Collaborative Project

R&D Document

During this assignment I will do a season conversion to winter. This will give me the opportunity to practice and further my knowledge of matte painting techniques such as photo bashing and paint over. Projecting the winter DMP onto the moving plate will also improve my compositing skills. Working and filming in collaboration with media production students will develop my teamwork skills while reflecting working in industry. I will research winter conversion techniques in order to create a realistic shot that reflects a real life snow day.

Concept

A John Lewis Christmas advert featuring a season conversion to winter. A montage sequence will showcase a young girl seemingly waiting during the month of December for it to snow for Christmas. It will end with a twist where it is revealed she was actually waiting for her Dad, who is a soldier, to return home. The story will be summed up by a slogan that highlights the importance of family at Christmas time.

Aims of the Project

- To further my matte painting skills
- To achieve a realistic winter conversion shot
- To improve my compositing ability
- To create an advert that reflects John Lewis's style
- For the advert to have an interesting story that elicits an emotional response
- To work in collaboration with media production students

Software
- Adobe Photoshop: I will use Photoshop to create the winter conversion matte painting.
- Nuke X: I will use Nuke X to track the plate, composite the snow and to colour grade the shot.
- Adobe Premier Pro: I will use Premier Pro to edit the advert together and add the slogan and music.

Research

John Lewis advert research

I carried out research into John Lewis adverts to establish the style and any common conventions they conform to. This will help me to create a John Lewis advert that is cohesive with its current branding.

2011 Christmas advert
A big inspiration for this project is the 2011 John Lewis Christmas advert. It features a montage sequence of a boy impatiently waiting for Christmas, with a twist ending where it is revealed he is waiting to give his presents to his family. I think the narrative is simple but effective and is successful in creating an emotional response from the audience. I particularly like the twist ending that is summed up by the slogan at the end, which is typical of all John Lewis adverts. This advert also features a successful winter conversion that looks very realistic.

2014 Christmas advert
The narrative idea in the 2014 John Lewis Christmas advert is also a big inspiration and it furthers my understanding of the common conventions in John Lewis adverts. Similarly to the 2011 advert, it is a poignant story that begins with a montage sequence of a boy playing with a penguin in the lead up to Christmas. However, the penguin becomes unhappy as he sees couples together. Common to John Lewis adverts there is a twist ending where the boy gets another penguin as a present and it is revealed the penguin was a teddy all along. I like the idea of the montage sequence and the audience not knowing why the character is unhappy until it is revealed at the end. The music helps further the emotional themes and the lyrics reflect the narrative which is another common John Lewis convention that I will utilise in my advert.

Conventions of John Lewis adverts

I researched multiple John Lewis adverts to establish the common conventions. I will apply these to my advert to make it a recognisable John Lewis advert. The adverts have a poignant short story with a heart-warming twist ending. They feature emotional music that reflects the narrative. There are no obvious John Lewis advertisements throughout and the message at the end sums up the story. The themes are commonly family, friends, love, thoughtful gifts and animals. I think these conventions are successful in making the adverts recognisable and I will use them in my advert.

Brand research

I researched the John Lewis brand to develop understanding of its history and brand principles in order to create an advert that reflects their ideology and principles. In 1929 John Spedan Lewis transformed his fathers company into John Lewis Partnerships which gave all its employees shares in the company. Today, the John Lewis Partnership is the largest employee owned business in the UK with over 83,000 partners. They sell an array of products ranging from clothing to furniture. John Lewis merged with Waitrose in 2019.

The first John Lewis Christmas advert was launched in 2007. The heart-warming adverts have become a tradition in the UK that signals the start of the Christmas period. The John Lewis title at the end of the advert has been displayed in multiple ways. From the classic text in the man on the moon advert to the box design in 2020 that also featured Waitrose. In my advert I will use the style of the most recent 2021 advert. I like the simplistic thin text that looks effective over the last shot of the advert. For the slogan of my advert I want it to be cohesive to previous John Lewis slogans; a short heart-warming message that sum up the story such as 'for gifts you can't wait to give' from the 2011 advert. An idea for my slogan is 'for the ones you love most this Christmas' in reference to the girl waiting for her dad to come home for Christmas.

Further advert research

I also looked at other adverts by different brands to gather further inspiration for my piece.

2014 Sainsburys Christmas advert
The Sainsburys Christmas advert shows the story of Christmas day in 1914 during World War 1. It tells the famous event where the British and German soldiers had a truce and exchanged gifts and played football on Christmas day. The sentimentality of this advert elicits an emotional response which I believe is a very similar style to John Lewis adverts. This advert inspired me to have a soldier in my own advert as the hardships of soldiers create emotion which will portray the heart-warming themes I am aiming for.

Duracell Advert 'The Teddy Bear'
The 2015 advert for the battery brand Duracell is a big inspiration for the narrative of my piece. The advert shows a soldier in army barracks recording a message into a teddy bear for his daughter. There is a short montage sequence of the girl doing activities where the bear is always with her as she waits for her dad to return home. The advert ends with the father and daughter reunited in a heart warming scene. The themes of the girls father away in the army, the montage sequence where the girl is waiting at home and the reunion elicit a strong emotional response from the audience, as we feel sorry for the pair being separated and happy when they reunite. I will use these narrative ideas in my advert to create a heart warming piece.

Nike 2008 advert

I also looked at a Nike campaign advert called 'Baby it's cold outside'. It is an interactive video that advertises Nikes autumn and winter clothing. It features a women on a run. As she moves the seasons change along with her clothing to reflect the new weather. The audience are able to click on the different outfits and be taken to the Nike website to view the clothes. This advert is a good reference for a winter conversion, particularly the use of snow particles which I will use in my piece to further the wintery environment.

'Some gave all' music video

The music video for 'Some gave all' by Billy Ray Cyrus is a good inspiration for the narrative themes in my advert. The music video shows imagery of soldiers in war and their loved ones waiting for them at home. This inspired the idea of the girl waiting throughout December for her dad, a soldier, to return home. The emotional effect on the audience watching the music videos when the soldiers return home to their families is what I aim to reflect in my advert when the girls dad returns home at the end.

Winter Conversion Research

In order to create a realistic winter conversion I carried out research into existing winter conversions and the techniques used to create them.

MattePaint season conversion tutorial

The blog article by Matte Painter and Environment Artist Oleksiy Golovchenko explains photoshop techniques of turning a photo from summer to winter. The detailed explanations will be a big help when carrying out my own winter conversion.

Olekisy began by removing any greenery that wouldn't be there in winter and replacing elements such as the leafy tree on the left with a bare spindly tree to reflect the winter environment. He explains the importance of researching what specific trees and bushes look like in winter to get a realistic shot. I will take this into consideration for my own conversion to ensure all the elements are consistent with a winter environment.

He then masked out snow elements from photos and added them to the shot on horizontal surfaces where the snow would gather, such as the ground and top of the porchway. He states to achieve photorealism you should predominantly use photo bashing methods to add snow and only paint minimally as he has done on the back bush. I will therefore use photo bashing for my conversion to achieve the realistic look I want.

For finishing touches he generated snow accumulation on the walls of the building. He did this using a levels to manipulate the blue channel and used this as a mask to then paint the accumulation in the desired areas. I think this is a very effective method which I will utilise in my shot. He also added further details such as ice on the windows which furthers the realism.

## Winter Conversion Compositing Breakdown

I looked at a winter conversion shot by F VFX Studio which includes a detailed breakdown of how the shot was composited in Nuke. This will be very helpful for my project as I will be using Nuke to composite the snow and will refer to the process in this breakdown.

Firstly the shot is tracked and a detailed point cloud is generated.

From that point cloud a 3D mesh of the geometry in the shot is generated.
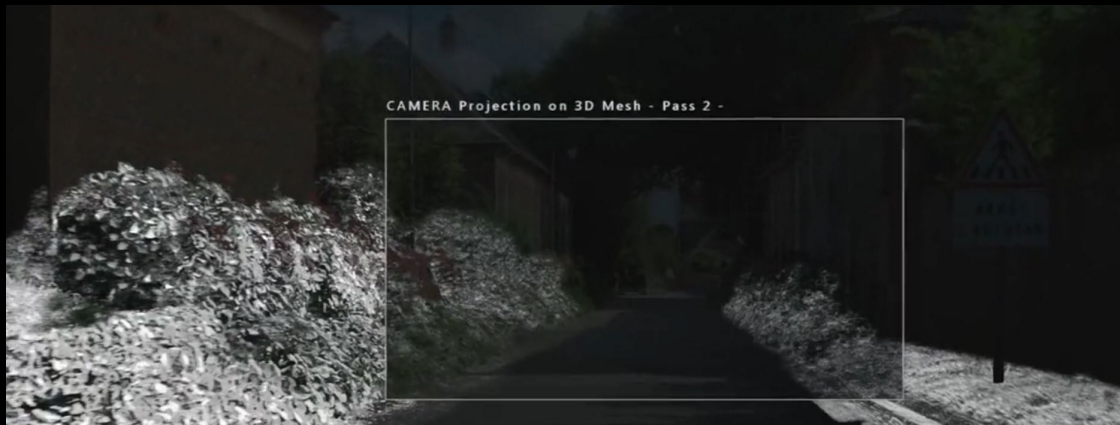
Snow is then projected onto the geometry using the 3D mesh.

Further snow is added through camera projections and Nuke Particles are used to add snow.

Winter Conversion DMP Research
I looked at winter conversion DMP's for inspiration for the project and to gather further research of the methods used to create them in Photoshop.

This winter conversion is particularly effective as the conversion still clearly resembles the plate. Colour grading works for this shot particularly on the trees and greenery to achieve the icy feel without replacing the element. I will utilise this method in my conversion when dealing with greenery. Fog and haze has also been added which I think works well in furthering the wintery environment.

In this conversion photo bashing methods are utilised and elements such as the ground and foreground trees have been replaced with snow alternatives. However, the new elements reflect the original plate improving the realism of the shot which I will consider when selecting my own photo references. The sky replacement also works well in furthering the wintery feel.


This conversion is a good example of a conversion on a residential street for my conversion. It provides good references for photo bashing and adding snow to the roofs, path and road. I think the snow placement on the road works particularly well as it follows the shape of the original road and has created the impression it has been driven on furthering the realism. The colour grading creates a wintery feel with blue tones and the impression of thick atmospherics. I will use these methods in my winter conversion.

I carried out research into winter shots in films and the different methods used. This is a useful reference for making CG snow environments look realistic.
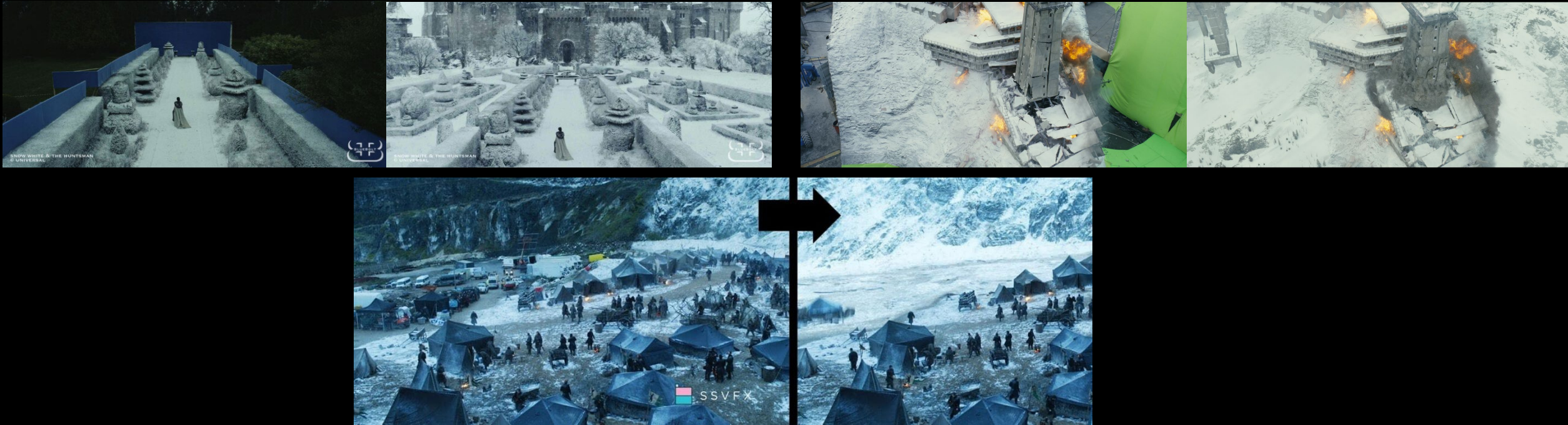
I looked at winter shots from Snow White & The Huntsman, Inception and Game of Thrones. These are good examples of set extensions of winter environments and sets. The Game of Thrones shot in particular is a good reference for realistic snow for my piece as it is an extension of a real landscape.
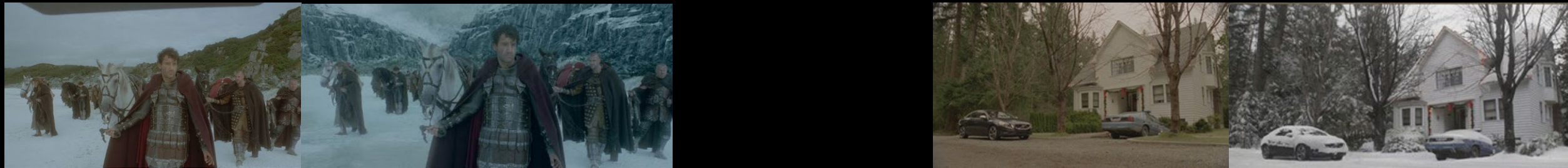

I also looked at shots from King Arthur and Twilight. These are good examples of the type of shot I will be creating; a full winter conversion of a plate. The shot from Twilight is a particularly good reference as it is on a residential street like my shot. It's a good reference for adding snow on cars, trees, road and a house. I also think the technique of replacing some of the bushes with snow elements has worked well and maintained coherence with the original plate, I will use these methods in my winter conversion.

Real Life References Research
I carried out research into real life references of snow in residential settings for my winter DMP.

I looked at both light and heavy amounts of snowfall, different snow textures, where snow accumulates on houses, snow in greenery, details such as footprints and tire tracks, the colours and what the sky looks like when its snowing. These will be very useful references for a creating a winter DMP with snow accumulating in the correct places and having a consistent covering of snow throughout. This research has also established what I would like the snow to look like in my shot. I will have a light to medium coverage of very fresh and mostly undisturbed snowfall. The house references are all very good examples of the light covering I will have on the roofs. The greenery with patches of snow is a realistic reference of how the bushes will look with this amount of snowfall.
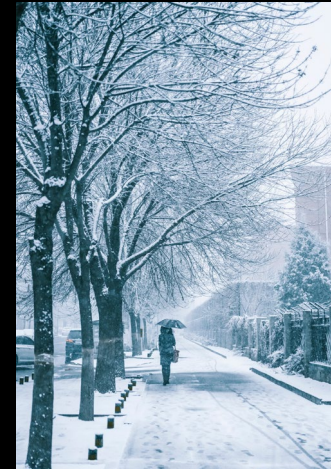
A young girl holding a photo frame with a picture of a snow day.

Girl standing looking out the window as if hoping for snow.

Girl watching weather reports forecasting snow in other parts of the country.

Girl standing looking out the window as if still hoping for snow. It is now mid December.
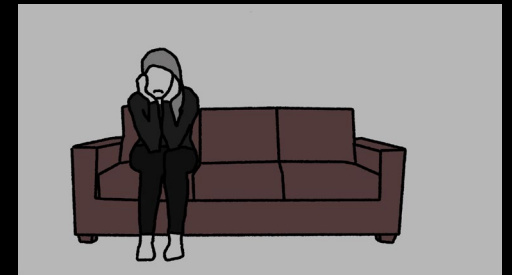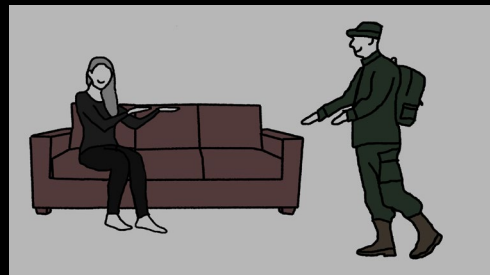
A calendar showing it is Christmas day.

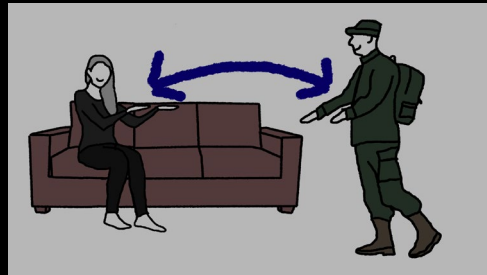The girl opens the front door hopefully.

Winter conversion shot, it has snowed on Christmas day.

The girl is sat on the sofa disappointed.

The girls father (a soldier returning from the army) walks into the room.
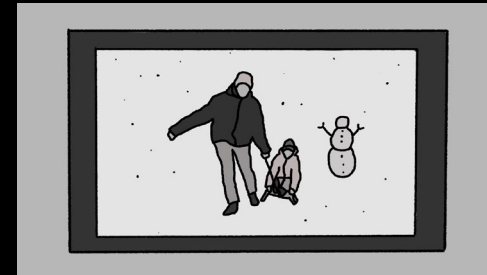
Father and daughter embrace happily.

Photo frame from the beginning showing both Father and Daughter. Highlighting this is what she wanted all along (not the snow.)

For the ones you love most this Christmas

John Lewis & Partners

Slogan and John Lewis Brand.

Test Photobash

Before filming and starting on the winter conversion I did a test photobash and projected it onto a moving shot. This was very helpful in highlighting elements I would need to change to ensure I filmed a good shot to do the conversion on. I was able to practice using a point cloud set-up to project the layers and position them in the correct depth. Seeing the shot projected highlighted issues such as I need to make sure I do the DMP on the widest frame of the shot to lessen the amount of different angles I have to add snow to. I also need to ensure there are as few angle changes as possible in the filming and the movement is a pan to help get a good track. I will consider these points when filming my shot. This test shot also allowed me to practice photo bashing some layers into the shot in Photoshop. It highlighted the difficulty of matching perspective and keeping a consistent level of snow on all the elements. Therefore, on my winter DMP I will use the warp tool to help match the perspective and I will try to use elements from the same photo as much as possible to get consistent snow coverage.

Filming

For the winter conversion shot I chose a house in Pen-y-lan in Cardiff. I felt this street would work well as the houses and greenery combined make an aesthetic looking shot. There are also multiple horizontal surfaces that would be ideal to add snow to such as the roofs, porchway, walls, pavement and large driveway that's relatively flat so wouldn't be too difficult to match in perspective. I also felt the spindly trees already reflected a winter environment so would work well. We obtained permission from the home owners before filming and the DOP used a Sony FS5 camera and a track and dolly system to get a slow panning shot.

For the rest of the advert the production manager sent out casting calls for the main girl and father characters. We chose Naomi and Rob because they matched the characters ages. For costumes Naomi wore multiple different jumpers to convey the changing of time in the montage sequence and Rob wore brown, green and an army hat to resemble a soldier. We filmed inside a living room which worked well as it had a large window which was crucial to the story. For props we used a calendar to convey the advert is happening throughout December and a photograph of a father and daughter that resembled the actors well. Filming went well, the DOP, Production manager and myself all co-directed as the original director was unavailable. We found the lighting challenging as it changed considerably during the day therefore to improve this we used a roto neo led light kit.

Development

<u>3D Tracking & Point Cloud Generation</u>

To begin the project I reviewed my chosen shot. The camera movement is very steady however, as it is a long pan across I will have to do multiple DMP's in order to cover the whole shot in snow. I then 3D tracked the shot, I rotoscoped out moving areas such as the windows with moving reflections and tree branches that moved in the wind. However, on my first attempt at a track I found it wasn't very accurate. To overcome this I rotoscoped out the sky from the track as it had no points the camera could track, this greatly improved the track. I edited the auto tracks and got the track error rating down to 0.52 which I was happy with. I set the ground plane and generated a point cloud. The point cloud had lots of information and was very dense however, there is a gap in the middle of the roof due to the slight over exposure of the shot. To check the track was successful I projected a cube into the shot, which tracked well.

Beginning of shot

End of shot

Roto tracking points

Selecting ground plain

Point Cloud

Testing the track

Ground snow

I began the DMP by adding a layer of snow to the pavement and driveway. I originally used references with very light snow to coincide with my original vision for the shot. However, for it to look realistic the light snow needed lots of fine detail which I found very challenging to mask out and it wasn't looking very real. Therefore, I decided to alter my plan and have a heavier snow covering so I could mask out snow elements to a high standard. I also found it challenging to select references that could work for the shot. The framing of my shot has a very low horizon line and the pavement is very flat. Unfortunately, I found very minimal references that resembled the angle of my shot that I could use. To overcome this, I used the warp tool to manipulate the photos to fit the angle of the pavement, this worked very well. I also experimented with adding foot print details however, similar to my previous problem, I found it hard to mask out the footprints accurately and with enough detail to look realistic. Instead I decided to select references with textured snow to add alternative detail.

Light snow

Wrong horizon line

Heavier snow

Warp tool

After masking and warp

Footprint details

Improved ground snow

To further develop the snow coverage on the pavement and driveway I found references with medium snow coverage and interesting textures to add detail. I warped the photos to better fit the perspective of the floor. However, I found it difficult to match the reference photos with the shape of the pavement and driveway as it was a large area to cover. To overcome this I used the clone stamp tool to extend the edges of the snow to fit the driveway. I cleaned this up using a textured eraser. To add further interest I experimented with adding patches of ground underneath the snow. This also worked particularly well in lessening the snow coverage as it was appearing as a blanket of snow. I believe the patch on the left worked however it required a lot of warping from the original photo. Lastly, I layered on further snow texture to increase the realism.

Light snow

Clone stamp to extend edges

Adding patches

Further Patches

Further snow texture

Finished patches

Photo reference for patches

Textured snow photo reference

Cars, wall & window snow

I then went through and began adding snow to horizontal areas of the shot where snow would fall. I found the cars challenging as in order for it to look realistic I had to mask out the snow as fine and detailed as possible as only minimal snow would fall on the cars under the porchway. I overcame this problem by using a textured eraser to add detail back into the edges after I had masked it out. I took a similar approach for the walls. I masked out a snow element using the select and mask tools in photoshop and went in with a textured eraser to add detail. I found it hard to keep a consistent level of snow throughout the elements, therefore I used the warp tool and eraser to lessen the height of some snow. For the windows I added small mounds of snow however, I found it didn't look realistic. Therefore I used a paintbrush and painted in faint white lines on the edges of the windowsills to better integrate the mounds of snow. To add further detail I added ice to the windows which works well in adding interest.

Snow too heavy

Fine detail

Final car snow

Masking out wall snow

Snow too heavy

Fine details

Window Ice

Window snow

Window snow with hand painting

Greenery snow

My first approach to adding snow to the greenery was to cover the greenery with snow covered photo elements. This worked well in conveying the wintery mood and looked aesthetic in the shot. However, I felt these could look very flat when I projected them. Therefore I decided to cut out snow patches and integrate them onto the greenery in the shot. I think this worked well in conveying the realism and meant I didn't have to worry about having to mask out lot's of detailed trees well. To add further detail I painted light snow onto smaller bushes using an eraser to add texture, however some of these came out looking too soft.

Photo elements

Photo elements

Painting snow

Cutting out snow for bush

Masking tree

Cutting out snow for fern

Finished greenery

Roof snow

For the roof I found it both challenging to find a reference with the correct snow coverage and for it to be big enough to cover all the roofs. To overcome this problem I found a roof with light snow covering and used the clone stamp tool to extend it and cover unwanted elements. This was very challenging as initially there were lots of repeated patterns however, I used the eraser and paint brush to clean this up. To improve the realism of the roofs I used a textured eraser to remove parts of the snow and reveal the tiles underneath, I think this worked well.

Reference photo too small

Cutting out roof

Elements that need removing

Clone stamp tool

Edge details

Finished roofs

Erasing to reveal tiles underneath

Reference photo

Snow accumilation

To add further details to the shot I used the method from the MattPaint tutorial to add snow accumulation to the walls. I did this by inverting the shot and using the levels to create contrast between the gaps in the brick walls where I wanted snow. I then used the blue channel to create a mask and painted the areas I wanted the snow. This method took a lot of finetuning however I think it worked very well. I used it to add snow to the brick walls, pipes, windowsills and the porch roof. I think the front walls worked particularly well and look realistic.

Inverted channel with paint

Test of adding snow to the wall

Finished snow accumulation

Wall details

Details

I then went through and added intricate snow details onto the walls. This worked well in improving the realism and adding detail. I masked these out using the select and mask tool and added edge details using a textured eraser. I also refined the edges of the ground layer using the same textured eraser. This made a big difference to integrating the snow onto the ground.

Photo reference

Masked out snow

Grass details before

Grass details after

Floor edges before

Floor edges after

Floor edges before

Floor edges after

Further painting & colour correction

For finishing touches I used a textured paint brush and eraser to add subtle snow accumulation to pillars, walls and window sills. I think this works well in furthering the detail. Lastly, I colour corrected all the elements to match. It was difficult achieving the same colour of snow throughout the elements as many were very blue toned but a hue & saturation worked well for this. It was also difficult to match the green tones of the bushes. Some snow on the bushes was too light and had no contrast compared to other parts. To improve this I used a curves mask to darken certain elements of the snow to add depth and improve the realism.

Snow painting pillar before Snow painting pillar after

Snow painting window

Snow painting window & porch

Snow painting window

Colour correction before

Colour correction after

Grade before Grade after


Grade before

Grade after

Projections & extension

I then began projecting the elements in Nuke. I used cards and followed the point cloud to position the elements in the correct z-depth. I found this very challenging to do as I had to get it in the exact place or the element would slide. Once the elements were projected I found I had to do an extension of the snow on the wall, roof and car due to the camera movement. I also had to add snow onto the tree that had come into frame. I did this in Photoshop, I found adding snow to the tree particularly hard as the masking out was complex to get good details. I also had to add further bushes and grass into the corner.

Projections
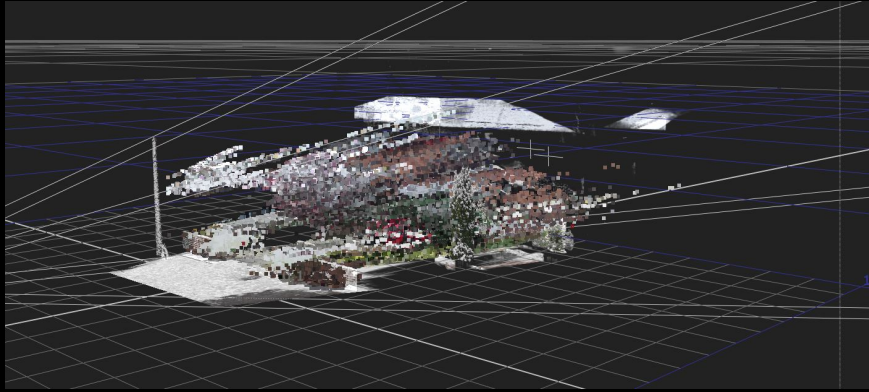
Projections
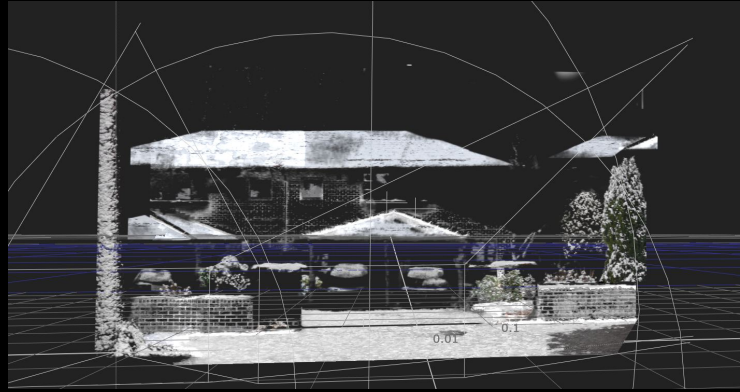
Required extensions

Snow grass

Tree, wall, grass & bushes extensions

Car and roof extensions

Rotoscoping, keying & problems

To fine tune the shot I rotoscoped the walls, and front tree in front of the greenery layers. I found this roto hard to do due to the subtle camera shakes. I overcame this problem by using a 2d tracker to drive the roto's which worked very well. I then used a luminance keyer to get the alpha channel of the trees and cut them out to place in front of the roof elements which was effective in integrating the roofs. Some of my main problems were compositing the extended layers into the shot without a visible line or gap being seen. I found this particularly challenging on the wall. I fixed this by using a crop and edge blur node to blend the two together. When I watched it through I noticed the tree branches were behind the snow layers of the fern and didn't look realistic. To overcome this, I rotoscoped a few tree branches using the open spline tool which made a big improvement. Lastly, my biggest problem was the ground layer and getting it to stick correctly. It is not perfect however it has improved greatly by projecting onto a cube. I also separated the leaves in front of the grass from the ground layer and combined them with the grass layer so the projection would work correctly.

Before roto

Rotoshape

Luminance keyer

After keyer

After keyer

After Roto

Rotoshape

Extended wall issue

Extended wall issue after

Grass layer issue

Advert Grade

I then edited together the advert in premier and added in the winter conversion shot. I found grading the advert footage very difficult due to the different lighting levels in the footage filmed by the DOP. For example, the shots towards the end where the father comes home are very dark and grainy. I did my best to grade the footage cohesively however, some shots are appearing very soft and washed out due to the different lighting levels. I chose a cover of the song 'Mandy' by Barry Manilow which fits the advert themes well.

After Grade

Before Grade

Finished Winter Conversion

The before and after of the completed winter conversion. In future I would improve the consistency of the level of snow fall over all the elements. For example, I believe the snow on the walls look heavier than the rest. However, overall I am happy with how the conversion turned out and a believe I have maintained the level of realism I was aiming for.

Evaluation

Overall I am happy with how the advert turned out and I feel I have achieved what I originally intended. I feel the narrative of a girl waiting for her father to come home for Christmas is effective as it elicits an emotional response, and coincides well with the heart-warming themes in previous John Lewis adverts. I think the editing of the footage is effective with plenty of cutaways to close ups to add interest. I feel the advert is easy to follow however, the concept could be confusing if audiences don't understand she is waiting for snow. In future, I would include scenes such a weather report, as I originally intended, to make it clear to the viewers. I feel the music furthers the emotive themes of the advert. The lyrics corresponds with the narrative, for example, it says 'waiting by a window' when she is doing so. However, I found the overall grade and colour corrections very challenging to do and I am not completely happy with the result. In order to try and match the variety of lighting in the shot the grade has ended up appearing quite washed out.

I think the winter conversion location worked well as I was able to add snow to lots of areas and the overall house and greenery created an aesthetic shot. The house filming location also was a good choice as it had necessary features such as a large window essential for the advert. However, in future I would set dress it further to make it appear more lived in and interesting. The collaboration with the media students went well, particularly the filming of the winter conversion shot as I ended up with a good shot to work on with a smooth camera move. However, due to the media students busy schedule we had to film over multiple days which resulted in a large variety of lighting in the shots, we also only had the lighting kit for certain days resulting in the shots without the lighting kit appearing very grainy.

In my opinion the winter conversion shot is successful and I am happy with the outcome. However, I did find it very challenging. For example, finding appropriate references that matched the perspective and amount of snow coverage I needed, the multiple angle changes of the footage meaning I had to go back and patch a lot of areas, and the overall process of positing the cards in the correct z-depth. I found this particularly difficult with the ground layer as it was split into three different ground layers that I had to get on the correct depth. In future I would further improve the winter conversion by adding snow particles and doing a sky replacement to add more cloud detail to the sky.

Golovchenko, Olekisy (2020) *How to change a photo from summer to winter.* Available at:
https://mattepaint.com/blog/how-to-change-a-photo-from-summer-to-winter/

John Lewis Partnership *Our History.* Available at:
https://www.johnlewispartnership.co.uk/about/who-we-are/our-history.html

F VFX Studio (2014) *Nuke Compositing Breakdown.* Available at:
https://vimeo.com/91541464