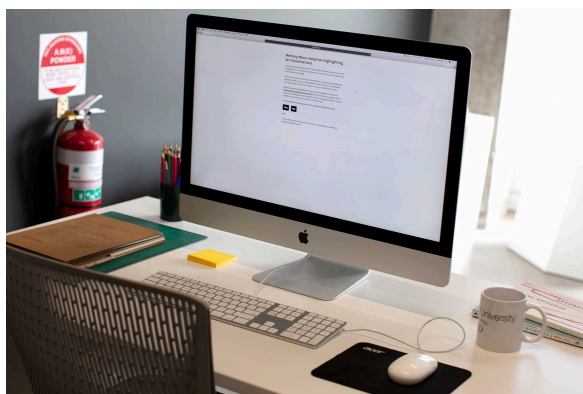


Figure 9.2 Reusable exhibition guide for the PhD examiners.

Tap on the images to view them at full size.

## 9.2 Exhibition space ■

The following shows how the works listed here were presented to audiences at SensiLab, Monash University Caulfield.



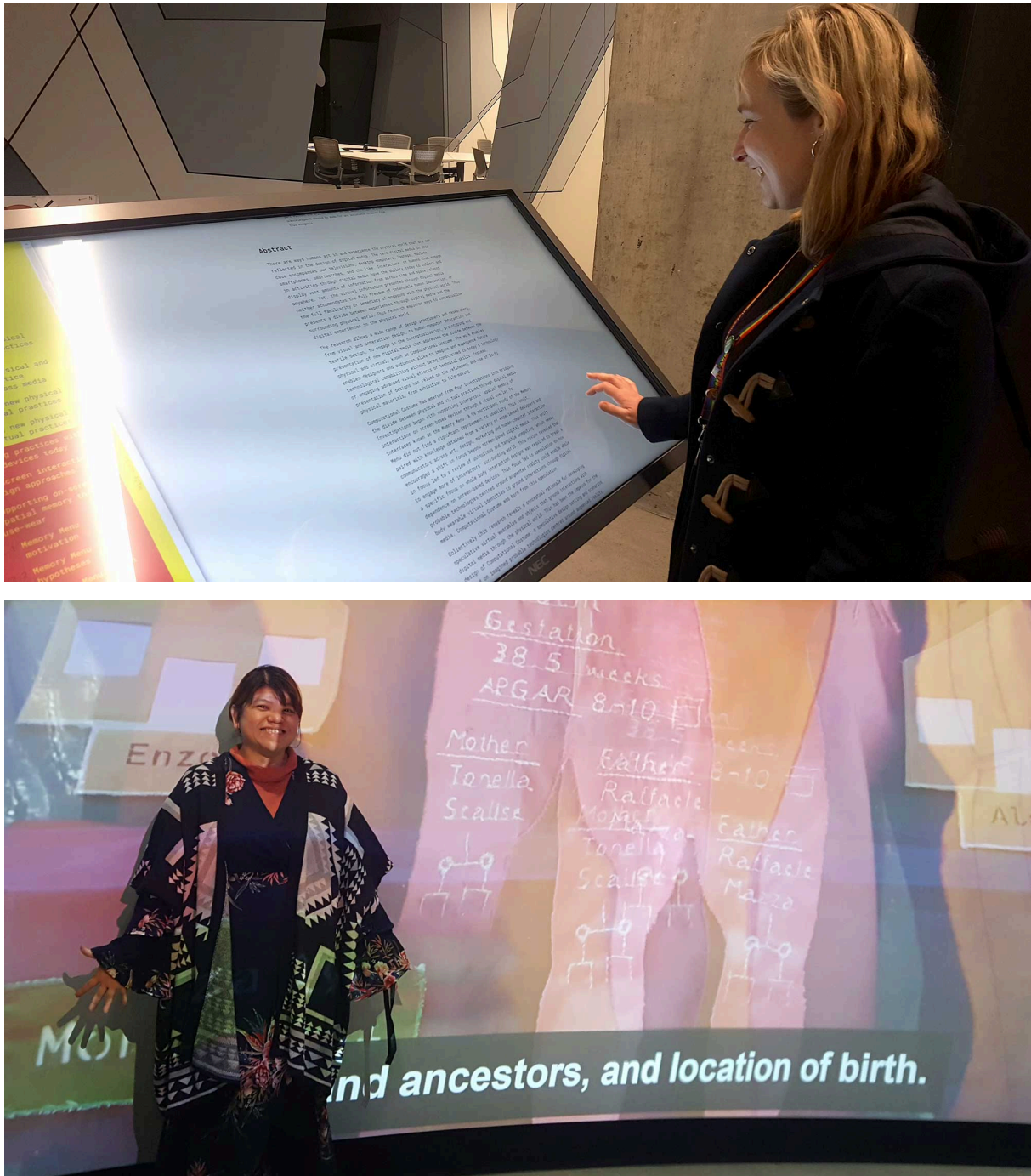




**Figure 9.3** Exhibition installation images in viewing order.  
 Tap on the images to view them at full size.

### 9.3 Closing event ■

The closing event was an opportunity to show the work in its entirety to colleagues, staff, close friends and family to thank them all for their contributions to supporting my PhD. It was a wonderful event hosted by the faculty and attended by almost 40 people—far exceeding my expectations! Some photos from the event capture the proceedings.



**Figure 9.4** Romany and Ching<sup>2</sup> enjoying the exegesis display and projection.

Thank you for the photos Ching<sup>2</sup> & Romany :^)





**Figure 9.5** Big and little Computational Costume compatible hearts were awarded to people instrumental and special to the PhD. Tim intelligently took over the pinning work as I may have been trembling.

Photo credit to my mum :^)



**Figure 9.6** Jon expected a knighthood but was swiftly disappointed. Unfortunately I am not a reigning monarch... In actuality Jon was very happy with the award!

Photo credit to my mum :^)





**Figure 9.7** Julie graciously accepts her award as I gesture at the thickness of the stack of writing and editing that she helped me with. Elliott takes his much deserved award too.

Photo credit to my mum :^)



**Figure 9.8** Tours of the exhibition and works were given throughout the event.

Photo credit to Ching<sup>2</sup> :^)

## Credits

Firstly, this is not all of the credits—please refer to my exegesis for all (non-exhibition documentation related) acknowledgements.

Thanks go to Jon McCormack for helping me out with his stellar imaging skills. Jon gave his time generously to make sure I documented my work here in the best quality possible. I might have otherwise just taken the photos shown in [Exhibition space \[§ 9.2\] \(p.18\)](#).

Thanks go to my mum and my good friend Ching<sup>2</sup> for taking photos on the night and sharing them with me.

I was covertly overwhelmed with the adrenaline/nerves that overcome an artist when they present their collective work to a crowd for the first time.

Also thanks Jesse for coming to visit early and sneakily taking over the camera while I spoke to some early guests.

Y'all the best. Including you, if you are reading this far. Stop it!

Dom.

## Reference list

1. Mazza, D. (2018). Computational Costume v1. <https://doi.org/10.26180/5d4bc68e3357e>. Video available at ► <https://player.vimeo.com/video/338686312>
2. Mazza, D. (2018). Computational Costume v2. <https://doi.org/10.26180/5d4bc13d2caa3>. Video available at ► <https://player.vimeo.com/video/274045926>
3. Mazza, D., & Tilley, J. A. (2019). Bridging the Virtual and Physical: from Screens to Costume exhibition video. <https://doi.org/10.26180/5d52480bd700f>. Video available at ► <https://player.vimeo.com/video/343803515>