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Provisional

Making Videogames

The Art of Creating Digital Worlds

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An in-depth visual guide presenting the captivating creative journeys behind the world's leading videogames.

350 illustrations

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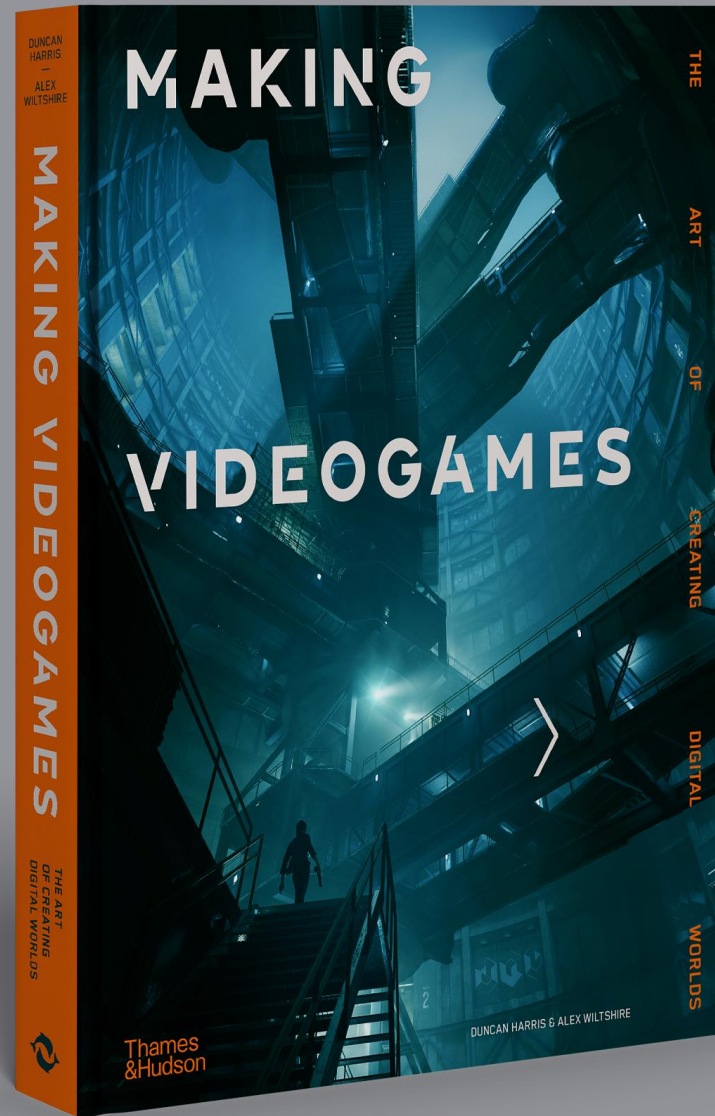
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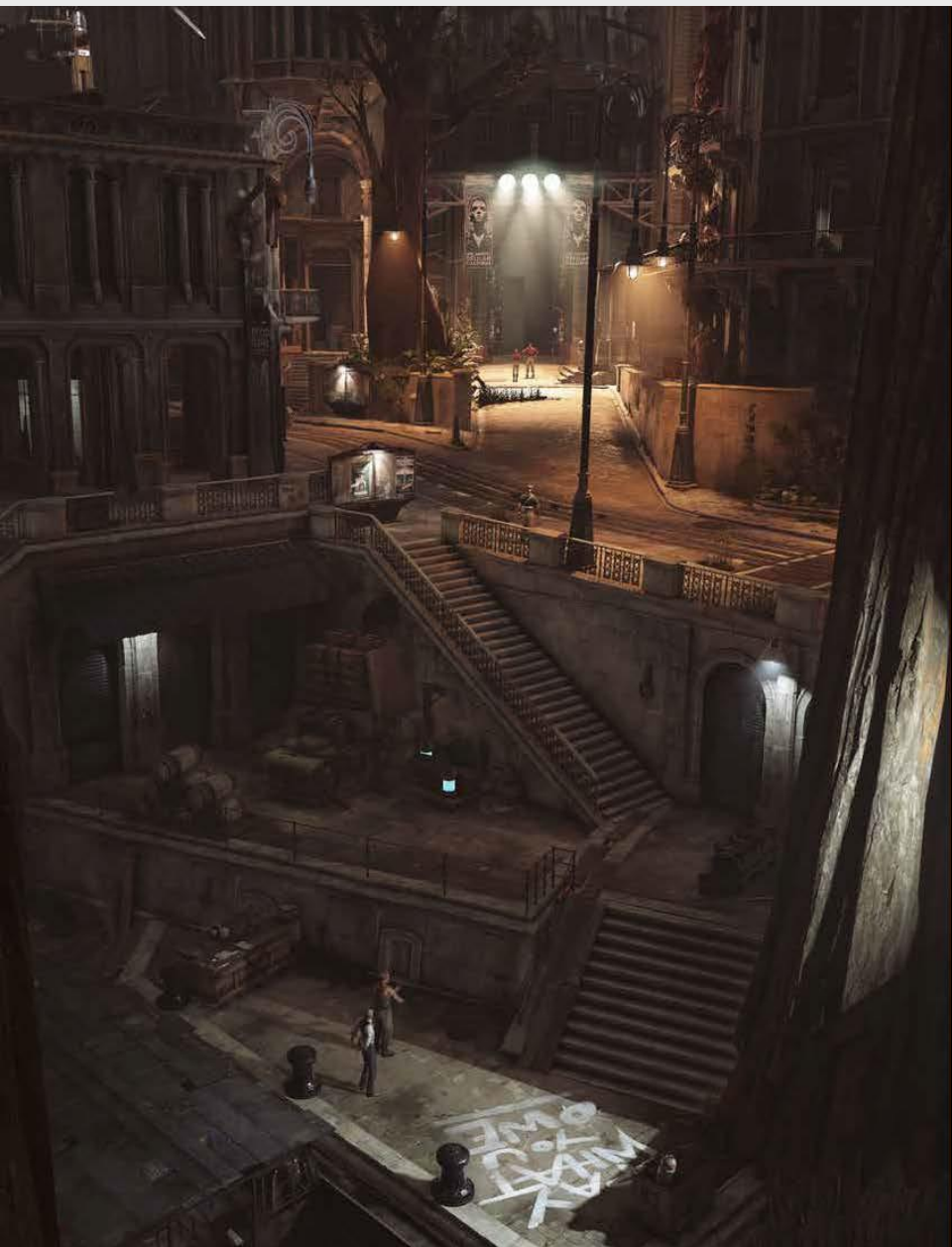
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Key Sales Points

- Features immersive and highly detailed videogame imagery, specially rendered for print including scenes from *Wolfenstein*, *No Man's Sky* and *Fortnite*.
- Unparalleled access to the world's AAA videogame studios and the creatives that defined the artform. Readers are invited to explore the history, technology and techniques of videogame production from those at the cutting edge in the industry.
- An accessible guide to the mechanics of game-making that offers easily understood explorations of the core components of digital worldbuilding: from 3D graphics to lighting to motion capture.





PAINTING PLACES →

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DEVELOPER ARKANE STUDIOS
YEAR OF RELEASE 2016
PLATFORMS PC PLAYSTATION XBOX

DISHONORED 2

PEOPLE WERE SAYING THE GAME LOOKED LIKE A PAINTING, BUT THAT WAS NOT THE GOAL. IT WAS JUST A QUESTION OF HOW TO MANAGE READABILITY. IT'S FUNNY, I WON'T SAY IT'S REALLY PAINTERLY. IT'S HARD TO EXPLAIN. IT'S A NEW VISUAL STYLE. WE ATTACH A LOT OF IMPORTANCE TO USING GOOD REFERENCES, LOOKING AT PHOTOS AND PAINTINGS TOGETHER, AND THAT'S MAYBE WHY PEOPLE SAY IT'S PAINTERLY, IT'S BECAUSE IT'S INSPIRED BY OLD MASTERS.

> SÉBASTIEN MITTON, ART DIRECTOR

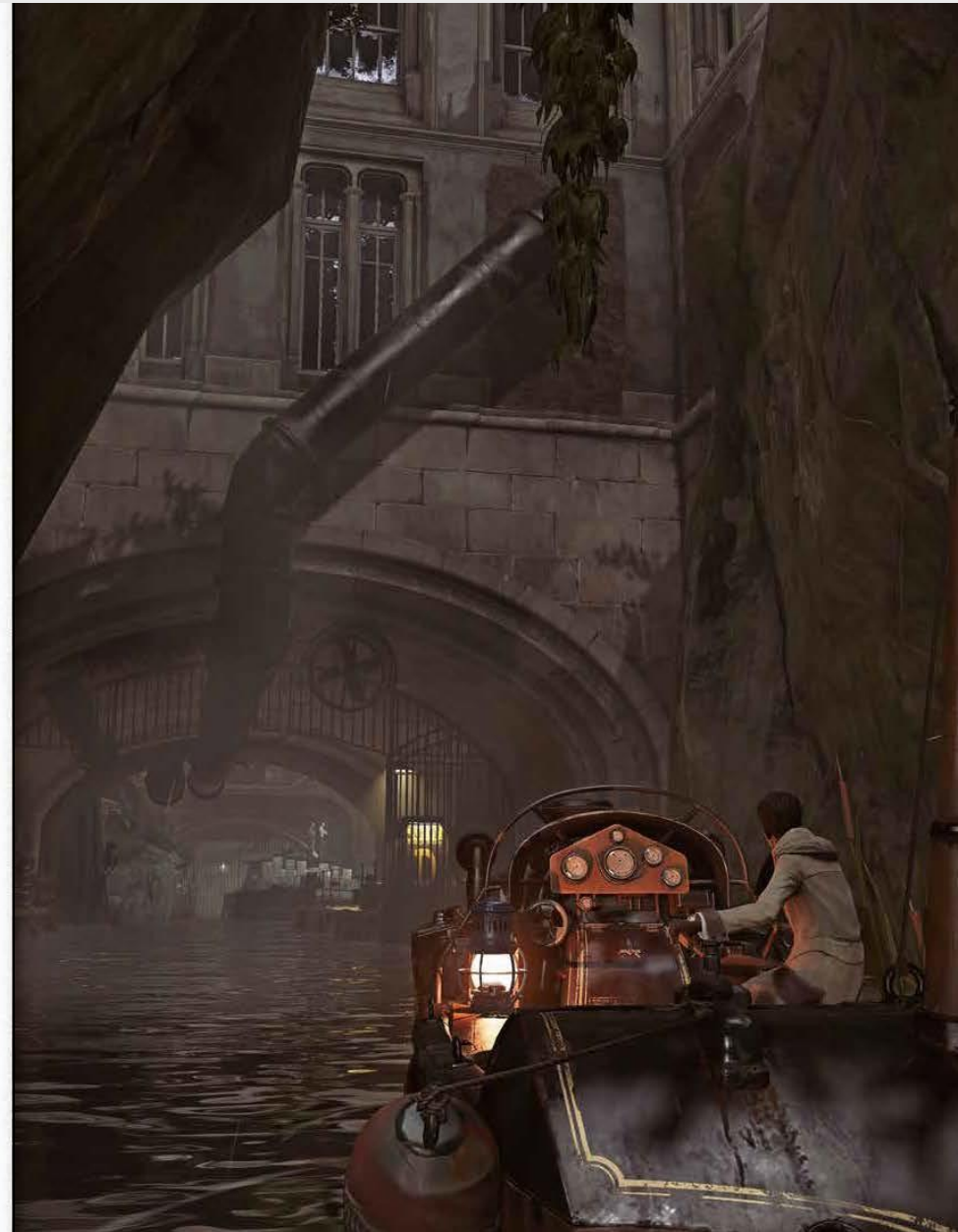
The bug had highlighted a solution: to retain all Dunwall's geometric complexity and to simplify its textures, knocking out detail so that the world could be filled with objects without them lending excessive visual noise. The team looked towards the ways that painters create the impression of materials and detail without distracting from the important details of the scene, and to Hayao Miyazaki's animated films for Studio Ghibli, where they saw how background art would show just a few bricks on a wall which gives an impression to viewer of seeing a wall entirely made of them. They liked the Studio Ghibli effect so much, in fact, that the team called it 'Miyasakise' and technical environment artist Pierre Pronier made a Photoshop script which could take a photograph and remove the detail from it in a similar way. The script wasn't magic – it still required some manual editing – but it helped lead to a painterly look for the game which was not originally part of its visual design and soon became an indelible part of its identity.

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IN THIS THIRD-PERSON ACTION GAME YOU PLAY JESSE FADEN, WHO HAS COME TO THE MYSTERIOUS HEAD-QUARTERS OF THE FEDERAL BUREAU OF CONTROL ON A SEARCH FOR HER MISSING BROTHER. IT'S NOT LONG BEFORE THIS PARANORMAL SPACE HAS MADE HER ITS NEW DIRECTOR, PITTING YOU AS ITS DEFENDER AGAINST AN INCURSION OF BIZARRE REALITY-BENDING BEINGS CALLED THE HISS.

The headquarters, known as The Old House, is on its surface a Brutalist edifice of mundane offices and stunning orthogonal atriums. In fact, it exists beyond our own dimensions as a shifting metaphysical space which contains both the everyday bureaucratic operations of a government agency and the fantastical objects and phenomena that it attempts to study – and control.

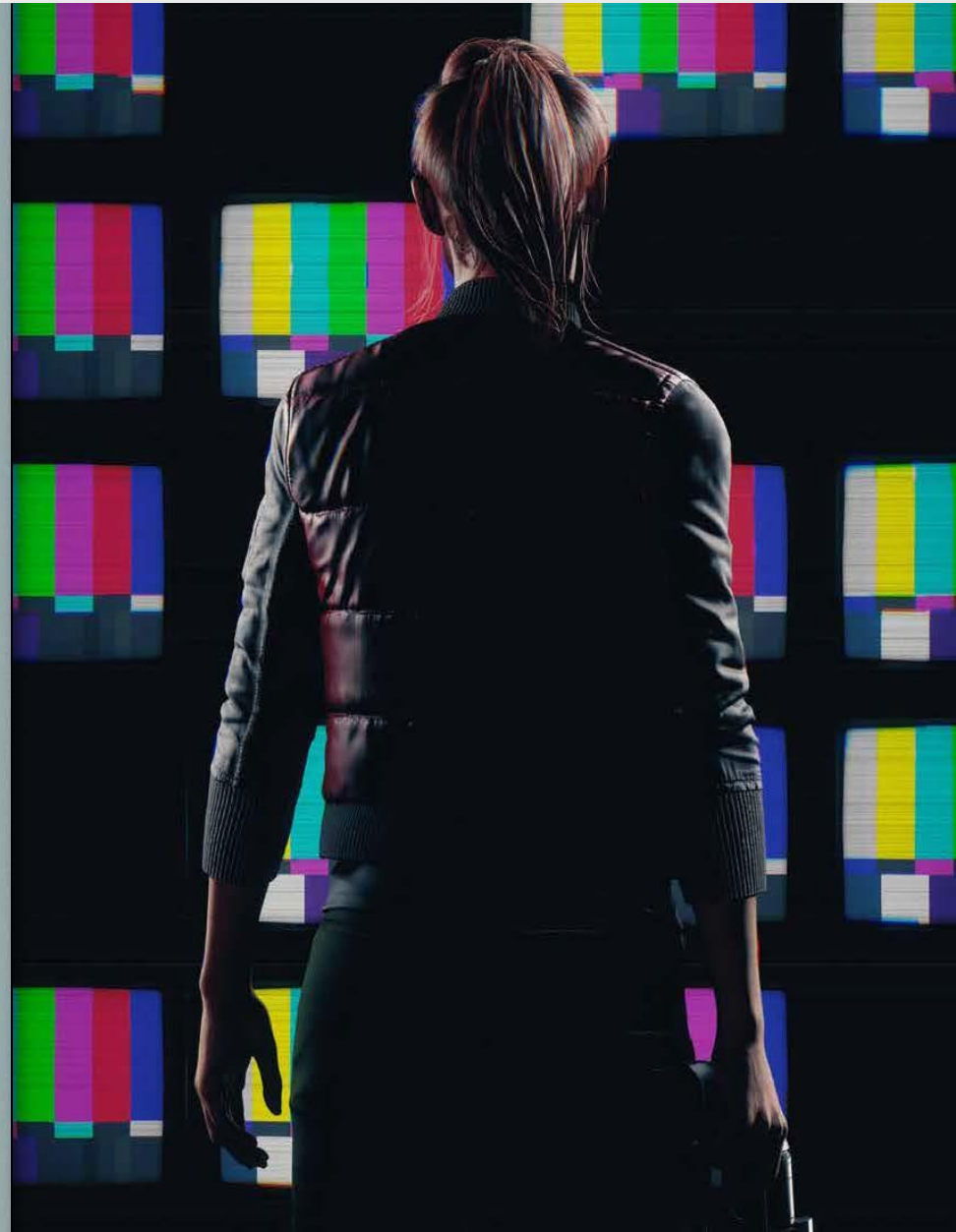
Developer Remedy realised this dramatic and dynamic setting with new rendering technologies which include global illumination, a process which simulates light as it bounces around an environment. With it, surfaces reflect their colour and gain shadows and highlights which lend them a sense of presence and form that older lighting effects couldn't match. It's fitting that Remedy, a Finnish studio with roots in the technical showmanship of the mid-1990s demoscene, should take on the mantle of applying leading-edge lighting tech to abstract videogame space. But in *Control*, these effects aren't for the sake of ostentation. They're never less than an essential part of the world you see around you, and in service of the strong storytelling for which the studio is equally known. ■

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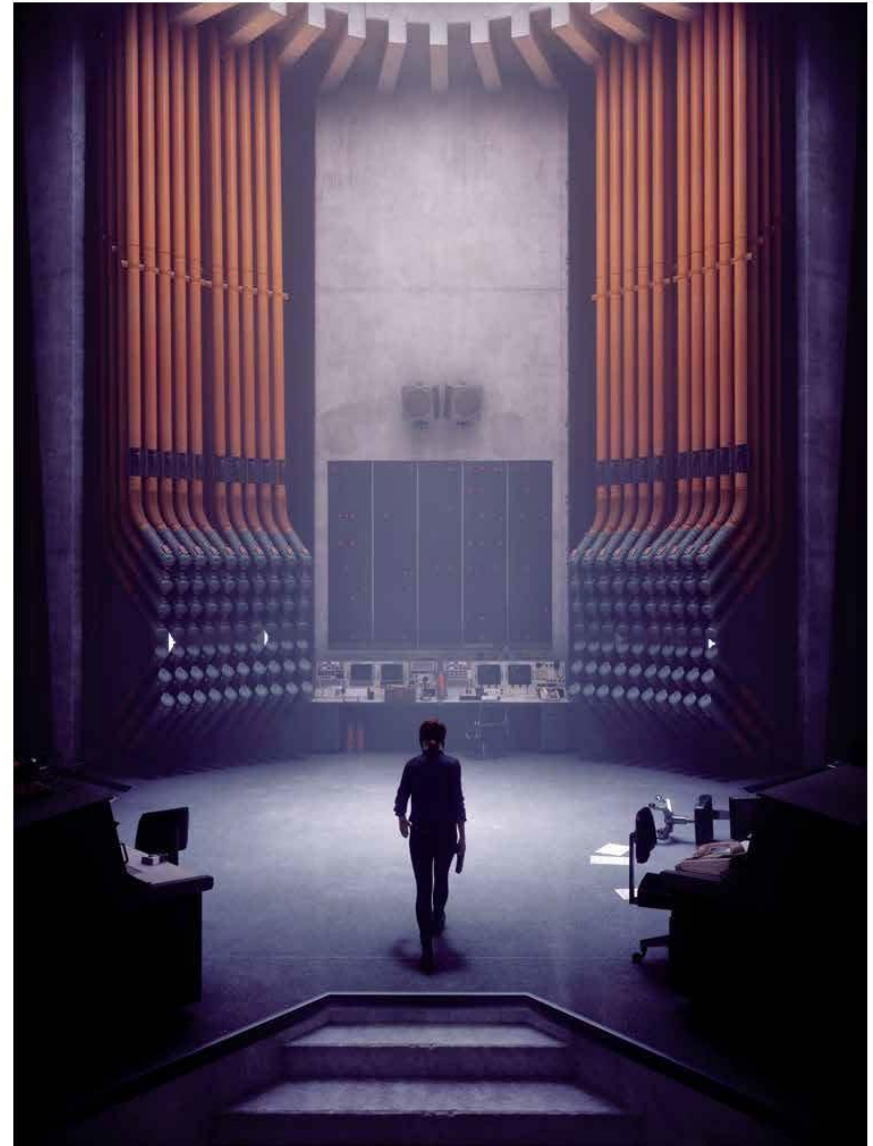
It was also important that The Old House avoided a sci-fi look, since it was meant to be a monument to 1960s US government bureaucracy, with Bakelite phones and networks of pneumatic tube transports. Stuart MacDonald, who led its design, had to ensure its walls followed straight lines and right-angles, which, it turned out, were great for emphasising lighting. Control uses lighting to set mood, to communicate scale and form, to impart material texture, and to establish rhythm and orientate attention. It also uses light create naturalistic reality in a world that's always threatening to splinter into abstraction.

Though The Old House is tectonically vast, the objects inside it – the rows of desks and the computer terminals and papers that sit on them – are loose and can be picked up, thrown, shot at, and destroyed. The challenge for Remedy was that the way most games of its generation model realistic light is to ‘bake’ it into the world. This means that the lighting on every surface is calculated as their textures are produced, and once set, it can’t change. That’s fine for parts of an environment that are static, but it will look wrong for objects that can move, or when lights can change in luminescence or move around. Generally, games get around this by rendering the lighting on static geometry differently to geometry that’s dynamic, and this tends to allow you to be able to see the difference between them, particularly in shadows and tone.

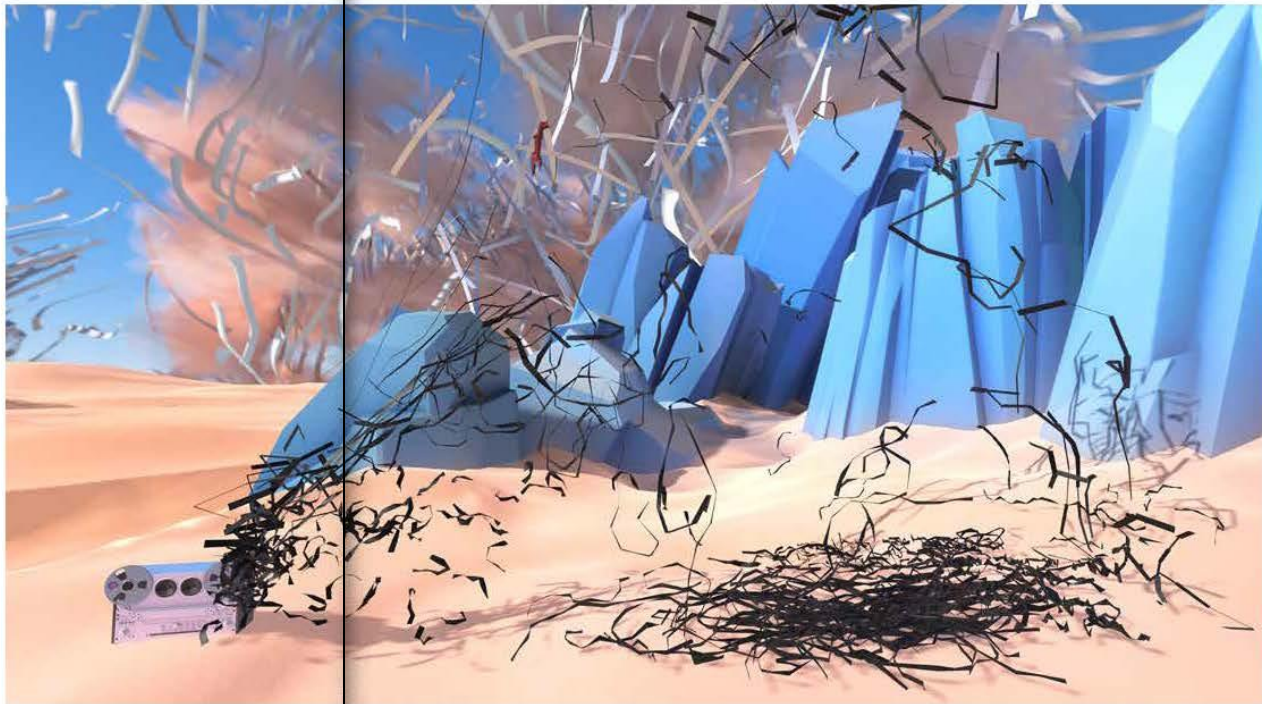
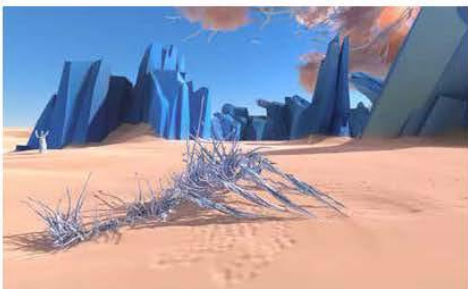
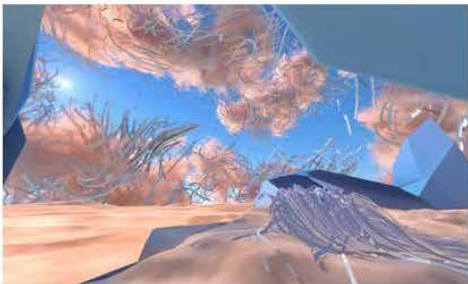


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A great deal of the visual beauty of the modern videogame is the result of shaders, maths which can conjure the dull metallic gleam of metal and glossy hair; reflections on water; shafts of light falling from tree canopies. Put simply, a shader is code that's run on a GPU, and in games, shaders are where maths meet art. They started out in games as a method of adding visual effects by modifying the colour value of pixels on the screen. A shader can use information about the object or surface a pixel is depicting to create a new colour value. By referencing a surface's angle in relation to a light source, for example, a shader can add a shiny specular highlight to it. Shaders are a profoundly powerful and flexible way to create stunning visual effects that don't rely on artists adding more geometric complexity to the 3D environment. So, in Paper Beast, shaders render its dreamy surreal landscapes, the soft fall of sand, footprints and rippling fur. But today, they do much more because GPUs are so powerful, and in Paper Beast they also run the simulation of its world. They animate and control its paper animals and they govern the flow of its water and wind.



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WE ENDED UP WITH A REALLY DENSE WORLD. EACH MAP WAS REALLY PACKED WITH DETAILS AND INTERACTIONS AND PHYSICS. IT WAS TOO NOISY. I REMEMBER A BUG IN THE DUNWALL TOWER WHICH CAUSES ITS TEXTURES TO BE FLAT AND NOT RENDERED PROPERLY BY THE ENGINE, AND [STUDIO FOUNDER] RAPHAËL COLANTONIO WAS LIKE, 'HEY, I LOVE THAT!' SO, OK, MAYBE WE COULD PUSH IT.

› SÉBASTIEN MITTON, ART DIRECTOR

In front of the background stand the characters, where WayForward also lavished a great deal of attention. River City Girls' principal animator, Kay Yu, was anxious to convey their personality in every frame, so Misako's movements are driven and serious while Kyoko's are playful, finishing in a pose that looks as if she acted half by accident. Apart from making them both distinct, this frame-by-frame attention to expressiveness also helped to sell the variety of moves the player will unlock and use over the course of the game. Their animation sets out the spatial aspect and directionality of each attack, which naturally hints at when it's ideal to use it.

That expressiveness is down to River City Girls' animators thinking not about the frames of animation so much as the objects they're trying to relate. To create fluidity, they think about the hand behind the pixels so they can imply the movement it makes between the frames. For Tierney, a key benefit of this approach is that it taps into the emotion of the characters.

WHEN I WAS STARTING OUT AS A PIXEL ANIMATOR, I'D STUDY METAL SLUG, WHERE YOU'D HAVE THINGS LIKE IDLE ANIMATIONS WHERE A CHARACTER'S JUST BREATHING. THE MOTION OF THE CHARACTER MIGHT NOT CHANGE AT ALL; IT MIGHT JUST BE THEM PLAYING WITH COLOUR VALUES ON THE CHEST TO IMPLY THAT CHEST WAS MOVING UP AND DOWN. THERE'S THAT SUBTLETY TO ALL OF IT.

> ADAM TIERNEY

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DROOL DESCRIBES IT AS 'RHYTHM VIOLENCE'. THUMPER TRANSPORTS MUSIC GAMES INTO A NEW SPACE WHICH YOU FEEL IN YOUR GUT. LIKE GUITAR HERO, ITS PLAY CENTRES ON BEAT-MATCHING BUT RATHER THAN LANE-BASED CALL-AND-RESPONSE THAT FOLLOWS THE VERSE AND CHORUS OF A LICENSED SONG, THUMPER IS MORE EXPRESSIVE AND ABSTRACT.

It's about clinging on tight to your controller as your steel-carapaced beetle hurtles along a twisting, plunging track into neon hell, tapping and holding the buttons that will see you survive the next threat. The soundtrack is written by the walls you'll grind along, the percussive jumps you'll make, and the barriers you'll smash through. This is an exquisitely intimidating game which you feel in your bowels.

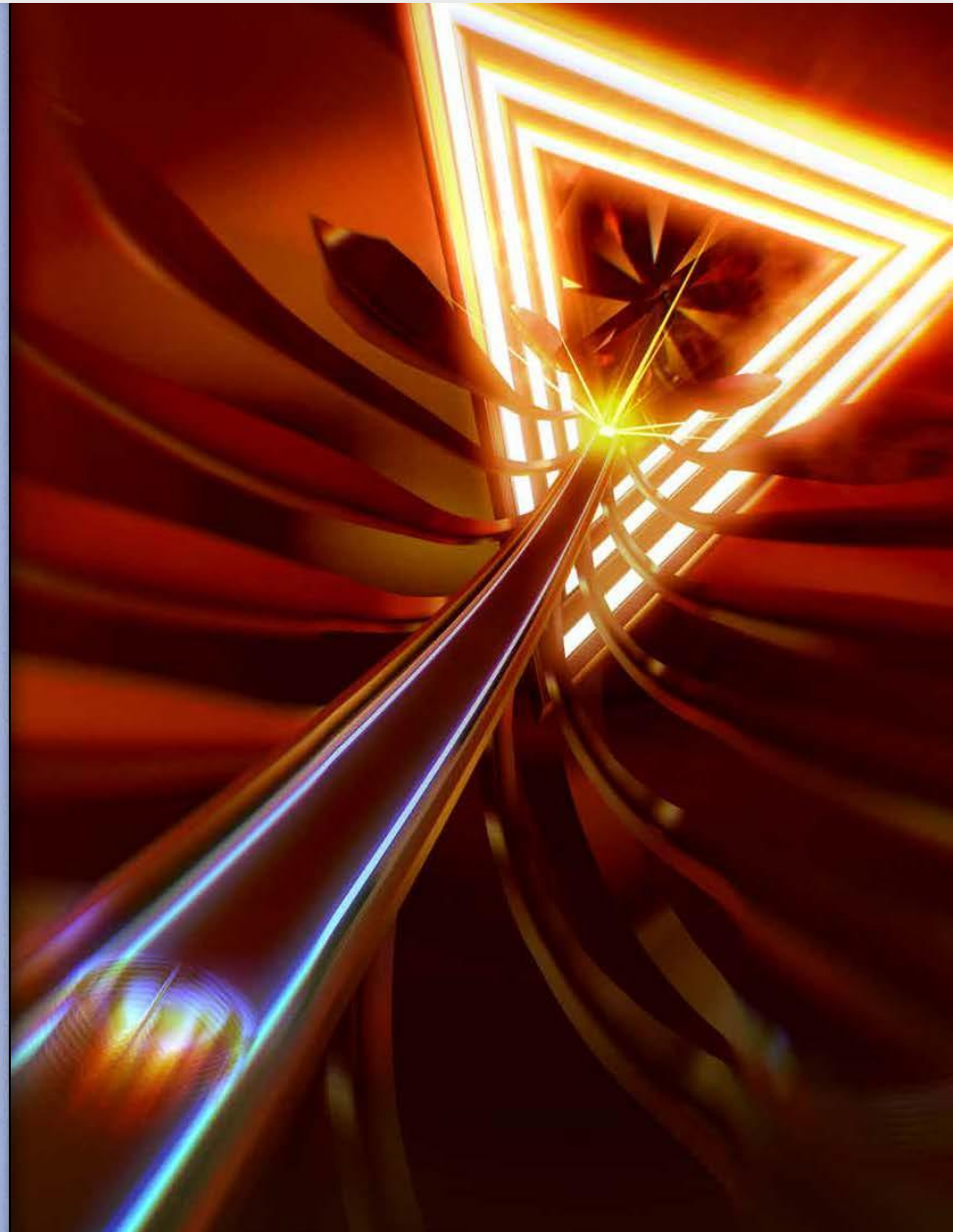
Thumper's visceral nature is conducted by a remarkable meeting of music and image, courtesy of a unique collaboration between its two makers, artist-designer Brian Gibson, who works out of Providence, Rhode Island, while programmer-designer Marc Flury lives in Seoul. They met at Boston-based Harmonix, which made its name creating Guitar Hero. Gibson is also half of Rhode Island noise rock duo Lightning Bolt, so that helps to explain Thumper's unforgiving sound design. But both have a remarkable grasp of how to convey speed and action through visual effects. Few games look this perfect in every frame, and few games use every wash of colour and light so effectively. ■

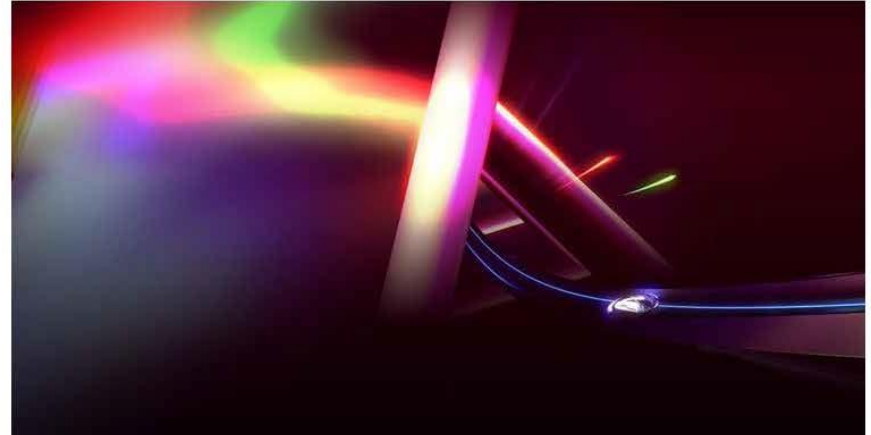
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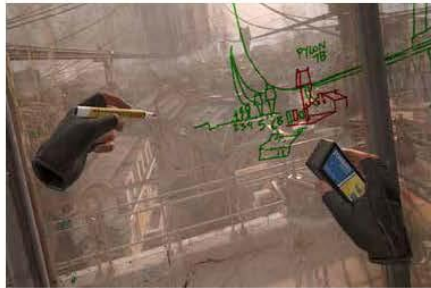
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