

PRODUCTION MANAGMENT

ADGD7005



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Production Management

Wall-E scene breakdown

<https://www.youtube.com/watch?v=SDAX0eVSRc0>

The narrative of this segment involves Wall-e meeting Eva for the first time, this falls into a larger plot in which humans have evacuated from Earth after leaving Earth uninhabitable.

We'll look at each production role in sequence and give a summary of each, as well as commenting on any connection to the scene linked above. As well as the connections between the roles.

I've also attached some visual aids, as well as a Gannt chart to illustrate a speculative timeframe, as the true timeframe isn't publicly available.

Pre-Production

Written Narrative

This narrative would have initially been written in the form of a Light Novel or Screen play, it's time limitations could have potentially been non-existent, being the first step in the production process. The initial idea is what would be pitched to the publishers and producers. According to (Vespe, 2007) in an interview with Andrew Stanton the director, Wall-E was talked about back in 1995 with the concept of "*What if mankind evacuated Earth and forgot to turn off the last remaining robot?*"

The concepts for the characters and environment would have been thought about and developed if only as an idea, being discussed and described by a writer at this very early stage in some form. This is because these points are a driving force in the rest of the creative writing process.

For example, Wall-e is a trash compactor robot, he roams a trash covered Earth compacting heaps of trash into small cubes. Which inevitably leads to him discovering the first signs of biological life returning to the planet (an important plot development).

Story Board

Storyboarding would have been one of the first visual references the teams and director would have worked with. Expanding on the written elements and visualising all important interactions and expressions which would later be developed through the other production stages.

For the chosen scene, this would capture key events the Director and company wanted to see, such as Wall-e being chased by trollies, EVA shooting the cockroach with her plasma weapon and smaller events such as Wall-e being frightened and folding himself up into a cube and peaking out at EVA.

They'd also consider points such as the timings of shots, sounds and camera actions in more detail than the earlier screenplay draft.

According to Stanton in the Wall-E extras DVD, he along with a few others submitted a twenty-minute short storyboard / animatic back in 2003, which green lit the production.

Character Design

This was one of the first points to be visited in the creation of Wall-E, specifically talking about designing Wall-E and EVA in particular, character Art Director Jason Deamer said "...it's a process that defines not only those characters, but what the rest of the cast will be." (Tim, 2008) many things are dictated based on these decisions in a knock on effect.

EVA gracefully glides over the dust ridden terrain and she's armed with a powerful weapon which we can see her use, she was created in the space colony with 'futuristic' technology.

Wall-e is old, creaky, rusty and has 'tracks' like tank treads, which can be seen influencing his navigation of the environment, his technology is from our 'present day' , a relic from the past.

This stage of development starts with the writer and carries on until the teams are entirely happy and ready to 3D model the characters, after which changes to the characters become more expensive for the studio.

Any software which can digitally visualise sketches such as photoshop would be used at this stage, when I interviewed the concept artist Paul Catling , he showed me in depth the techniques used to 'spoof' design textures using photos and imagery from absolutely anywhere it could be found, a process he called 'Photobombing'.

This is where you cut out various elements of photos and blend them into your digital art in order to add large amounts of detail with very little effort. The same technique is utilized within the Environment design stage while producing concept art.

Environment Design

Much like character design, this directly influences the plot, so it is something which starts with the initial writing and develops through the storyboarding phase and concept art.

In our scene, the idea that the world is devoid of all life and covered in trash through the neglect of mankind, directly influences Wall-E's role within it, as well as much of his functionality.

The environment having been desolate for so long, metals and stone structures are heavily degraded which adds contrast to EVA, who in Wall-E's robotic eye lenses is like an angel from heaven.

Animatics

The earliest form of the animation, commonly made with rough sketches and occasionally low detail 3D models. This is essentially still the Storyboarding phase but has taken on board what has previously been said and aims to finalise ideas. The studio used 96,000 storyboard images through the pre-production stages. (Tim, 2008)

The artists would digitally draw scenes out and create filmreels which they would then voice over themselves, not only to help visualise the scene but also to aid later – more expensive animating and voice work involving potentially expensive actors.

The Production

Research and Development (R&D)

A key stage in deciding how exactly the teams will achieve certain effects and adhere to certain design decisions and philosophies.

Thought is given to the formats used for each stage of production to ensure compatibility between production stages and the systems in which teams can inter-communicate and share their work, as well as postproduction software used to render or add VFX and colour correction.

R&D is important in establishing a smooth transition between each production process, as well as achieving desired goals. Sometimes, new technology or systems are developed in order to achieve those goals such as with 'Star Citizen', an unrelated game where the game Engine is being developed from the ground up in order to accommodate the development.

Pixar specifically uses a software called 'Renderman' to render out their productions. There would be a degree of free reign given to artists, to create in whichever software they work best in, provided that the compatibility with Renderman isn't an issue.

R&D also covers work done in many of the other stages, for example – in order for Pixar to create convincing trash which we see in our selected section of film.

The artists working on it explored Oakland California, taking photos, sketches and generally making studies of all the colours, textures and contents of real-life trash. "As fantastical as the worlds we create are, we try really hard to bring a sense of reality to them," said Adrianne Ranft of Pixar University (Tim, 2008)

3D Modelling

Some of this may have been done in the concept design phases, but at this point things such as functionality of characters, the core themes and attributes of the Environments are pretty much decided upon. Tweaks and decisions about finer details will be made as the characters and environments are built.

Consideration is given to rigging characters, ensuring moving parts can be manipulated and aren't merged with those which aren't meant to move. All of Wall-E's movable parts are set in rails and mechanical joints, we can see his treads have lots of moving parts (2:28 into the clip), all of it needs to be fitted during this stage. Also on his treads, the metal strip which gets moved along via the cogs is physics based – it hangs ever so slightly and jiggles as he moves.

This decision to not make it a static object would be done during this stage.

Texturing

With consideration to the concept art and lots of R&D this stage aims to make sure each object looks believable and coherent amongst themselves, Wall-e's rusty parts, EVA's clean semi-translucent material, the dusty ground as well as all the trash and tires littering the landscape. Texturing tells much of the narrative visually, particularly in Wall-E where there is very little dialogue, everything else becomes even more important.

Rigging

This stage gives all the characters and certain animated environment features the parts required to be manipulated by animators, doors need hinges, characters need bones. This includes parts such as Wall-E's treads, EVA's fingers, as well as the little Cockroach and all his limbs.

We can see in the clip that Wall-E's parts move on hinges, sliders and use joints to bend. In the process of rigging, in order to make the Animators life easier – the rigger would have set up constraints to prevent movable parts exhibiting unwanted behaviour and moving in ways they shouldn't.

EVA however has no joints that we can see, her parts float which means she'd have 'less' constraints, though some would still be needed as she folds up in various ways, such as can be seen with her fingers merging to become one object visually or unfolding to reveal the gun within her arm. This would be a nightmare to animate accurately if the constraints didn't exist.

Scene Building / Layout

This step is to bring the designed and modelled environments as well as the characters or 'actors' together, ready for animators and everyone else to work with.

Animating

Animators breathe life into characters through movement, they could be viewed as the actors of animated movie production. The clip we're looking at is full of expression where there are no words spoken.

Starting at the beginning of the clip, EVA is 'breathing' – slowly bobbing in the air as she scans the environment. As soon as she finishes her scan, her monitor / face refreshes or blinks as would an old TV. She pulls away out of the viewpoint and Wall-E cautiously peaks his head out from behind a pile of trash. Wall-E doesn't have legs to do the classic 'Cat burglar sneaking on tip toes', so instead the animators have him keep his head low.

You can also see as he chases after EVA that his suspension bobs him up and down as he rolls over uneven terrain – possibly also hinting at the tip toeing motion.

Other points I find interesting are when him and the cockroach give each other a glance to decide whether they should approach EVA or not, and Wall-E shakes his head as if to say, "no no no, don't do it!" you can sense that if he had a mouth and a voice he'd be whispering while exclaiming in hushed shouts.

3D VFX

This includes physics-based effects and animations such as character hair, physics-based elements such as water and volumetric clouds etc.

We can see an example of this at 00:28 of the clip, the explosion kicks up chunks of dirt and leaves behind floating particles.

Lighting & Rendering

This encompasses some level of colouration; the hue of lights can directly affect the overall mood of a scene.

In the Wall-E meets EVE scene we can see lots of contrast between shadows cast by buildings and objects as well as bright sunlight and sun shafts which could be physics-based 3D VFX and made more impactful with 2D VFX and overlays in the later stages.

But this stage also involves materials reacting with light, if there's an issue with the topology of a character or object it'll need to go back to 3D modelling or rigging to be fixed. EVE's material allows for some light to pass through or within it, 'Renderman' is what calculates and visualises that attribute for us.

Sound FX

Sound is very important in how immersed an audience becomes. It gives what we see on the screen a physical presence in our real world, the vibrations from sound react with us on a physical level and connects the viewer to the action. Music or the lack of music is also very important— it's something which might be considered as early as the storyboarding and animatics stages.

From the beginning of the Wall-E clip, we hear music which I'd describe as almost ominous – with 'Unknown' discovery tones. Wall-e is very cautious in spectating this unknown being that is EVA.

The tone changes to something whimsical when the cockroach runs towards EVA and suddenly cuts when EVA shoots her gun... the audience is being led by the music, there's no music because there's a sense of uncertainty, "is the cockroach okay or not?"

The whimsical happy music returns as the audience learns the cockroach is unphased which gives the viewer a sense of relief.

Throughout the scene we can hear EVA's floaty humming, and as mentioned in the Animating section when her monitor blinks a SFX plays to give an electronic 'clink' and when she shoots the cockroach, it has a very real impact which we can feel through bass frequencies, and the cockroach is given presence with the little pitter patter of his feet.

Post-Production

Compositing

Is the "process or technique of combining visual elements from separate sources into single images" Compositors will have many different elements to work with, taking from 2D fx, 3D fx, sound and rendered out Video files.

Using EVA firing her weapon as an example again, the 2D components of her gunfire as well as the 2D dust effects may have been manipulated by a compositor to make the scene more believable. When she scans the heaps of tires, a compositor may manipulate a range of elements to improve the accuracy with which the lights interact with the tires.

2D VFX & Graphic Design

This might be non-physics based effects such as background 'fog' , clouds, illustrated particles etc , they may be animated elements, or static elements.

Also, any overlaid text, typography and signs may be done at this stage as an afterthought.

Wall-E for example has his name in Text on his central box / body, this element is built into his texture map, whereas a static object such as a wall poster or graffiti could be added at this stage.

Rotoscoping

Is the process of manually altering film footage one frame at a time, it is difficult to say where this may have been done in our clip, but it usually involves characters and objects overlapping or passing each other within a scene.

In 3D it can be done to 'clean up' footage where something appears 'in front' of another object which it should be 'behind'. Or simply adding illustrative / hand drawn elements to rendered work.

This may have been done when EVA fires her weapon, some dust clouds may be physics based while others might have been added later for greater effect.

Colour Correction

Having so many scenes and so many people working on them there is often some deviation in the consistency of how colours look, or perhaps certain 'moods' need tweaking. For example, the shadows in one area may not be dark enough or give enough contrast in comparison to other scenes or yellows might be more prominent when they shouldn't be.

Colour correction fixes these things through tweaking elements such as exposure, brightness, colour weights and curves. In my example images I circled an area which illustrates colour correction in action.

Cutting and Editing

A final stage, after all scenes have been finished entirely, the process of segmenting and restructuring scenes to give the greatest emotional impact to the viewer. Ensuring all visual and auditorial elements align as perfectly as possible.

Final Output

Simply formatting everything that's been done into easily an disseminable format, with consideration to whether it'll be viewed online or stored on a disk etc, as well as audience hardware limitations.

Notes

Gantt Chart

Through my research there are dates and timeframes I can be sure are correct, though many other tasks I must assign speculative opinion or a generalised timeframe.

Also, as displayed on the Gantt chart – many tasks overlap and move outside of the bounds of whether they're pre/ production or post production.

For example, I know that Stanton pitched a 20-minute storyboard back in 2003 – but storyboarding would be utilized and developed long into production to evaluate the effectiveness of a scene and to decide whether or not to add something, this storyboard likely also had some Sound FX consideration (which is why so much time is allotted to Sound)

Environment and character design was played with even before the 2003 storyboard to some extent, but they are both elements that needed to continue being developed as new ideas gave birth to new characters and environments.

The overall cost of production including advertising and dissemination was one hundred and eighty million dollars, the exact amounts delegated to various tasks isn't publicly available.

My Gantt chart covers twenty or so very broad roles in order to condense this work, though there are over two hundred 'job titles' involved in the production of Wall-E, (Wall-E, 2008) titled in the after movie credits – I counted.

- Item 1 – Trash Landscape (Disney 1986-2021)

We can clearly see the work of lighting and colour correction – where in the final production the pollution fog has taken on a warmer tone due to the setting sun.

We can also see how the environment concept work drove the aesthetic in the final production.

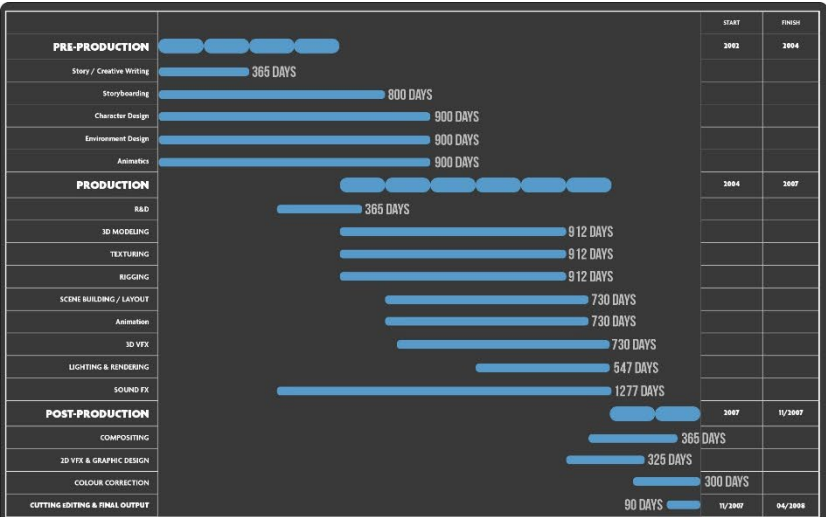
- Item 2 – Auto Pilot (Disney 1986-2021)

In this section we can see the development from character design sketch to a rendered 3D image.

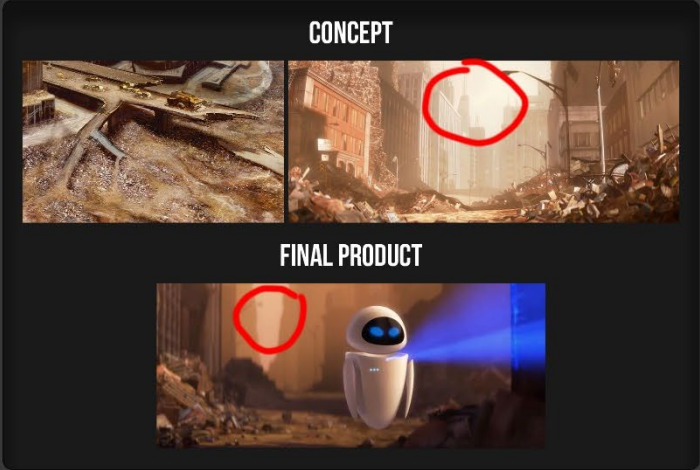
- Item 3 – Wall-E production stages example (Bill, 2008)

This item illustrates different processes in progress

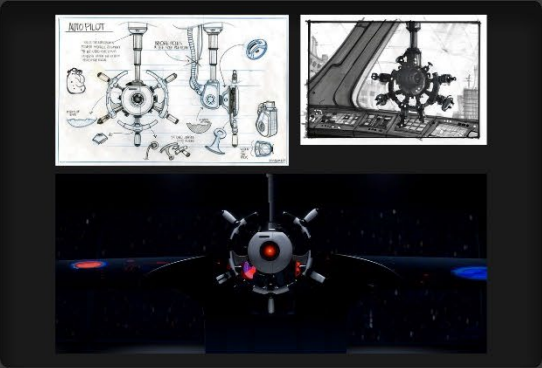
- Storyboarding and character design
- 3D Previsualisation - Layout
- 3D Texture
- VFX and lighting
- Colour Correction and Ambient Occlusion / rendering



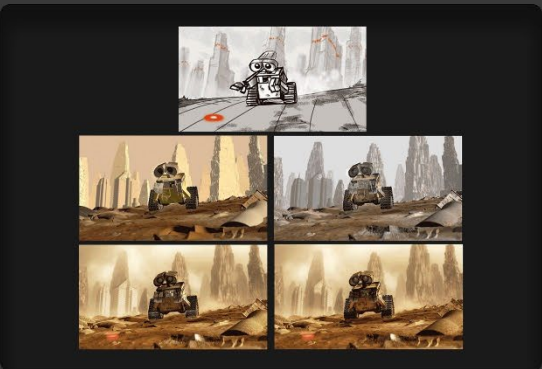
ITEM 1



ITEM 2



ITEM 3



References

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Chosen movie clip of Wall-E <https://www.youtube.com/watch?v=SDAX0eVSRc0>

Bill Desowitz , 2008 Hello, 'WALL•E': Pixar Reaches for the Stars , Animation World Network Available at : <https://www.awn.com/animationworld/hello-wall-e-pixar-reaches-stars>