

In Light of Moving Images

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Introduction

Developed between 2014-2017 as part of a doctoral research enquiry, *In Light of Moving Images* brought together a series of film and video works by cinematographer and filmmaker Alexander Nevill. The exhibition included five research-driven moving image installations as well as three single screen short films created collaboratively in the role of Director of Photography. Although varied in form and production context, these works all investigate cultural and creative orchestrations of light on screen.

Providing visual documentation, this publication serves as a record of the exhibition and, moreover, offers an account of the practice-led research journey through which it emerged. The following pages incorporate written contextual insights about each practical work, describe the timeline of and rationale behind them and also include a variety of supplementary artefacts such as sketches, lighting diagrams and photographs of the work in progress to reveal creative processes.

Traditionally considered the responsibility of a cinematographer, lighting in a filmmaking context refers to the arrangement of illumination sources around a location or set to create a specific aesthetic. Expanding this term, lighting can also refer to creative control over the passages of illumination which constitute moving imagery, shaping ways that audiences perceive the frame. Selected amongst a larger body of cinematography and moving image experimentation, the work in this portfolio and exhibition engages with both facets of lighting, taking the form of spatial projections that weave together light in and of moving imagery while questioning the material tensions of mediated illumination.

Exhibition Images

Figure 1 Centrespace gallery exterior during exhibition (p.5)





Figure 2 Centrespace gallery interior during exhibition (top)

Figure 3 Flyers and exhibition guide (bottom)

Figure 4 #Life_Drawing (2017) projection screen (p.7)





Figure 5 Piccadilly Circus (2016) projection screen (p.8)

Figure 6 Camera/Projector (2014) gallery installation





Figure 7 Video essay accompanying From Light & Shadows (2016)

Figure 8 iPhone Collage (2014-17) gallery installation (p.11)

Figure 9 From Light & Shadows (2016) projection screen (p.12)

Figure 10 Hôtel de la Comète (2017) gallery projection (p.13)







Timeline of Work

The timeline below depicts key stages of production leading to the exhibition. Most projects had a continued lifespan beyond what is shown here, involving numerous additional exhibitions or screenings, and some were also shown to small private audiences during periods of testing. For the sake of clarity however, this timeline only includes what I consider to be the first public presentation of each project.

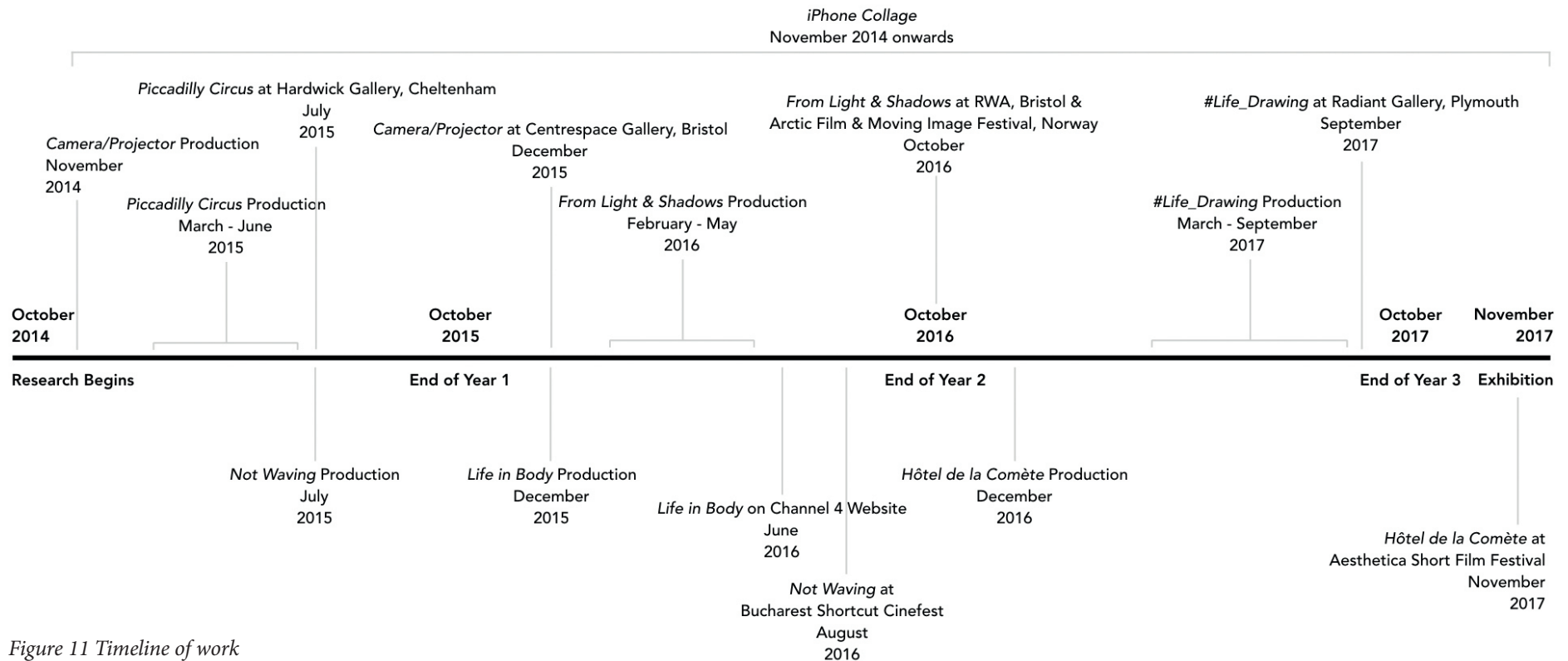


Figure 11 Timeline of work

Moving Image Installations

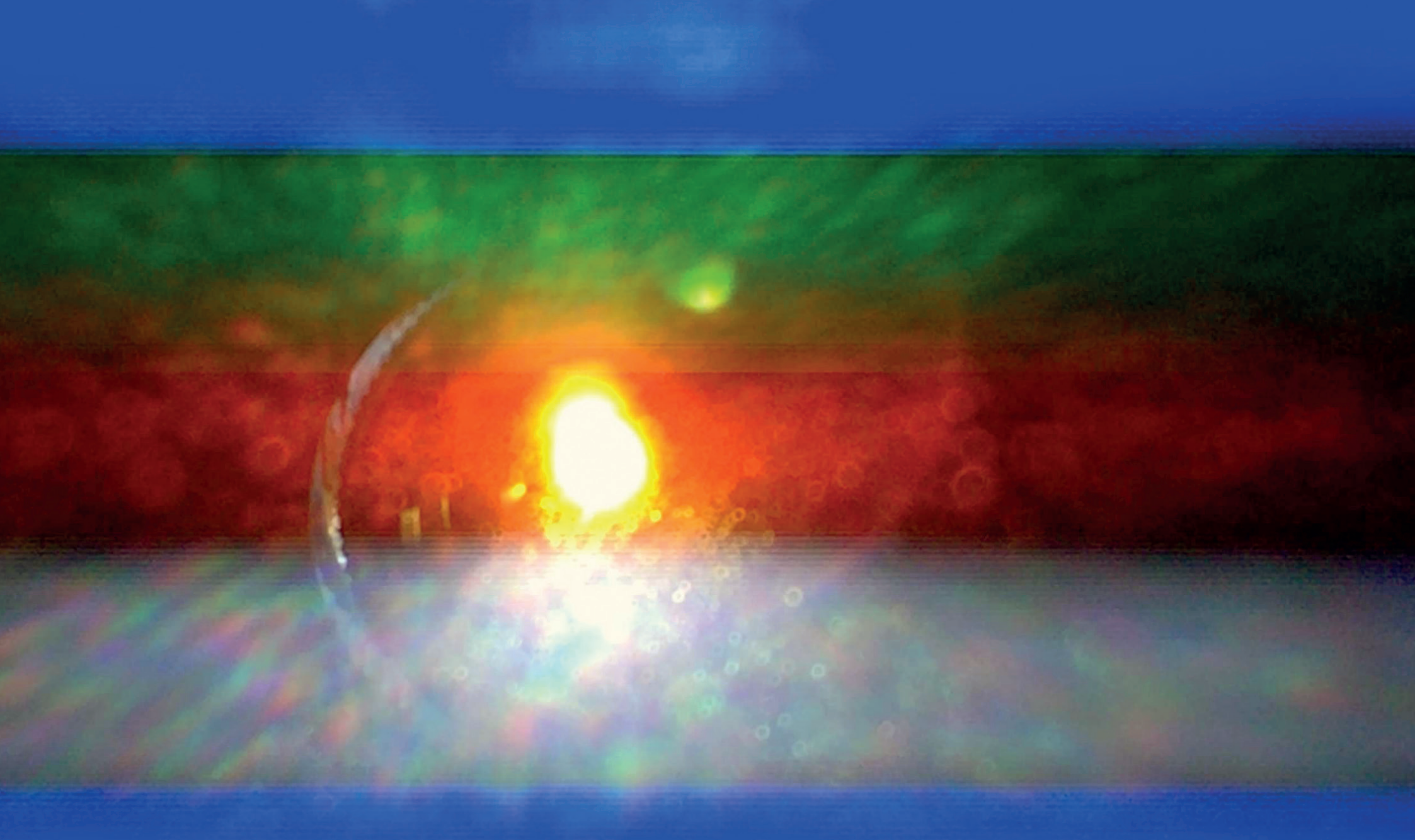


Figure 12 Still frame from Camera/Projector (2014) digital channel

Camera/Projector (2014)

This installation explores relations between the light represented in an image as opposed to the light that constitutes an image. A projector sits in a dark space, its throw of light depicted through particles of swirling dust. The beam is captured on 8mm film and an iPhone camera. Resulting images are projected side by side through the same projector revealing inner workings of these two formats. As the cameras move directly into and away from the projector's beam the images break down into disarray of flare and glitches.

Background

This is the first practical work created during my doctoral research enquiry. During the first term, I engrossed myself in the theoretical film studies discourse surrounding analogue and digital. As described in the written thesis, my research questions arose in part as a continuation of this ongoing debate around medium specificity so in order to address them it followed that my practice should engage with this area as a starting point too. Alongside this contextual reading I was exploring methodological approaches that would allow my practice to take a central role in the enquiry so my intention with this practical work was to perform a trial run to familiarise myself with this type of research.

I felt that while the epistemological gap between analogue and digital moving imagery has been heavily analysed in academia (discussed in my written thesis through David Rodowick's *Virtual Life of Film* (2011)), there are few investigations that seek to capture the practical insight across these formats. An exception to this can be found in Makino Takeshi's *Generator* (2012) which, like his other works, is a vibrant expressionistic film consisting of the accumulation of analogue grain combined with digital noise patterns. Takeshi operates in the intersection of formats and proved to be a key reference for my ongoing creative experimentation. By contrast, *Camera/Projector* was designed as a straight comparison between analogue and digital.

Another point of inspiration for this work was the circuit bending operations pioneered in video art by Skip Sweeny or Woody and Steina Vasulka

who developed early synthesisers to create new forms of electronic imagery. Their approach to video, working with and manipulating the signal as form of material, specifically one constituted by light, struck a chord with the new-materialist perspective of moving image practice that I have developed. Considering a passage of light in this fashion inspired my choice of a projector as the subject matter for an analogue and digital comparison.

Process

To offer some homogeneity in the finished work it was necessary to conduct the capture process with similar parameters across both formats. To achieve this technically I researched digital sensor sizes in relation to celluloid film gauges. I found several instances where analogue and digital cameras feature imaging areas of approximately the same dimensions. Firstly, Super-16mm film captures an image of 12.52 x 7.41mm and so is comparable to the CMOS sensor in the Blackmagic Pocket Camera which uses an area of 12.48 x 7.02mm to capture digital images. However, as this project was conceived as a methodological test I was aiming for a quick turnaround, flexibility and low production cost so the logistics of working with these two options provided prohibitive. Instead, I looked to the readily accessible camera in my iPhone which featured a sensor 4.54 x 3.42mm in size, almost exactly the same as the frame dimensions of standard 8mm film which are 4.5 x 3.3mm.

The production phase of this project took place in a single day. Working in a studio at Spike Island, I created a dark space by closing all possible blinds and layering material over windows. I then prepared each cam-



Figure 13 Loading the Bolex P3 camera, Camera/Projector (2014)

era, using an app on my phone to enable greater manual control over the capture of digital footage and loading the film into a Bolex P3 camera. I chose to work with Wittner 200D colour reversal stock as I felt the vibrant colours and additional contrast that characterise this type of film would exaggerate analogue artefacts that this project sought to expose. I set up a projector in the centre of the room and began to explore this visually through the viewfinder or display of each camera.

Drawing on my previous lighting experiences I knew that adding moving particles such as dust, smoke or haze into the throw of the projector would make its shaft of emitted light more visible on each format. With this in mind, I sprayed a fine powder into the room to give form and texture to the light. As I moved each camera around I discovered that their unique response to this light was exaggerated when pointed directly toward the bright projection source. As such I designed a small handheld movement where each camera began several paces away, showing the projector and its beam of light as a whole before moving closer into the throw of light, essentially overexposing the images and revealing their medium specific qualities. Between the analogue and digital shots, I kept the same settings where possible including focal length, aperture and sensitivity rating.

Outcome

Primarily there were three outcomes of this practical project. Firstly, I kept a detailed written record of the production process alongside my work and as such this project helped to advance my autoethnographic techniques which became central to the overarching research methodol-



Figure 14 Exhibition at Hardwick Gallery, Camera/Projector (2014)

ogy of my doctoral enquiry. This was my initial attempt to capture first-hand insight during a production process so I noticed the limitations and time-consuming nature of making written notes alongside practical work.

Secondly, taking inspiration from the aforementioned circuit bending video artwork, the shots I captured were exhibited as a single screen digital piece through the same projector that was used during production. This created a continuous loop and self-referential quality to the work that I felt was an effective way to exhibit moving image experimentation and so had a continued influence for my ongoing practice. Moreover, this method of exhibition created a limitation in the work as, although both formats were captured on distinct media, they were displayed as one digital piece. This limitation provided a route for further investigation taken up by subsequent projects.

Finally, during this project I developed a practical response to the investigation of analogue and digital media. This hands-on engagement proved useful in fulfilling my longstanding desire to engage with both processes simultaneously, but also led my research enquiry away from the discourse surrounding medium specificity. In making this work I realised that it would be more interesting and useful when addressing my light-centric research questions to explore the intersections and interactions of moving image formats rather than their specificities or distinctions. This approach to practice is important as many of my subsequent projects followed suit, also seeking inter-operations that combine and understand processes of mediation in relation to one another.



Figure 15 Still frame from iPhone Collage (2014-2017)

iPhone Collage (2014-2017)

Throughout this research I have attempted to notice and document unusual instances of light using an iPhone camera in a diaristic approach to cinematographic reflection. The resulting collection of images functions as an ongoing study of cultural and social manipulations of light or natural lighting effects encountered during day to day activities. This single channel installation uses a selection of diary clips to experiment with overlaying in order to foreground unique and ephemeral qualities of light.

Background

This long-term project arose in response to my main research question which sought to understand the role of lighting as a creative and cultural process in moving image practice. To compliment my ongoing collaborative cinematography work I wanted to explore another more open and responsive method of encountering light during moving image production. Over the years leading up to my doctoral research enquiry, and alongside my developing interest in cinematography, I increasingly began to notice and evaluate qualities of light across the different environments encountered during my daily activities.

This largely phenomenological understanding of light provided a context and inspiration for many lighting set ups used in my cinematography work (discussed in my written thesis through the work of Maurice Merleau-Ponty (2002) and Henry Plummer (1987)). When lighting a tense film scene that is set in a basement for instance, I might more readily draw upon my past encounters with similar spaces to recall and recreate light reflecting off puddles of water on the floor to spill eerie patterns over a wall.

Through my daily encounters with and experiences of specific instance of light then, I build a repertoire or palette of ideas that can later be employed during cinematography work. In order to address my research question and articulate this form of practical lighting knowledge I felt it would be important to document these instances of light so they could later be shared or displayed and as such started capturing a collection of ad-hoc digital moving images using my iPhone camera.

Process

Beginning in November 2014, this practice became integrated into my daily activities as a sort of diaristic process which documented my activities through the lighting that I encountered. As I travelled a considerable amount during my film work and research activities, the final collage of imagery presented in the exhibition was captured across a broad geographic range including France, Ireland, Netherlands, UK, USA and Singapore among other locations. I captured light in large urban cities as well as more natural rural environments, although notably the images that are featured in the resulting installation tend to be captured in built environments as these best exemplify the ways that light is culturally orchestrated.

During these years, whenever I noticed an aesthetically unusual, vibrant or emotionally-charged instance of light I would stop to record it for at least one minute. Thankfully the compact nature of digital technology ensured that I always had a camera available and in most cases, due to portability and the unpredictability of the filming, I used my iPhone. On occasion my attempts proved unsuccessful as the lighting effect would disappear by the time I started recording or the environment would not appear on camera in the same way as I had envisioned. For the vast majority of shots however I was able to react in time to capture an image that was reflective of the noteworthy instance of light.

Midway through my research enquiry I experimented with ways to present these images that would indicate their connection to one another and allow the viewer to analyse the lighting in a similar manner to my

initial encounter. Due to the somewhat random and everyday scenes depicted in the shots I found that displaying them in series become quite mundane and, although watching a sequence long enough could convey the different qualities of light, I wanted something to engage the viewer more immediately. Inspired by Henry Plummer's (1987) writing, which describes luminous matter as the overlaying of light and material, I experimented by super-imposing shots which blurred the everyday surroundings and drew direct attention to lighting in the frame.

Outcome

This practical experimentation along with the resulting installation had several outcomes for my research enquiry. Firstly, through the process of noticing and documenting these unusual instances of lighting, my attention and familiarity with the nuances of light improved over the years. This fed directly into my ongoing cinematography work providing points of inspiration for the varied challenges that arise in collaborative production. Moreover, the full diaristic material collected during this research enquiry, around one hundred shots in total, can be seen as a developing library of cultural orchestra-

tions of light that I will continue to grow beyond this research enquiry.

A second outcome of this practical project was the investigation into the different ways of interacting with light. My attempts to document light on an ad-hoc basis raised an awareness of the different sensibilities required when capturing these instances on camera as opposed to witnessing them. Due to the act of framing and making conscious exposure evaluations, noticing and understanding light is only the first step in a process of capture or orchestration for moving image production. Because of this distinction, my shots often resulted as a loose record of lighting that had been carefully composed to present an aspect of what I was seeing, but could never convey the full lighting effect.

This practical understanding and interaction with light influenced the new-materialist perspective that I outline in the written thesis. Specifically, the new behaviour of responding to and composing around lighting, rather than manipulating it through artificial sources or modifiers, informed the notion of light as a material and lighting as a creative process. As I will outline, many of my subsequent practical projects took inspiration from the various instances of lighting I was capturing as well.

Figure 16 Piccadilly Circus (2015) testing in Spike Island studio, Bristol



Piccadilly Circus (2015)

This installation combines Super-8mm and HD digital projection to create looped imagery of Piccadilly Circus. (One of the most photographed sites in London). The digital content in the outer area of the screen establishes the bustling public space and shows its crowded inhabitants from afar while the film image in the centre of the screen depicts individuals in close-up, showing their interaction with the environment through photographic acts such as smartphone selfies and holiday snaps.

Background

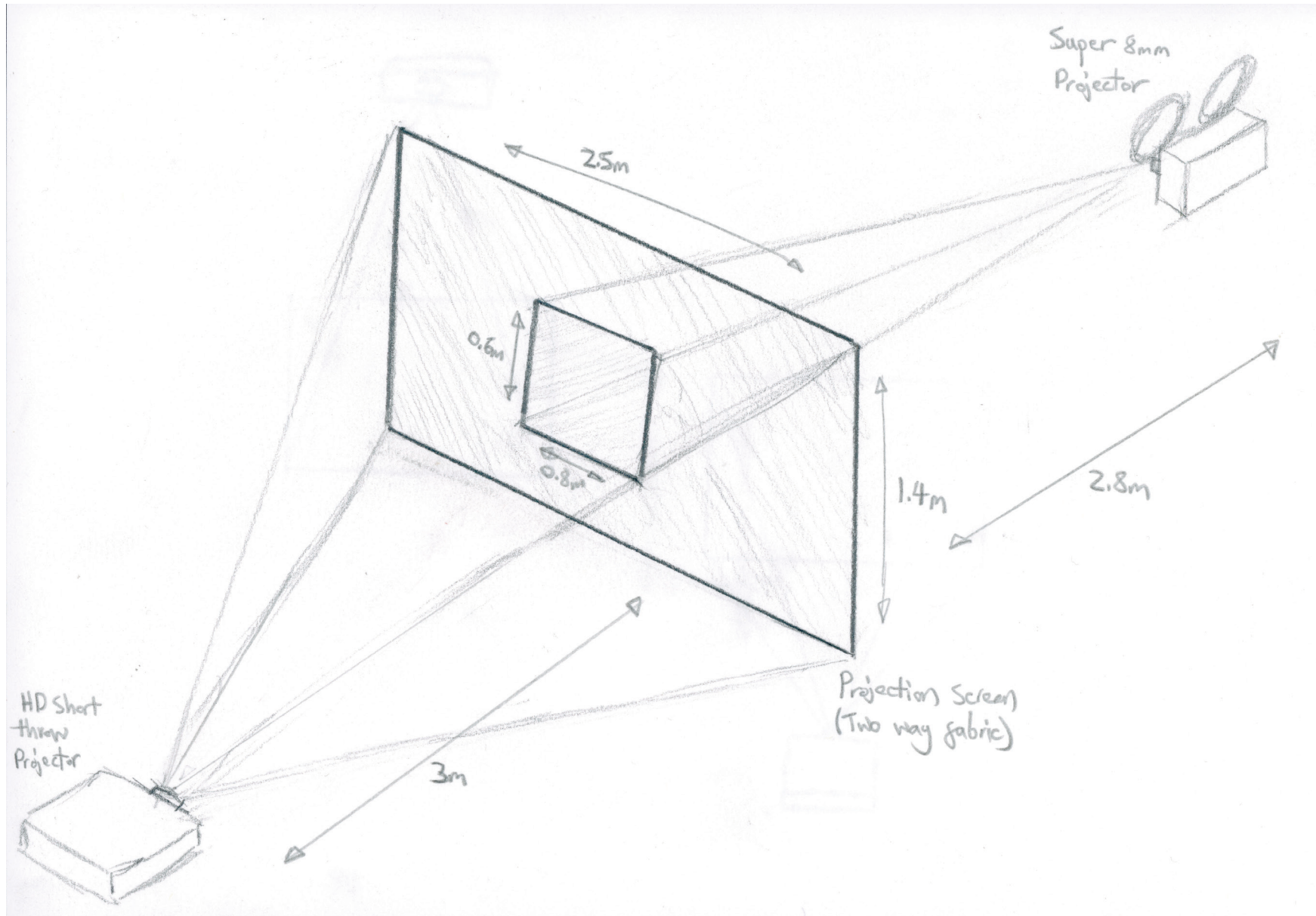
This project built on the practical investigation of moving image medium specificity conducted during my previous experiment *Camera/Projector* (2014). After exposing the distinctions between analogue and digital in this initial work I felt that a more useful method of addressing my research questions would be to combine and intersect these moving image formats. Specifically, I felt that creating work which required audiences to engage with the two formats simultaneously, rather than in sequence, would help to understand better how technology can inform moving image production processes.

Taking cue from a previous limitation, I felt it was necessary to create a project that would display these different formats in their original medium, rather than undergoing a telecine process to digitise the analogue material as in the case of *Camera/Projector*. While considering how I could interpose two moving image formats in this way, Antony McCalls' work became a key point of inspiration, particularly *Line Describing a Cone* (1973) which foregrounds the beam of light emitted from projector and in so doing prompts an audience to turn their back on the projection screen. McCall achieves this by exhibiting his work in intentionally hazy environments where particulates around the exhibition space emphasise and make visible the throw of light emitted from a projector, encouraging audiences to move around the space.

In a similar manner to McCall, I wanted to question an audience's interaction with moving imagery as a form of light and decided that placing two projectors opposite one another within a space by projecting digital onto one side of a screen and film onto the other side, would help to metaphorically suggest my underlying investigation of these forms.



Figure 17 Early testing at Spike Island studio, Piccadilly Circus (2015)



Process

To give audiences a greater understanding of the technical background of this project, I felt that the subject matter depicted across the two formats should reflect an aspect of the changing moving image technologies that were being investigated. To achieve this, I started researching sites with a high volume of photographic activity and found Alex Kachkaev and Jo Wood's (2013) data visualisation showing the most captured areas of London based on their volume of location tags in the online photography platform Flickr. Piccadilly Circus appeared to be one of the most densely populated points of the map. In conjunction with this, I felt it would be a suitable location due to the pervasive digital advertising displays that dominate surrounding buildings and highlight the ubiquity of moving images throughout our daily lives.

After creating *Camera/Projector*, I began using an updated iPhone with a slightly different camera and hence also changed to Super-8mm film working with a Braun Nizo camera in order to maintain the image-area consistency across formats. This also assisted in the projection of the work. In addition to this, disparities in colour rendition became a noticeable visual feature of my previous experiment. Because this work aimed to explore the intersection, rather than distinction, of formats I decided to desaturate the digital imagery and chose monochromatic Kodak Tri-X film to remove these distracting colour differences in order to help the resulting installation more consistent as a whole.

The capture process for this installation took place at Piccadilly Circus during one afternoon in March 2015. The content for each format was designed to offer a different perspective on the space which would then be intersected during the exhibition of the work. This approach was inspired by conventional approaches to filmmaking which often



Figure 18 Sketch of exhibition layout for Piccadilly Circus (2015) (p.28)

Figure 19 Exhibition at BEEF members show, Piccadilly Circus (2015)

cut between close character shots and wider compositions that establish a scene. I framed the Super-8mm material to show people taking photographs around the space in close detail, while the digital iPhone material was framed to include a much wider view of the environment. Finally, I researched the technical properties of projectors to inform the dimensions of the resulting installation and constructed a freestanding screen using rear projection fabric with equal front and back light transmission so that both formats could be projected onto one central surface. During projection, the frame was divided so that the close Super-8mm shots appeared in the centre while the wider iPhone shots appeared in the surrounding area of the screen. This was intended to encourage audiences to look between formats, so they could only get a sense of the entire picture by examining both digital and analogue.

Outcome

This project had several significant outcomes for my research enquiry. Firstly, the desire to create work through projecting both analogue and digital formats led me to develop an expanded presentation of practice. The structure of traditional theatrical cinema environments would not easily facilitate my intended approach so I turned instead to studio and gallery spaces to test and exhibit this project. While designing the

spatial exhibition, I encountered projection considerations such as key stoning, throw distance, lamp brightness and others technical factors that might usually be deemed beyond the responsibilities of the cinematographer or approached as an afterthought to their production work.

My first-hand engagement, designing and implementing projection for a gallery space, conversely brought to my attention the restrictions imposed when exhibiting moving imagery in a theatrical context. I found the freedom of working in this expanded exhibition reinforced the notion of light as constitutive of moving imagery and informed my understanding that theatrical projection is dependent on a highly specific set of technical configurations of light which often go unnoticed by audiences. These implications of theatrical exhibition as opposed to expanded exhibition are discussed further in the chapter of my written thesis entitled *Passages of Light*.

Importantly this work, in conjunction with *Camera/Projector*, served as proof of concept, affirming the direction of my practical experimentation as an investigation into the orchestration of light across different moving image formats alongside one another. As I will discuss, creating this work satisfied the desire to explore analogue and digital forms of moving imagery, allowing me to move beyond this initial distinction and engage with more nuanced technological factors.

Figure 20 Exhibition at Arnolfini dark studio, Piccadilly Circus (2015) (p.31)





Figure 21 Still frame, From Light & Shadows (2016) live action channel (2015)

From Light & Shadows (2016)

This installation combines live-action and computer-generated imagery depicting two archetypical windows. As time passes the lighting in each image gradually changes mimicking the progression of sunlight throughout a day. An ambient soundtrack conveys a bustling cityscape that rises and falls with the passage of light. Each image channel is accompanied by voice over written by cinematographer Henri Alekan. The live-action channel stays faithful to the original French text while the voice from the computer-generated channel recites my English approximation of the passage.

Background

This project arose in response to the increasing integration of computer-generated imagery in moving image production. In order to understand the implications of different production technologies on lighting processes I felt it would be important to explore the ways that a virtual-environment differed to a live-action environment. To engage with both processes first-hand I decided to construct and light a physical set and then replicate the same process using animation software. Hence, this project also built upon my previous practical work *Camera Projector* (2014) and *Piccadilly Circus* (2015), employing an experimental approach that involved the combination of moving image formats.

When deciding upon the subject for this project, I looked through my diaristic imagery, as featured in the *iPhone Collage* (2014-2017) installation, and found the image of a window interior modulating light was a recurring feature amongst these improvised shots. This architectural subject appealed for the project based on its overt connections to, and foregrounding of, light on screen. The relative simplicity of the structure meant I could feasibly build a set and then model the same design in animation software within my modest production means. This choice also responded to architectural theories toward light I had been researching at the time, with notable writers such as Louis Khan (1968, p.231) proposing that “structure is the maker of light.”

This project was designed to critique mainstream cinematography practices, much of which employ lighting based upon established film conventions to evoke the illusion of a particular setting or mood. For example, it is common practice for night scenes to be heavily backlit and use a strong blue tint in the lighting, despite real moonlight usually appearing much more diffuse and monochromatic due to the

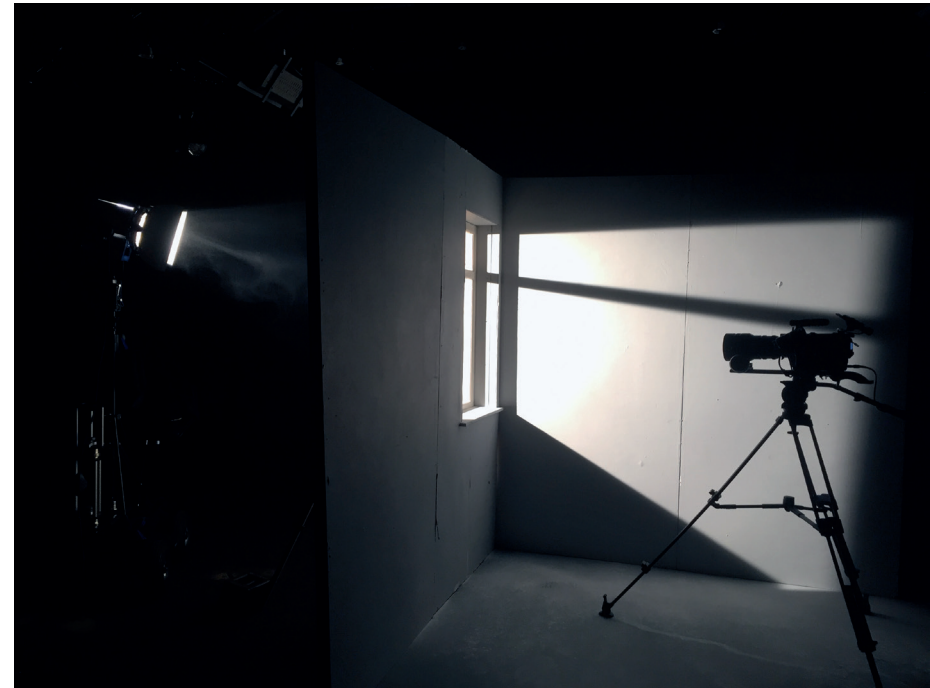
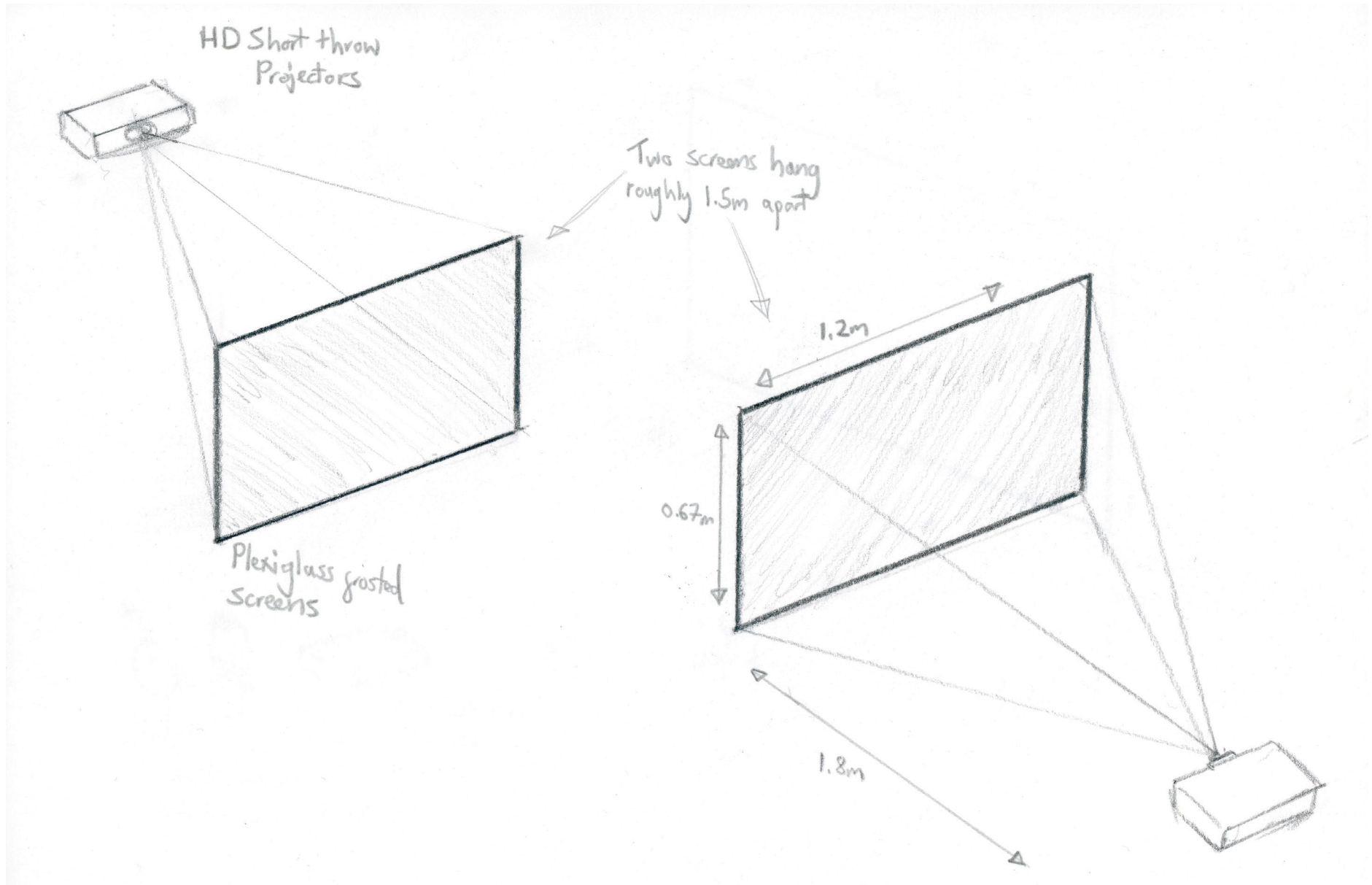


Figure 22 Camera and light setup during testing, From *Light & Shadows* (2016)

Figure 23 Sketch of exhibition layout for *From Light & Shadows* (2016) (p.35)



way our visual senses react to lower light levels. I wanted the project to function as moving imagery which meant featuring some durational quality so decided to mimic the changes of sunlight during the course of a day in reaction to the aforementioned conventional practices. Light would appear to spill through the window from darkness, through full daylight and back to night using these traditional tropes.

Process

I began the practical production of this project by sketching an archetypical window structure which would allow me to explore passages of light in the way I've indicated. During this process I conducted aesthetic research around the portrayal of windows in artwork, studying Vilhelm Hammershoi's paintings which are notable for exploiting window structures to create haunting, hazy and mysterious interiors as seen in *Dust Motes Dancing in the Sunbeams* (1900) and *Moonlight, Strandgade 30* (1900-1906). I also examined Hopper's depiction of windows and light for which he paints more defined illumination than Hammershoi, lending a feeling of sharpness and clarity to the imagery of *Rooms By The Sea* (1951) and *Morning Sun* (1952).

The initial live-action production took place in the film studio at UWE Bristol's Bower Ashton campus during February 2016. For simplicity the camera position was fixed throughout the shot so I only needed to build a small corner structure and constructed this out of scenery flats, placing a window piece on the left-hand side of the layout. Once built, I recorded measurements of the entire structure which would later inform my animation modelling process. Using the RED MX digital camera, I set up a fixed position and recorded the camera distance from my set as well as all of the settings used throughout the shots.



My lighting process began with a series of experiments using different types of light fixture, placement and material in the window to create the effect of sunlight changing throughout the day. For the final shot I rigged coloured lighting filters adjacent to the window so that on camera the light would appear to change from an orange tint to neutral to blue as it passed through each material. I emulated the movement of the sun by rigging my main lighting fixture on a dolly platform which was pushed slowly past the window over a three minute duration. This forced the light through the different colour filters but moreover this mimicked the conventional cinematography depiction of a rising and setting sun as the throw of the lamp passed by the opening in the window, moving from a front-light to back-light position.

The computer-generated production took place over a much longer duration, between March and May 2016. Once the set was modelled in Maya, according to my measured live-action dimensions, I again spent time experimenting with the different types of light source that are available in this software. The software's physical-based algorithms, which have clearly taken inspiration from film production equipment, enabled me to specify my camera and surface settings in fine detail to match, or at least, approximate the studio based process. I tested several different render engines to understand better how these processes emulate the behaviour of light but finally chose Pixar's Renderman due to its simple integration with Maya. Despite the relatively good quality to time ratio of this software, it took around one month of non-stop processing for my personal computer to render the three-minute shot.

The resulting work was shown in both single screen theatrical and multi-screen installation contexts but was predominantly designed with the gallery context in mind. Drawing upon the exhibition strategy of my previous project *Piccadilly Circus*, I wanted display the live-action and com-

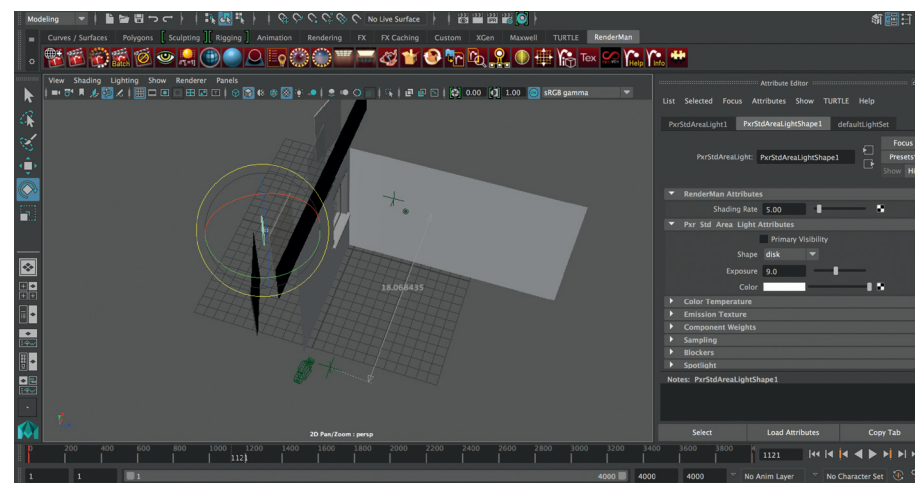


Figure 24 Lighting filters behind the set, From *Light & Shadows* (2016) (p.36)

Figure 25 Screenshot of computer animation, From *Light & Shadows* (2016)

puter-generated images as two separate channels to encourage an audience to look between them. Using a dark space, I rigged two translucent plexiglass screens in a slightly staggered side by side layout and projected the channels out of sync so that as one window appeared the other faded back into darkness. Each channel was accompanied by a voice-over reciting a passage from Henri Alekan's (1991) *Des Lumières et des Ombres*, with the live-action channel staying faithful to original french while the computer-generated channel featured my translation of the text. This was intended to draw the audiences consideration to light within the frame and additionally I felt that foregrounding a translation in this manner would reflect the process of approximation within my virtual set and lighting.

Outcome

As I had no prior computer animation experience before undertaking this project, a major outcome for me was learning the process of modelling, rendering and understanding how computer-generated image processes emulate the physical behaviours of light. This engagement informed a direct practical cross-fertilisation between live-action and computer-generated production environments which are typically considered distinct arenas with little academic consid-



eration of lighting between the two and very few cinematographers exploring both during their practice. As such, my written findings from this study of virtual and live-action lighting, along with documentation of the practical installation, were published by *Screenworks* and noted as runner-up in the practice-research category of the British Association of Film, Television and Screen Studies awards in 2017.

This project had a significant influence for my larger research enquiry, directly informing the argument within the chapter of my thesis entitled *Technologies of Light*. Investigating a virtual production environment affirmed my notion that the over reliance on an instrumental view of lighting amongst previous studies offered a limited understanding of the practice. The tools I employed during this project varied from physical cameras and lighting fixtures to a computer mouse, keyboard and the Maya software interface, each having its own implications on the way that I conducted the work. The exhibition of the work is also referenced in *Passages of Light* as the expanded presentation furthered my understanding of the ways that practitioners orchestrate light during projection, feeding into the theory of affordances that is discussed in this chapter of the thesis.

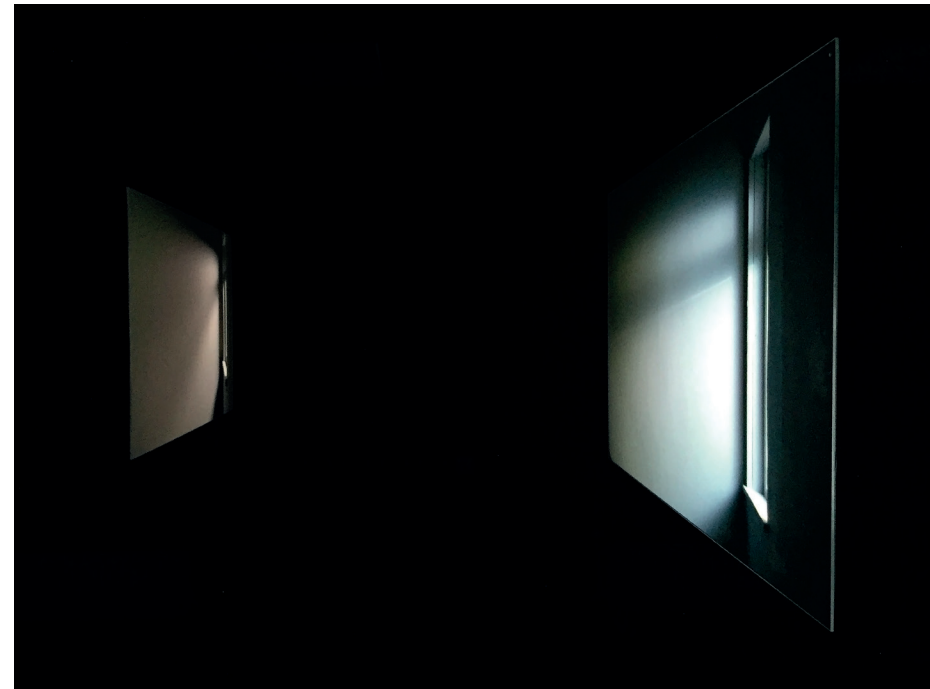


Figure 26 Exhibition at Arctic Film & Moving Image Festival, *From Light & Shadows* (2016) (p.38)

Figure 27 Installation exhibition at UWE Bristol, *From Light & Shadows* (2016)



Figure 28 #Life_Drawing (2017) installation at Radiant Gallery, Plymouth

#Life Drawing (2017)

A contemporary figure drawing class shown through analogue and digital projections driven by social media data. This installation continuously searches the Instagram website, seeking new posts with specific hashtags which trigger the images. Each relevant post will start either the Super-16mm or HD digital projector and is also displayed in text form on an LCD screen between the two machines.

#shotzdelight, #filmisnotdead, #theimaged, #staybrokeshootfilm, #pixel_ig, #grainisgood...

Figure 29 Film and digital camera set up, #Life_Drawing (2017) (p.42)

Figure 30 Filming at Hugh Lane gallery, photograph by Felicity Clear (p.43)

Background

Building on my previous installations, this work continued the cross examination and inter-operation of moving image formats. Moreover, the project extended this exploration by seeking to investigate the contemporary ubiquity of imagery which results from the increasing accessibility of digital cameras and interconnected social media platforms. My previous installations *Piccadilly Circus* (2015) and *Camera/Projector* (2014) had been fairly simplistic in their intersection of analogue and digital formats, dividing a projection frame between both simultaneously, and so I felt that to overcome these limitations further experimentation between the formats would be helpful in understanding the ways that they transform light on screen. With this project, I decided to project both formats in a shared frame again but rapidly alternate them to elicit a new type of inter-operation between moving image technologies.

Inspired by Dennis Cote's (2012) documentary *Bestiaire* which explores the mutual observation between humans and animals and features lengthy drawing scenes, I was attracted to the figure drawing class as a frame of reference for digital and analogue moving imagery in this project for two primary reasons. Firstly, the visual qualities of figure drawing felt like an aesthetically vibrant and engaging subject to explore with each format. Secondly, I felt that the process of drawing or mark making as shown through participants of the class would add a layer of critique around the representational qualities of moving imagery, forging an underlying analysis between the anachronistic forms of media that constitute the installation and the processes they depict.

I considered many different methods to trigger the alternations between projection formats for this project but ultimately settled on using data driven by hashtags featured on the online platform Instagram. Incorporating



porating this live element in the project was intended to foreground the mass exchange of imagery occurring online, making the timeline of the projected content unpredictable and continuously changing. This element also served to connect the project with an aspect of technology that I had not previously investigated in my practical experimentation, allowing me to reveal the systems which self-perpetuate and control the orchestration of light in the dissemination of moving imagery.

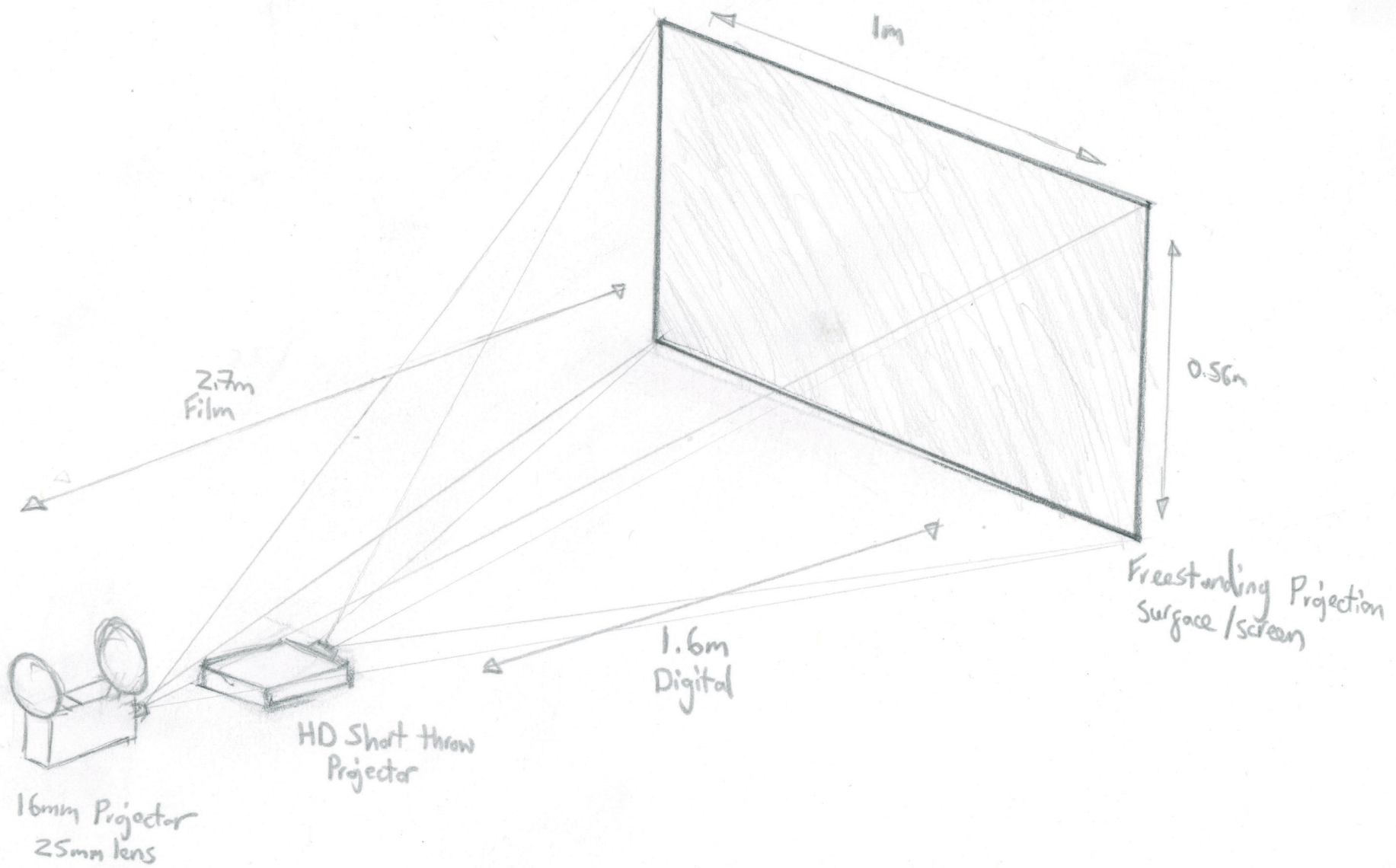
Process

Production of this project took place between March and September 2017. After liaising with a number of venues, I received permission to work at The Hugh Lane in Dublin and joined one of their regular drawing classes in the Sean Scully gallery.

Building on the approach that I developed during the production of *Camera/Projector*, I employed comparable digital and analogue capture mechanisms. To achieve higher image quality than the previous projects however, I worked with Super-16mm film using an Aaton LTR camera in conjunction with the Blackmagic Pocket Camera. I was keen to employ Super-16mm and a larger digital sensor for this project in order to reveal more of the texture and unique qualities of each medium which wouldn't have been as visible on smaller formats. I also matched the optics between the two cameras using Helios 58mm lenses adapted to the PL and MFT mounts respectively. During production the Blackmagic camera was mounted to the top of the Aaton above the film plane and framing was adjusted for every shot to ensure they were both closely matched.

Although all of the content was captured simultaneously on both formats, the exhibition of this project took inspiration from *Piccadilly Circus* and divided the shots so that audiences would be encouraged to look between





formats. I chose to only include Super-16mm close-up shots which featured details of the model straining as he held his pose. By contrast I used digital shots that only featured the class and their drawing process through a mixture of compositions. This was intended to give an impression of the overall activity through an intersection of the two formats.

To trigger each projector, I used a Raspberry Pi single board computer. The 16mm projector was kept threaded and turned on so that using a radio frequency plug socket to regulate the power supply to the machine would enable me to start or stop the imagery. A digital short throw projector was controlled directly via the HDMI interface of the Raspberry Pi. I wrote a simple code using the Python programming language to search Instagram's application programming interface (API), checking for a specified series of hashtags. If the code found a new instance of any hashtags that I designated to digital it would trigger the digital projector and likewise if it found a new instance of a hashtag designated to analogue then it would trigger the 16mm projector.

To help audiences understand the technological system that was involved in this project, I displayed each new hashtag that my code found, as well as the total number of times it had been used online, through on a small LCD display placed between the two projectors. My choice of hashtags related to the respective online communities on Instagram which can broadly be divide into photographers using digital as opposed to film formats in their work. In choosing the specific tags I intended to highlight a discrepancy between the fetishisation of analogue processes and the dissemination of images amidst this digital online network.

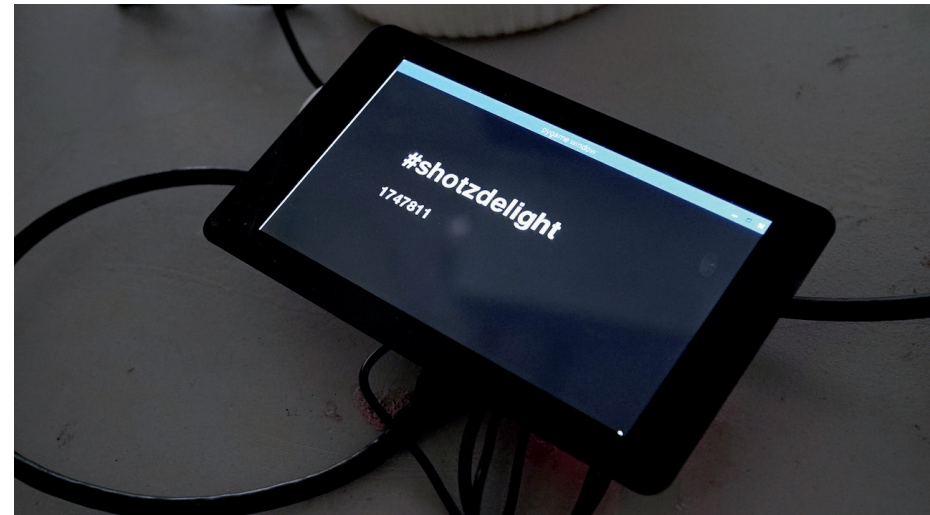


Figure 31 Sketch of exhibition layout for #Life_Drawing (2017) (p.44)

Figure 32 Close up of Raspberry Pi digital screen, #Life_Drawing (2017)

Figure 33 Exhibition at Radiant gallery, #Life_Drawing (2017) (p.46)



Outcome

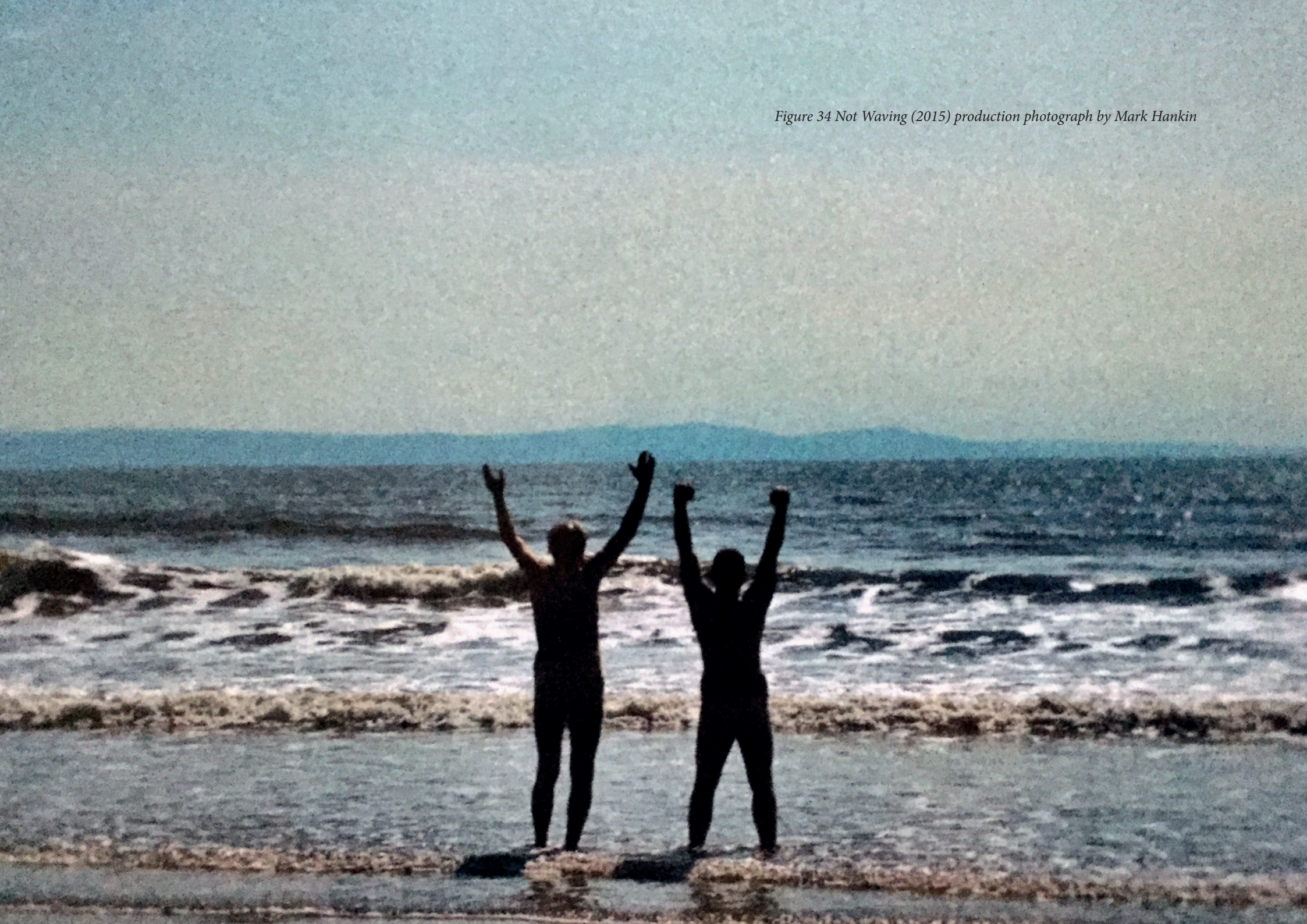
This project significantly challenged my technical abilities, requiring me to learn basic Python programming language in order to draw hashtag data from the internet and control the two projectors. The practical outcome is a self sufficient installation that, once set up and connected to the internet, continuously changes with the taste variations of Instagram user communities. Building on my previous installation work to include a live element in this fashion helped to inform my understanding about how technology shapes moving image practices.

During this project, exploring the interconnected means through which imagery, and increasingly moving imagery, is shared online specifically highlighted the agency of technological systems of dissemination. This informed the perspective set out in the chapter of my thesis entitled *Technologies of Light*, revealing another aspect of what I termed technological vitalism and prompting me to extend my argument about the entanglements that surround a lighting practitioner through to the exhibition of moving imagery.

This work, along with the other installations resulting from my practical experimentation, also provided insight for the new-materialist approach to light that is described in the chapter of my thesis entitled *Light and/as Material*. Expanding my work to the gallery environment and developing novel techniques to intersect analogue, digital and virtual formats in this way foregrounded the notion of moving image projection as an orchestration of light itself. Hence, through installation works I developed an understanding of the distinction between light of an image as opposed to light within an image, which served as a foundation for much of my written argument and allowed my research enquiry to reconsider the traditional boundaries of cinematography.

Short Film Cinematography

Figure 34 Not Waving (2015) production photograph by Mark Hankin



Not Waving (2015)

Struggling psychiatric nurse Joe impulsively absconds to the seaside with Archie, his elderly long-term patient, intending to re-engage him with real life. Although the memories he stirs up are not happy ones, as the murky past resurfaces the two men form a positive, if unlikely, friendship.

Directed by Freya Billington
Produced by Nathan Craig
Creative England iShorts

Background

This ten minute film was made in conjunction with the Creative England iShorts production scheme during the summer of 2015. The film was directed by Freya Billington, my colleague and former teacher at the University of Gloucestershire, who approached me as a collaborator during the funding application process.

The film revolves around Archie, an old man undergoing treatment in a psychiatric ward as he experiences severe memory problems and emotional instability. Through a series of expressionistic flashbacks the audience gradually learn that a catalyst of this condition was his son's death in a swimming accident many years prior. Archie confused his son's cries for help as innocent waving and encouraged him to continue swimming without realising the ocean's current presented significant danger for the boy who was swept under.

Our decision to work with Super-16mm film was a predominant visual feature of this project. Upon completion of the script Freya, Nathan Craig and myself all agreed this format suited the evocative written material and heavy use of flashback sequences. This thematic exploration of memory and trauma chimed with Super-16mm due its visual qualities of pronounced grain and film weave that are often considered nostalgic.

Process

To distinguish between the film's present tense and memory driven flashback scenes I used distinct focal length to visually represent each timeframe. The central narrative was largely shot with a 16mm lens to give a deep depth of field and more background perspective within the images. This was designed to show characters in relation to one another,



reveal more of the locations and make the scenes feel more immediate or present on screen. By contrast, the flashback scenes mostly used focal lengths of 70mm and above to isolate characters from their surroundings and reduce depth of field. This was intended to lend a narrow or heavily subjective feeling to the images so they would give an impression of Archie's personal perspective and remembering of events.

Another major visual approach was the emulation of a rear projection aesthetic in the film. As the central narrative follows Archie and his carer Joe on a road-trip to the beach, there are several key scenes that take place in a moving car. Furthering the photochemical aesthetic, Freya and I decided to create the driving scenes in a studio environment to give the images a slightly surreal or unsettling feeling. This was intended to represent the feeling of unease experienced by the protagonist when leaving the confines of the hospital. To achieve the desired aesthetic, we tested rear projection using large screens which acted as a two-dimensional backdrop behind a car. Using three digital cameras as we gathered footage that was then rear projected onto these screens but found severe flickering appeared on the resulting 16mm film due to the Digital Light Projection technology. While it would have been possible to create the desired effect in camera with some additional time, for efficiency, we choose to use a green screen backdrop instead. The resulting 16mm shots were composited with our digital footage in post-production to mimic a classic rear projection aesthetic.

The lighting for this project was broadly divided into two strategies. Firstly, distinguishing the central narrative from flashbacks by controlling contrast ratio to create more silhouetted, expressionistic imagery in the memory-based scenes and lower contrast, naturalistic lighting in the present scenes. Secondly, creating the feeling of motion in the static studio which involved rigging moving lighting fixtures that



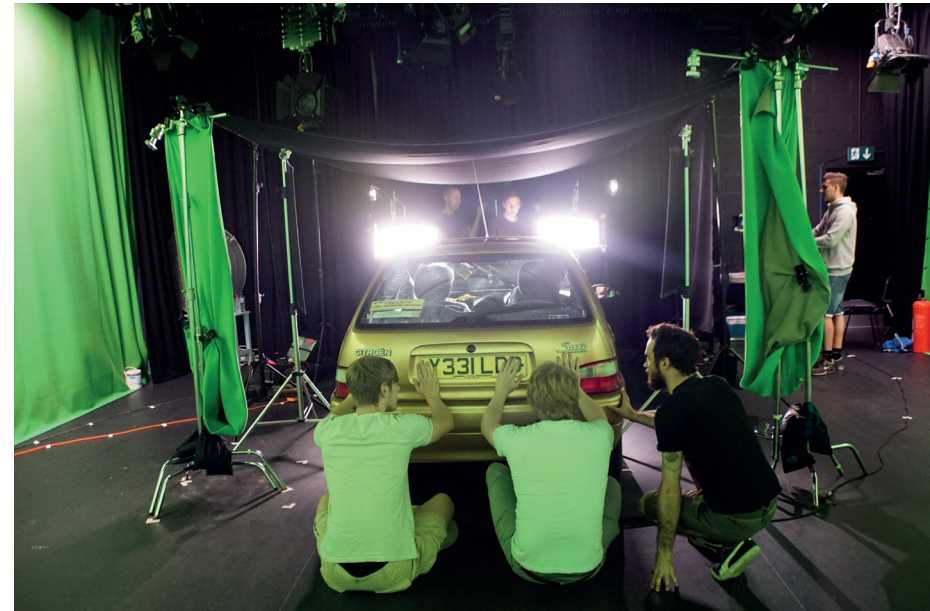
Figure 35 Not Waving (2015) production photograph #1 by Lex Beckett (p.50)

Figure 36 Capturing digital background images, Not Waving (2015)

would pass by the car and subjects repeatedly during shots. Due to our use of green-screen the studio lighting also had to feature an even, flatly lit backdrop to aid the chromakey replacement in post-production.

Outcome

Working with photochemical processes during this project substantially impacted my understanding of lighting and generated autoethnographic notation that was incorporated in the chapter of my written thesis entitled *Sculpting Light*. Through the interrogation of my production lighting process during this project I was able to better understand how practitioners negotiate different brightness values in a scene with an abstract scale, or range, of exposure when determining an appropriate f-stop. I found this practical insight struck a chord with aspects in the instructional writing of John Alton (1995) and Ansel Adams (2005), giving rise to the concept of correspondence that I outline in the chapter. Due to the concealed and calculated nature of working with 16mm, this concept became particularly evident to me when de-



signing specific contrast ratios during the production of *Not Waving* and proved to be a substantial learning curve in several scenes, including one that is addressed through a reflective passage in my written thesis.

Further to this, my experiences attempting to create a rear projection aesthetic for the driving scenes of this film influenced the relational perspective put forward in the chapter of my thesis entitled *Technologies of Light*. During this process, the nuances of both analogue and digital formats became clear to me as we encountered severe flickering when capturing DLP projection on 16mm film. Their incompatibility highlighted how these formats enforce their own mode of operation during the creation or display of imagery. This was emphasised further when we choose to use green screen instead of rear projection as some aspects of the lighting became subservient to our intended post-production chromakey process which required a flat, even backdrop. These experiences embellished my understanding of technological vitalism, or the notion that technology itself has qualities and characteristics defined beyond our use, as discussed further in the written thesis.



Figure 37 *Not Waving* (2015) production photograph #2 by Lex Beckett (p.52)

Figure 38 *Not Waving* (2015) production photograph #3 by Lex Beckett



Figure 39 Life in Body (2015) production photograph by Lauren Mustoe #1

Life in Body (2015)

A short experimental film exploring transgender through poetry.

Directed by Rob Darglish
Produced by Mike Parker
Channel 4 Random Acts

Background

This short three minute film was shot in December 2015 and funded by Channel 4 Random Acts in partnership with Calling the Shots and the University of Gloucestershire. The film was directed by Rob Daghish, continuing our collaboration on several independent short projects created together in the preceding months.

This experimental film revolves around spoken word poetry written by Rob's brother about his experience going through gender realignment. The film begins with a proxy character in a surreal living room environment reflecting on the feeling of being trapped inside another body. The character moves into a barbershop and undergoes a physical transformation from masculine to feminine while continuing to recite poetry before finally walking out of the set, revealing the artifice of the location and returning to the original scene from the beginning of the film.

A major visual style of the film was our decision to use in-camera editing techniques to construct a continuously moving shot. The resulting film appears to be captured in a 'single take' but is actually comprised of numerous separate shots stitched together in an experimental fashion. This was designed to represent visually the character's conflicted identity. With each hidden cut they appear slightly more feminine through make up and costume alterations. Due to this logistically complex approach we used a Sony FS7 camera which provided a flexible production process, easy playback of shots and digital manipulation during post-production.

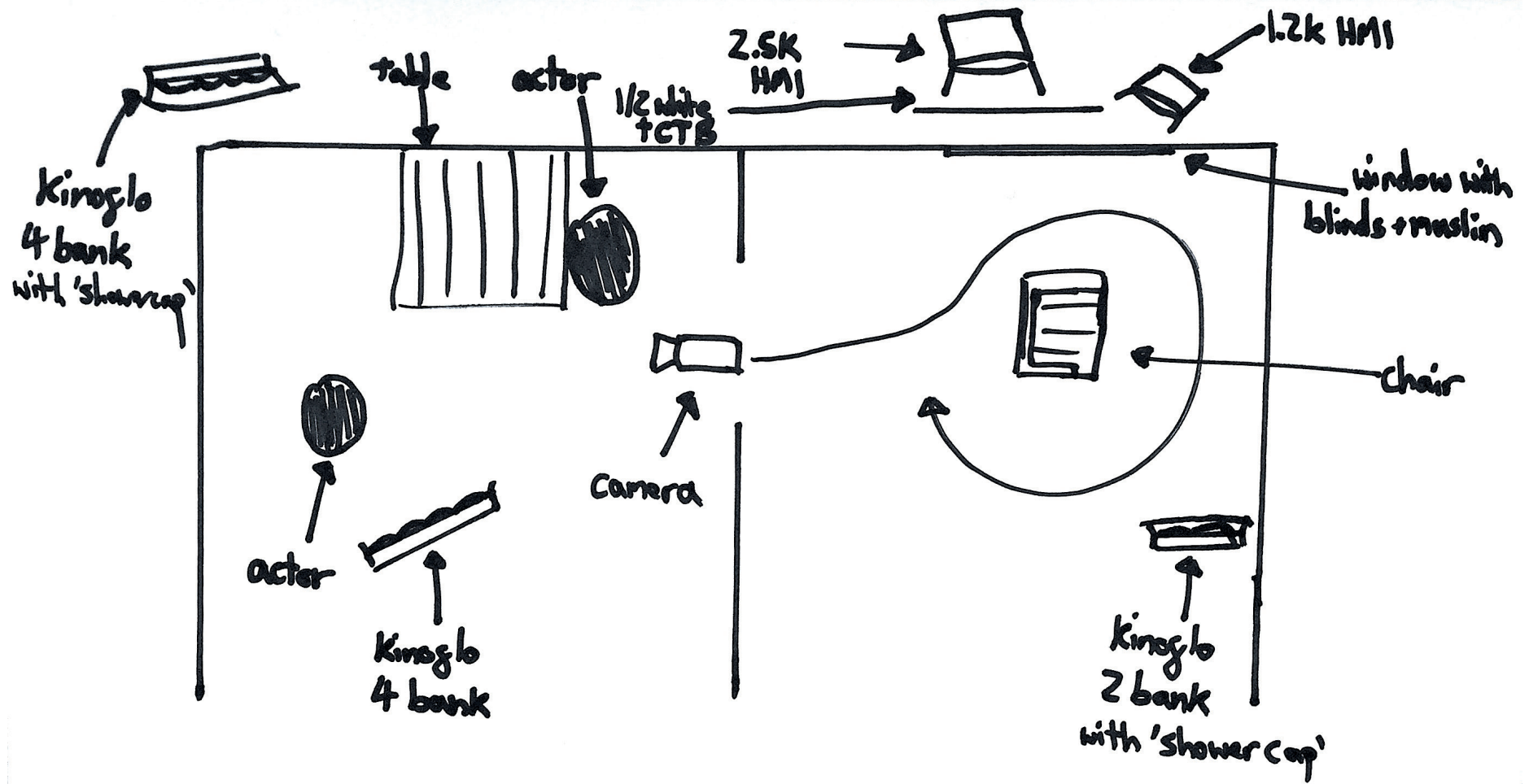
Process

To achieve the intended 'single take' aesthetic, Rob and I mapped out a camera movement in detail featuring specific moments where objects



Figure 40 *Life in Body* (2015) production photograph by Lauren Mustoe #2

Figure 41 Lighting layout sketch, *Life in Body* (2015) (p.57)



obscured or wiped the frame which could later be used to hide editing between takes. We used a jib to orchestrate the complex camera path and combined on-set markings with monitor overlaying in order to match the beginning and end of each shot as closely as possible.

The set was constructed in a studio following our camera plans which allowed a degree of freedom in the proportion and design of the production environment. The camera settings and lens choice were kept the same throughout the majority of the film which again helped to maintain the appearance of a 'single take'. We used a 24mm lens which afforded a relatively wide field of view, situating the character in the environment, but not so wide the top or edges of the set would enter frame with the camera movement.

Lighting in the film followed two main considerations. Firstly, it was used to emphasise juxtaposing spaces between the living room and barber shop sets which were designed themselves to reflect the feelings of oppression and transformation, in the character and poetry of the film. To achieve this, I worked with harder light sources in the living room area, using cooler colour balance and more striking angles to create a feeling of unease and hostility in this environment. By contrast the barber shop space was lit with much warmer and softer light sources from a more flattering angle to elicit a sense of ease as the character begins to undergo their gender realignment. In addition to this, the lighting was designed around the camera's movement in the location and our 'single take' aesthetic which meant I had to work with mainly high angle sources.



Outcome

Working within an entirely controllable studio during this project significantly impacted my understanding of the ways that a practitioner orchestrates light in moving image practices. Autoethnographic notation generated during this production allowed me to reflect upon and capture some first-hand insight around working with light and digital camera technology. Moreover, the restrictions imposed by the intended camera movement reinforced the notion of an intrinsic relationship between lighting and camera work as discussed in the chapter of my written thesis entitled *Sculpting Light*.

The poetic source material of the project pushed me to seek a more expressive use of lighting that would distinguish and embellish the feelings attributed to each space in the film. I found this process closely related to some of the metaphorical writing about lighting by Vittorio Storaro (2001) and Henri Alekan (1991). Hence, my experience on the project directly contributed to the associative understanding of lighting as outlined in the aforementioned chapter of my written thesis. A reflective passage offering further insight into this process is incorporated into the written thesis which contributes directly to, and evidences my argument for an alternative, conceptual, approach to lighting.

Figure 42 Studio lighting setup, *Life in Body* (2015) #1 (p.58)

Figure 43 Studio lighting setup, *Life in Body* (2015) #2





Figure 44 Hôtel de la Comète (2017) promotional photograph by Harald Hutter

***Hôtel de la Comète* (2017)**

Like the afterburn of a comet, burned-out passion fades in the darkness. A story of desire, romance and eventual heartbreak between young lovers, shot on 16mm in Paris. As *Hôtel de la Comète* unfolds we discover how Gabrielle and Sasha met, how they loved each other and how they separated.

Directed by Harald Hutter
Produced by Marie-Gabrielle Fabre & Florian Hutter
No Wave Films

Background

This short fifteen minute film was shot in January 2017 and self-funded by director and producer Harald Hutter with support from Paris based production company Kafard Films. Harald and I have developed a close working relationship through our collaboration on numerous projects since 2011. Building on our previous work together, *Hôtel de la Comète* was specifically designed as an independent project that could be created with minimal production support and completed on relatively quick timescale while waiting on funding for more logistically ambitious films.

Thematically the film explores forgetting, memory and eros. Non-linear scenes portray the lifespan of a young couple's relationship, centred around Gabrielle as she discovers and comes to terms with her girlfriend Sasha's sudden a change of heart. Interspersed timeframes depict how the two met, how they fell in love and how they finally separated. The film's narrative leaves a lot of room for interpretation, reflecting the often ambiguous and open-ended nature of short term romantic encounters.

Like *Not Waving* (2016), a predominant visual approach for this film was our choice to use Super-16mm as a capture format. In this case the decision was partially aesthetic but also methodological. The creative approach that Harald and I developed through previous work gives precedence to longer takes, restrained camera movement and expressive lighting. The limitations and finite nature of Super-16mm production encourage our way of working.

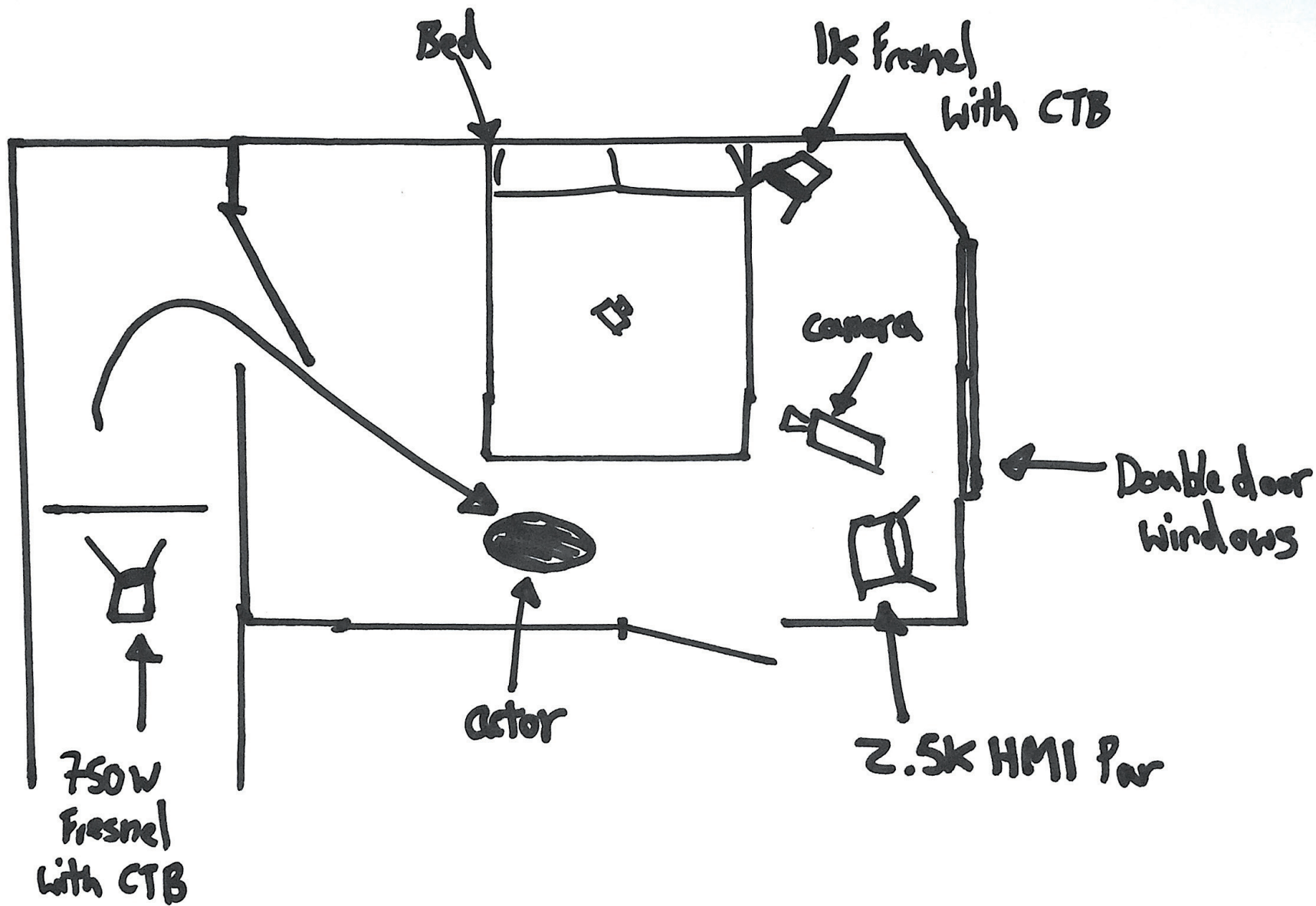
Process

When sourcing film for the project Harald and I choose to work with old Fujifilm negative stock rather than the more modern Kodak products that



Figure 45 Aaton 16mm camera, *Hôtel de la Comète* (2017)

Figure 46 Lighting layout sketch, *Hôtel de la Comète* (2017) (p.63)



are produced today. We felt the low-fi aesthetic of expired film, which often produces pronounced grain and slightly warped colour tones during development, would enhance the sumptuous and wistful aspects of this narrative.

Drawing distinctions between Gabrielle's emotional state at the beginning as opposed to end of the relationship was another visual consideration for this project. I used Tiffen Promist filters during the scenes depicting earlier parts of the relationship to create a hazy effect around the images tonal highlights to conjure a feeling of remembrance. The different timelines were also signposted visually through the composition and structure of shots. We used a forward zoom toward Gabrielle at the end of scenes to symbolise the transition to another timeframe. Similarly, we composed shots to position Gabrielle off centre, depicting emotional turmoil at the end of the relationship and, by contrast, emphasised reflections or silhouetted imagery during the earlier scenes.

The lighting for this project was mainly influenced by the overtly expressive *cinéma du look* movement as well as the early films of Hong Kong director Wong Kar-Wai. Particularly, Jean-Yves Escoffier's high contrast, saturated lighting in Leo Carax's (1986) *Mauvais Sang* and the similar aesthetic created by cinematographer Christopher Doyle in Kar-Wai's (1999) *Happy Together*. Both of these films depict tortured love stories using dramatic, directional and coloured sources of light to emphasise the emotional turmoil of their characters. Desiring a similar style, I worked with hard light sources such as HMI par and tungsten fresnel lamps which were often used with little to no diffusion and set up at obtuse angles to create strong contrast.



Outcome

Creating an expressive and heavily stylised aesthetic in this project furthered my understanding of the organisation of light which led to the conceptual approach discussed in the chapter of my written thesis entitled *Sculpting Light*. More specifically, using such dramatic contrast ratios and unusual lighting angles in this project highlighted how light can draw a viewers eye within a frame which echoed some of the writing of Ross Lowell (1992) and Sharon Calahan (1996). We made numerous attempts to direct attention with lighting during the production and the most thematically charged instance is featured in a reflective autoethnographic passage within the written thesis, providing practical evidence for my larger argument about lighting concepts.

Through analysing my work on this project in detail I was also able to develop my understanding of the ways that creative lighting work is conducted. Specifically, I drew upon these experiences to apply the theory of affordances to lighting, as described in the aforementioned chapter, and through doing so proposed a new framework that can explain how practitioners work with potentialities that arise from a combination of their production environment, equipment and creative intent during lighting work.

Figure 47 Location lighting setup, *Hôtel de la Comète* (2017) #1 (p.64)

Figure 48 Location lighting setup, *Hôtel de la Comète* (2017) #2



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