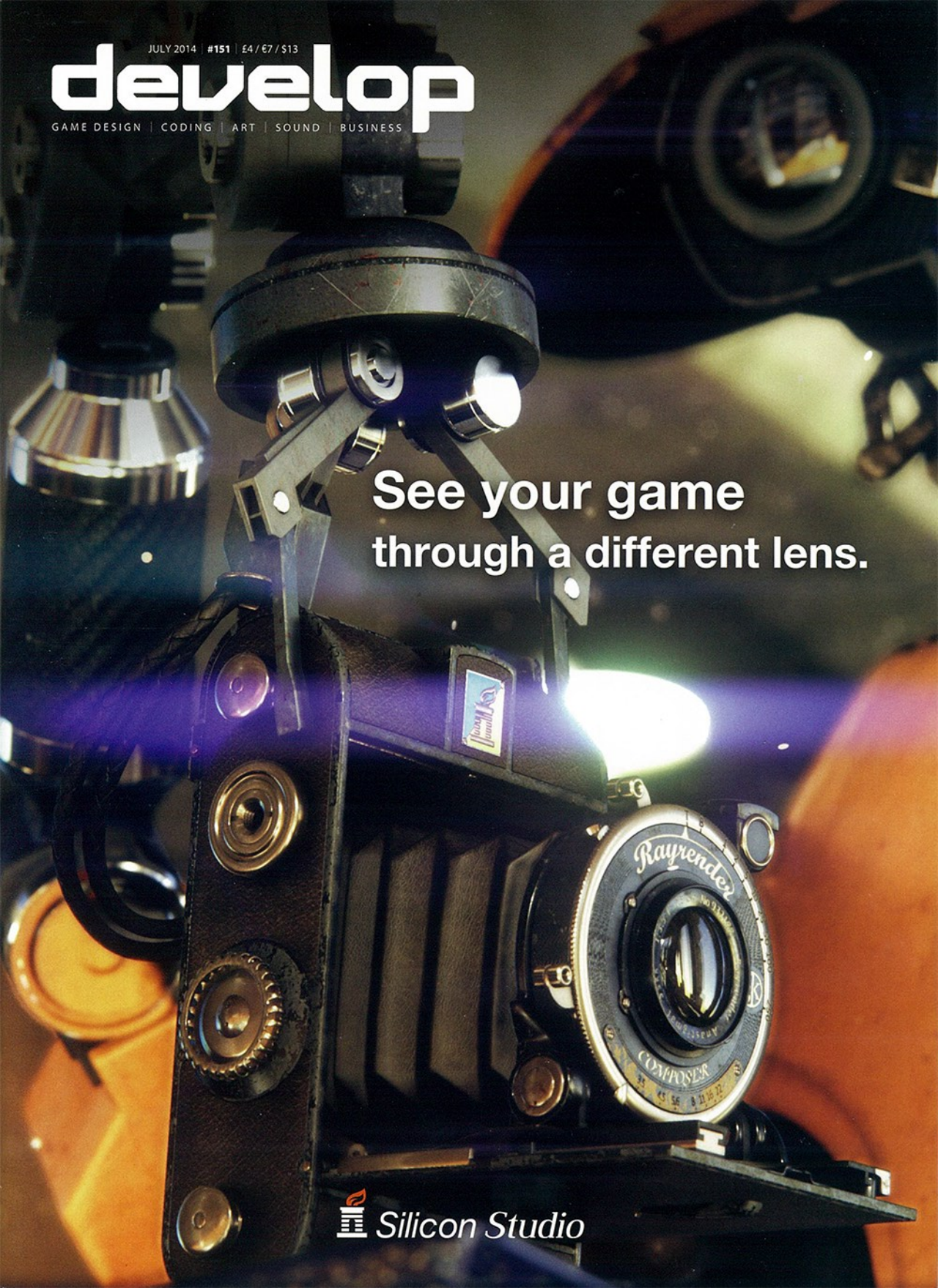
JULY 2014 | #151 | £4 / €7 / $13

# develop

GAME DESIGN | CODING | ART | SOUND | BUSINESS



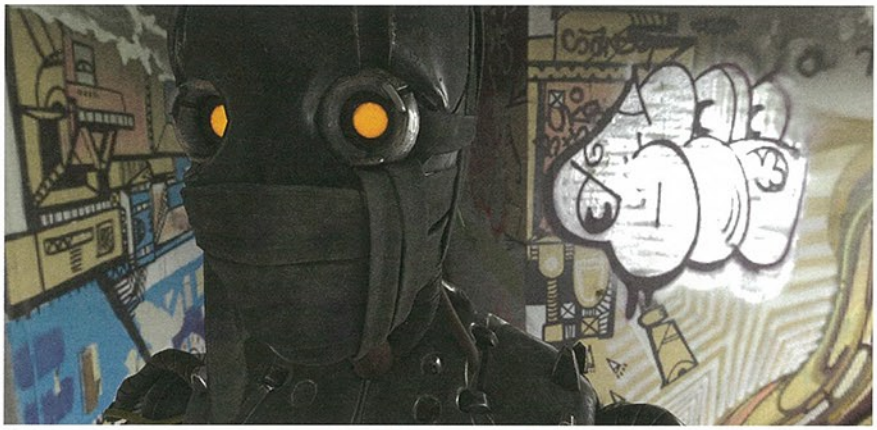
**STANDARD PROCEDURE:**
We look at the infinite possibilities afforded by procedural generation
**P40**

**REFRAMING THE GAME ENGINE:**
PlayCanvas discusses its vision for cloud-based games development
**P42**

**TURN UP THE VOLUME:**
Develop's definitive round-up of the best audio tools available
**P44**

# Behind **the lens**

Silicon Studio strives to help games developers create post-processing effects that rival those of Hollywood blockbusters. In fact, the firm's flagship middleware Yebis 2 is so powerful, notable film studios use it, too. **James Batchelor** finds out more



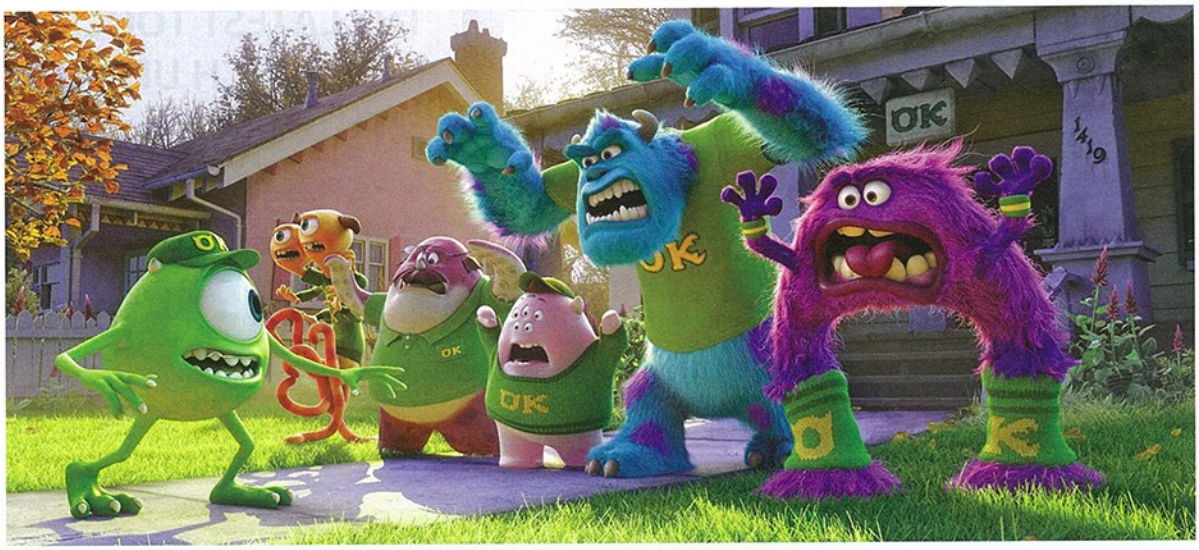
*The effects Yebis 2 can create adds an extra level of sheen and high quality to visuals, as shown by this before (top) and after (bottom) example*

A CASUAL VIEWING of almost any trailer that emerged from E3 this year shows that the games industry is highly unlikely to curb its cinematic ambitions. From Kojima's latest *Metal Gear* to the high-octane antics of *Battlefield: Hardline*, the new generation of games wouldn't look out of place on the big screen at your local multiplex.

And, as with Hollywood blockbusters, post-processing is essential in creating the mood developers want. The world of *Batman: Arkham Knight* would be nowhere near as impressive if not drenched in a sinister cocktail of darkness and neon.

Such effects are incredibly challenging to achieve without dedicated tech – and one of the leading tools available is Silicon Studio's Yebis 2. The Japanese firm's middleware specialises in post-processing effects that can be edited in real-time, and it's a suite that has proved very popular with games developers.

"Yebis has so many features and is so flexible that usually teams decide to use it because it saves them a lot of time and money," explains engineer manager Colin Magne. "If they had to develop the things Yebis does by themselves, it would be a huge amount of work."




*Main: Pixar has recently started using Yebis 2, integrating the middleware into its rendering pipeline to add post-processing effects faster*

*Below: The Silicon Studio team (left to right) – engineer manager Colin Magne, executive director Fumiko Kato, CEO Takehiko Terada and engineer Steven Tsang, all gathered around their favourite magazine*

"Post-processing is very important to the final emotion of the picture, which is usually set and defined by the art director of the game or production. Yebis has such high quality and fine-tuning that almost anything the art director wants to achieve is possible.

"We have seen many relatively low-end customers including Yebis in their engine and giving their tech a whole new look that's very organic and realistic. And it doesn't even have to be realistic: Yebis can help with rendering based around non-realistic games, and it always offers a high emotional picture level. That's something I personally never see in other middleware."

Engineer Steven Tsang adds: "There are more than ten years of research behind Yebis – and our customers recognise that. One of the responses we often get is how fast it is. It's scalable because you can set the balance between quality and performance yourself if you want. Most of the developers that evaluate Yebis are very impressed with the performance that we can deliver."

## SILICON'S SHOWCASE

You've almost certainly seen Yebis at work, although you might not know it.

The middleware is used in a wide variety of games, from the next-gen *Dragon Ball* title unveiled at E3 to Square Enix's upcoming RPG epic *Final Fantasy XV*, as well as *Agni's Philosophy*, the real-time demo of Square Enix's new engine – and the Japanese publisher has since said it could not have achieved the look of this demo without Silicon Studio's tools.

The *Final Fantasy* firm is just one of Yebis' Eastern admirers, with Bandai Namco and Koei also using the technology in their games. But while this is high praise for Silicon Studio, the Japanese company's ambitions stretch beyond its home market.

"Yebis is very successful in Japan because it is such a unique and special middleware," executive director Fumiko Kato tells *Develop*. "But we need to expand our global business and that's been our focus since launching Yebis 2 last year."

> ***"Pixar's use of Yebis speaks to the quality and how serious we are about simulating camera physics."***
>
> Colin Magne, Silicon Studio

Silicon Studio has made great headway in this, with the renowned Pixar picking up Yebis to enhance its world-conquering family flicks.

"They have Yebis integrated into their rendering pipeline," Tsang says. "It makes their iterative process much quicker because Yebis runs in real-time, as opposed to having to export things and applying post-processing as a separate step."

Engineer manager Colin Magne adds: "Yebis is very important for the final image expression. At Pixar, they really play with camera settings, particularly in areas where Yebis has its strengths like depth of field.

"This is something that is traditionally very expensive in terms of computer power. Pixar couldn't do that in real-time until they decided to use Yebis. It saves a lot of effort for their camera set-up at pre-production and pre-rendering time, when they first set the movie layout.

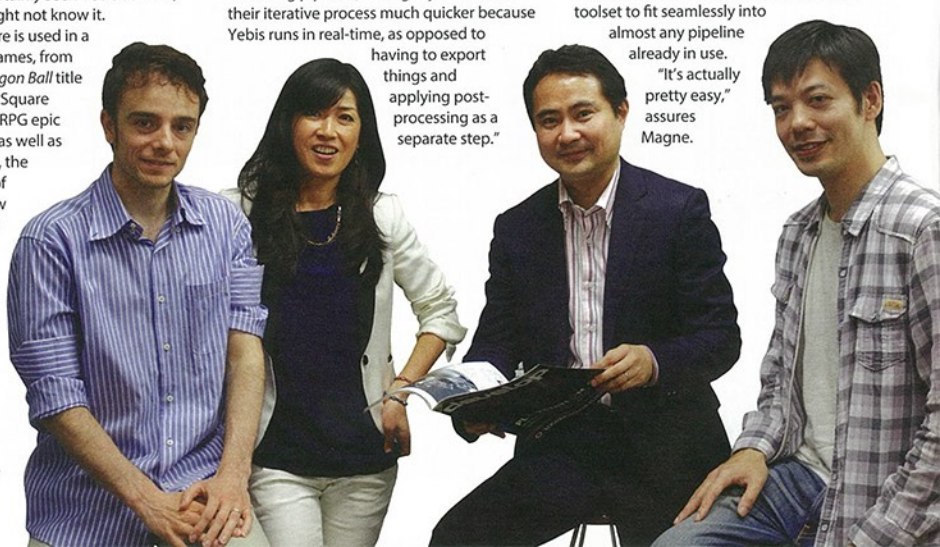
"The fact that Pixar uses it speaks to the quality of Yebis 2 and how serious we are about simulating camera lens physics. Pixar is happy because even the depth of field radius is similar to what it should be in the real world, so it's fitting with the offline renderer they use for the final picture.

"It's something people don't usually think about in games, but we covered it so the final picture is realistic and even more importantly, natural looking."

## EASY INTEGRATION

Part of the reason many studios utilise Yebis is that Silicon Studio has engineered the toolset to fit seamlessly into almost any pipeline already in use.

"It's actually pretty easy," assures Magne.



"The only input Yebis needs is the colour information, the depth information and maybe the motion vector information if you want motion blur.

"Basically, at the end of the pipeline for your rendering engine, when you have your near final picture before post-processing, you just pass this information to Yebis and take a look at the output. We have seen people integrating Yebis in less than a day."

Square Enix – a shareholder in Silicon Studio, along with Bandai Namco – has already integrated the technology into its new-gen engine. Meanwhile, a recent partnership with French middleware firm Allegorithmic has seen Yebis added to the company's range of Substance texturing toolsets.

While Yebis 2 might shine brightest on Xbox One and PS4, Silicon Studio has also gone to great lengths to get it across multiple platforms – 18 of them, in fact. That encompasses not only traditional consoles and handhelds, but also a variety of smartphones and tablets. In fact, Google used the company's Yebis 2 demo to show off the power of the Nexus 7 tablet.

"Each customer comes with different needs, so we have ported Yebis 2 onto 18 different platforms as of today," explains Magne.

"That was a big challenge, but it has also strengthened Yebis. Each time, we added specific optimisations and algorithms that we could take advantage of on each platform afterwards. It makes it very efficient and very scalable.

"Of course you will achieve the best quality with the high-end consoles. Yebis is already available and optimised for PS4 and Xbox One. But recently, we have brought Yebis to a number of mobile platforms, in which we also have an interest. We released an OpenGL ES3 demo of Yebis' features on Google Play – there are some interesting effects we can do thanks to the new OpenGL ES3 so we're looking into what we can do with this and we'll expand from there."

### LIGHTING THE WAY AHEAD

Yebis 2 may be beloved by games developers and film-makers alike, but Silicon Studio isn't about to sit back and relax. On the contrary: the Japanese middleware firm has world domination in its sights.

The Allegorithmic partnership goes some way to supporting these efforts, as does the use of Yebis in *MotoGP 14*, the new-gen racer being developed by Italian studio Milestone. But the biggest boost should come from the imminent launch of Yebis 2's successor.

> ***"There are more than ten years of research behind Yebis 2 – and our customers recognise that."***
>
> Steven Tsang, Silicon Studio

"We're planning to launch Yebis 3 this summer," Kato reveals. "We are going to promote in Japan first, and then prepare to release overseas. We'll be promoting as well."

And Magne adds that Yebis 2's features have been so well-received that the team has been free to explore new possibilities for the toolset, rather than refining what has already come before.

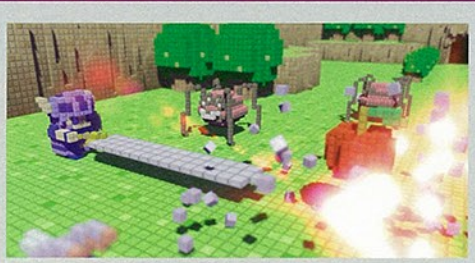
"People are extremely happy with what we deliver right now, so there is nothing we need to improve on," he says. "It's more a case of adding new features. Rather than learning from Yebis 2, we're continuing from it."

The new features of Yebis 3 have largely been based on the most popular requests from established Yebis users. Headline features of the next version include SSAO (screen space ambient occlusion), higher quality depth of field effects and even lens dirt – again underlining Silicon Studio's commitment to recreate realistic camera effects in games.

That's not to say Yebis 2 will be completely replaced by its follow-up. Silicon Studio will still continue to support the middleware as it reaches out to more Western developers and even film studios to get its post-processing tools into the hands of the most gifted creators while it eagerly waits to see what these teams can do with the power of Yebis. ■

**www.siliconstudio.co.jp/en/**

## MORE THAN MIDDLEWARE



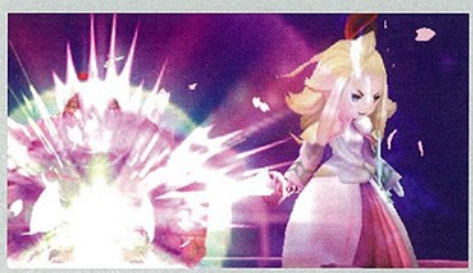
YEBIS IS JUST one feather in Silicon Studio's cap – albeit the largest and most colourful. The company offers a range of other services for Japanese games developers and is keen to provide similar support to Western firms.

"We're probably one of the only middleware companies to survive in Japan," executive director Fumiko Kato tells *Develop*. "Our strength is our one-stop service for developers. We offer support in the form of tools and middleware, as well as full game development, we provide people, and we provide consulting and networking services. So we have a lot to offer the games industry."

Key to this expanded selection of services is Silicon Studio's own games development team. The in-house studio has produced a variety of titles over the last few years – most notably, Square Enix's 3DS RPG *Bravely Default* (*below*) and PS3 exclusive *3D Dot Game Heroes* (*above*). In fact, the latter served as another great showcase for the effects Yebis can produce.

"They're creating really great games, and they have a really high reputation," Kato says of the studio. "When we started to sell middleware, we didn't have a games studio, but it's hard for us to sell middleware without us creating games for ourselves. With our own studio, we can test and run and use our middleware to create great games.

"A lot of publishers already come to us to make a game in our studio. And because we're not a publisher, we can concentrate our own original titles."



*Tech demos such as Agni's Philosophy by Square Enix (above left, top) and Silicon's own RigidGems (above left) show off some of the effects Yebis 2 is capable of creating*