Unity unveils new ties to Nvidia RTX pipeline, takes shots at Unreal

Enlarge / The 2019 BMW 8 Series Coupe, as rendered in real time using the Unity graphics engine and its newly announced Nvidia RTX pipeline of ray tracing.
Unity / BMW

reader comments

22 with 20 posters participating

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GDC 2019

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SAN FRANCISCO—Unity, one of the leading 3D-rendering systems used to build modern video games, kicked off GDC 2019 with a keynote presentation that took aim at its primary rival, Unreal Engine 4.

“We have no interest in creating experiences that compete with your hobbies or your businesses,” Unity CEO John Riccitiello told the keynote’s crowd on Monday night. (This was a not-so-subtle dig at how Unreal’s creators at Epic Games use their engine to power the mega-popular *Fortnite*.) “We’re here to build the platform that serves you, the developer, and serves you alone.”

While the keynote emphasized Unity’s affinity for lower-end

devices, particularly smartphones, it concluded with an emphasis on the highest-of-end machines: a partnership with Nvidia to bring its proprietary RTX ray tracing pipeline to any Unity video game.

- If you've already seen a ray-tracing demo, then this gallery won't look very exciting to you. But anybody who makes games or interactive 3D content in Unity will appreciate getting access to a system that Unreal Engine users were already enjoying.
- The effect is its most handsome when the lighting is subtle.
- Still shots don't convey the effect as accurately, but the subtle bounce of light off the bottom of that sideview mirror adds realism in terms of minding all light sources and the materials on the car.
- BMW interior, all rendered in real time in Unity.
- We're not sure if Unity will render realistic fingerprint smudges.

"Production-focused early access" to this API is now immediately available to select Unity users. If you're wondering what the heck that means, think of production houses and companies that want to use Unity to render replicas of their unreleased products. Like, say, an unreleased BMW car model that looks life-like with the glossy, lights-bouncing-all-over sheen of the RTX-fueled global illumination pipeline.

Unity and BMW used Monday's GDC event to do exactly that. They showed off the 2019 BMW 8 Series Coupe as both a handsome luxury car design and a slick example of how real-time ray tracing works on "consumer-grade" graphics cards (if the $1,000-plus RTX 2080 Ti counts as "consumer-grade" to you, at least). An "optimized preview" version of this Unity RTX toolset will be available for Unity creators in the second half of 2019.

Enlarge / Unity CEO John Riccitiello kicks off his company’s GDC Keynote.
Sam Machkovech

Before that RTX reveal, Riccitiello took other subtle shots at his rivals at Epic Games, including a pledge that his company’s engine scaled better for smaller projects than Unreal Engine 4 might. “You won’t be burdened to adopt new technologies before you need them,” Riccitiello said. “Use unity to create your own engine. Carry only the technology you need for the game you’re building.”

And he bragged about Unity’s ties to two of the biggest battle royale games in the world right now: *Apex Legends*, which uses a Unity-owned back-end service called Multiplay; and *Fortnite*, which uses the Unity-owned Vivox voice-and-text service during that game’s massive Marshmello “live concert” event.

Riccitiello confirmed that Vivox will soon be bundled with Unreal Engine 4 without requiring a separate SDK.

Before stepping off the keynote stage, Riccitiello also bragged that 45 percent of the world's top 1,000 mobile video games use Unity—and that his company was partnering with Google on its cloud-gaming initiative. (He indicated that we'd learn more on Tuesday morning at a Google GDC event.)

- Warren Spector appears at GDC 2019 to show off *System Shock 3*'s first real-time footage.
- Familiar sights.
- Gross sights.
- The game's dev team showed off real-time edits to this creepy scene in a Unity Engine demonstration.

The event included a world premiere of *Call of Duty Mobile*, the shooting series' first-ever mobile-only title. We also saw teases of other upcoming Unity engine games, including a peek at never-before-seen content from *System Shock 3*. Instead of seeing live gameplay, *SS3* director Warren Spector showed up to laud Unity's ease of use. He then let members of his development team show how quickly and easily they could modify visual elements of the game's real-time content within the Unity interface.

The game's visuals, as seen above, certainly look polished and updated enough for the series' modern return, currently slated for 2020.

https://arstechnica.com/?p=1475475

Call of Duty Mobile announced for iOS, Android, made by China’s Tencent

reader comments

24 with 23 posters participating

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SAN FRANCISCO—Activision has taken the wraps off its first major Call of Duty video game for smartphones. The title is simple enough: *Call of Duty Mobile*. The online, multiplayer-only game will arrive later this year, but neither Activision nor any of its Western CoD-focused studios will lead the game’s development.

Instead, dev duties will be handled by Tencent, one of China’s leading mobile-game publishing houses. (Activision did not clarify any particular studio taking the lead within Tencent on this game.)

Call of Duty Mobile was unveiled at today’s Unity keynote presentation as part of the 2019 Game Developer Conference, because it has been built in the Unity Engine. An Activision representative at the Unity event said that players can expect “beloved maps, competitive game modes, and signature combat mechanics from [Call of Duty entries like] *Black Ops* and

Modern Warfare." Teased maps coming to the series' first-ever mobile version include Nuketown, Hijacked, and Crash, and fans can expect traditional CoD multiplayer systems like kill streaks.

In terms of modes, Activision said players can expect either 10-player free-for-all combat or five-on-five modes like team deathmatch and search-and-destroy. The event did not include any mention or hint of a potential 100-player battle royale mode, as seen in the PC and console versions of *Call of Duty: Black Ops 4*.

- An Activision rep showed off the nuts and bolts of how *Call of Duty Mobile* will scale to a variety of smartphones, particularly by streamlining things like animations and pre-baked visual effects.
  Sam Machkovech
- Go ahead, fake like this *CoD* soldier on your smartphone.
  Sam Machkovech
- Alone or with friends. (We don't know how players will team up with known friends, whether through existing matchmaking services or a new one.)
  Sam Machkovech
- Familiar deathmatch arenas.
- More familiar deathmatch arenas.
- Activision didn't show actual gameplay at the reveal, and that means we don't yet have a sense of how players will pay for the game. We can only assume that cosmetics will figure into a microtransaction model, but nothing has yet been confirmed.
- The game's modes will include team deathmatch, search and destroy, and free-for-all combat; Activision hinted to player counts maxing out at 10 per battle, so don't expect a mobile *CoD* battle royale just yet.
- In case you missed the message: it's coming to your phone.

Activision promises “60 frames-per-second graphics, low latency, and super responsive controls” in the game to come. No raw gameplay was shown, however, so it remains to be seen how important aspects like on-screen controls and general UI will look. We’re also in the dark about how monetization and microtransactions will figure into the experience. A brief demonstration of *CoD Mobile*‘s current state, as broken down in the Unity Editor, included explanations of mobile-friendly graphics tricks like static shadow masks and dynamic, cascaded shadow maps.

Interested players can now pre-register at callofduty.com for the iOS and Android versions.

https://arstechnica.com/?p=1475709

Behind the Curve a fascinating study of reality-challenged beliefs

reader comments

227 with 98 posters participating, including story author

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There’s a scene somewhere in the middle of a new flat Earth documentary that acts as metaphor for so much that surrounds it. Two of the central figures of *Behind the Curve* are

visiting a spaceflight museum that pays tribute to NASA, an organization that they believe is foisting a tremendous lie on an indoctrinated and incurious public. One of them, Mark Sargent, sits in a re-entry simulator that suggests he should press “Start” to begin. He dutifully bangs away at the highlighted word “Start” on screen, but nothing happens.

He wanders away muttering even more about how NASA’s a giant fraud. Meanwhile, the camera shifts back to the display and zeroes in on a giant green “Start” button next to the seat Sargent was in.

Into the fringes

It’s hard not to think back to two earlier scenes in the movie. In the first, Sargent talks about how he started having suspicions about the globe when he spent weeks watching a flight tracker for flights crossing the southern oceans but couldn’t find any. This seemed to fit with his favored model of the Earth’s disk, one with the North Pole at the center and the continents spread out like spokes from there. This would place the southern continents much further apart and make air travel prohibitive—just as the lack of flights suggested.

A short while afterwards, *Behind the Curve* shifts focus to a Caltech astronomer who brings up a flight tracker on her laptop and quickly finds planes in the middle of the southern oceans. It’s not clear how Sargent missed these or why he didn’t skip watching and just check a travel site for nonstop flight offerings (I easily found routes from Auckland to Santiago and Sydney to Johannesburg).

Head-scratching scenes like this abound as the film crew follows a number of flat Earth community members in the build-up to a major convention. The community is tight-knit, supportive, and willing to overlook details like having completely incompatible ideas about how the world is actually structured—as long as it’s not spherical, it’s OK. They

readily swap stories about the ideas that led them to break with physical reality and join the community, and they candidly discuss the losses of family, friendships, and marriages that accompanied that break. It's clear that, for many of the subjects, their beliefs provide them with access to the benefits of being part of a community, something they might struggle to get through any other means.

The one thing that does seem to cause problems is the community's tendencies to see conspiracies behind everything. That tendency eventually gets focused inwards toward its own members. At one point, a prominent source of flat Earth YouTube videos accuses two other videomakers of being plants by the nefarious powers behind the spherical conspiracy. But that thread can't be followed further, because the individual making the accusations demanded a large fee and creative control over the documentary in return for appearing in it.

Where do things go wrong?

Behind the Curve isn't all fringe perspectives, though. Sprinkled among these characters is a handful of actual scientists (and one science journalist) who keep the proceedings grounded in physical reality. As in the flight-tracker example, they frequently provide information that raises the question of how a belief system could get so divorced from an easily checked reality.

Fortunately, researchers in social and behavioral sciences have identified various ways in which we selectively filter information based on our cultural identity, how the Dunning-Kruger effect gives us misplaced confidence in mistaken conclusions, and how some people get bogged down in conspiratorial thinking and start seeing everything as a facade hiding the truth. All of that is there in spades—the movie's subjects make a compelling case that behavioral scientists know a lot more than they're often given credit

for. And a few of those behavioral scientists get to speak on camera for those who aren't as up-to-date on the academic literature in this area.

Behind the Curve's editing and source material gets all of this across without being preachy or going out of its way to make its subjects look bad. It's compelling viewing and refreshing to see some of the academic descriptions of human behavior brought to life. For those who aren't as up on this research, it's a fantastic illustrated introduction.

But I'd argue that there's value to *Behind the Curve* beyond that. To begin with, it's easy to see that a general acceptance of conspiracies is a key factor for many in the flat Earth community; Patricia Steere, one of the other focuses of the film, rolls off a list of other things she's skeptical of, including vaccines, GMOs, chemtrails, and 9-11. So why—out of all those options she's prone to view as the product of a conspiracy—is she putting her efforts into proving the Earth flat?

Hearing so many origin stories over the course of the film provides some hints about common features among peoples' journeys into the fringes. And that's important to know if we're ever going to catch people before those journeys are complete and things like cultural cognition and Dunning-Kruger issues lock them into their destination.

Not strictly anti-science

There's also a reminder that all the people on the reality-based side of the flat Earth issue may have their own irrational belief: that erroneous beliefs won't survive contact with reality and that the supposedly anti-science attitudes of the people who hold them will crumble in the face of evidence. *Behind the Curve* makes clear that flat Earth proponents are not anti-science, a point driven home by an astronomer who's given the chance to riff on science

communication. The film itself includes at least two experiments meant to show that the Earth is flat, one of them involving the purchase of a $10,000 gyroscope.

The gyroscope naturally shows that the Earth is rotating. Rather than admitting defeat in the face of evidence, the person behind the experiment convinces himself that they gyroscope must be picking up something else that's rotating (maybe the stars above the Earth?). He goes to increasingly ludicrous methods of trying to isolate it from that influence. How to get reality to break through that level of commitment is a serious challenge for people who care about evidence-supported policies.

So even if the subject makes you want to bang your head against the wall, I think there's a lot to recommend in *Behind the Curve*. It's found a great collection of sources and edited the material they've provided into some compelling narratives. And there's more here than just the opportunity to laugh at people with silly beliefs, provided you're willing to invest some time in the ideas that aren't always described overtly. In fact, the conspiracy minded might think that's what the filmmakers were hoping you'd do.

Behind the Curve is currently streaming on Amazon, Google Play, and Netflix.

https://arstechnica.com/?p=1472167

New documentary has a good

time asking how gene editing might change the world

Enlarge / An artist’s representation of a Cas9 protein immediately interrupting and changing a living creature’s genes.

reader comments

80 with 36 posters participating, including story author

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Ars at SXSW 2019

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Here’s a poorly kept secret: the internal chatter at a given research and scientific institution is typically more interesting than what emerges on the public record. Published papers and newspaper interviews don’t come with the banter, pop-culture references, or sheer wit that pumps through most nerds’ veins.

I thought back to all that nerd humor when I reflected on *Human Nature*, a documentary about gene editing and CRISPR that had its world premiere at South by Southwest 2019. There’s a lot of ground to cover on such a topic, and the film, co-produced by Dan Rather, does quite well by identifying existing research and studies, then grounding them with context and equal parts optimism and pessimism. But *Human Nature* is also the rare science film that isn’t afraid to let its smart talking heads be funny, dorky, or just plain sharp.

Meaning: if you already know everything about CRISPR (and if you read Ars Technica, you very well might), *Human Nature* still has something for you.

“A word processor for DNA”

Enlarge / They saw a very peculiar pattern.

The film seems to know this about itself, as its ending credits list each participating scientist and talking head in order of appearance, all identified with one weird or humanizing quote. It’s as close as I’ve seen to a documentary ending with its own yearbook page, but *Human Nature* earns it.

Before getting there, of course, the film has to set the stage by describing what the heck CRISPR is and why it has so much

of the scientific community fascinated, excited, and/or terrified.

The film opens in 1966 with a speech from Robert Sinsheimer, a biologist at the California Institute of Technology, in which he sums up his era's understanding of the human genome. "We will come to the time when man will be able to alter his own genes," he declares, and we hop-skip-jump through time to that very point.

The film highlights one critical, difficult moment between the description of individual genes that started in the early 1970s and the modern understanding of gene editing: early gene therapy, which was described as an "essentially random process." One French research trial in 2002 targeted leukemia patients who'd run out of feasible treatment options. But enough of the trial members suffered thanks to the uncontrollable, random nature of where the gene therapy DNA was inserted. The resulting cases of cancer ground the trial to a halt.

Over and over

From there, the film focuses on the work of Francisco Mojica, a researcher who'd studied the DNA of bacteria found in salt pools. These genetically simple microorganisms make for easier study of phenomena on the DNA level. In 2003, he noticed something that turned out to be a breakthrough: certain pieces of DNA would repeat, over and over, in the bacterial chromosome. This itself wasn't necessarily a new phenomenon. (It had already been given the clunky term "Clustered Regularly Interspaced Short Palindromic Repeats." Or, for short, CRISPR.)

But Mojica figured out a brand-new reason for the repeats: the repetition wasn't junk. The sequence matched up perfectly with viruses that had previously infected the bacteria. And as Fyodor Urnov, one of the film's most likable sources,

explains, the reason is that something in the bacteria is acting like a “word processor for DNA.” After identifying a line of DNA that matches an invading virus, the cell copies that sequence into RNA.

A protein, which scientists know as Cas9, then goes on a hunt for any DNA sequence that fits lock-and-key with the RNA. At the site of any match, the protein “snips” the offending DNA. This kills the virus. (As we see in the film, one of the earliest uses of this phenomenon was to clear viruses out of yogurt cultures for Danisco, a dairy-product supplier.)

“Fight without fear or pain”

Enlarge / It’s all fun and games until Putin shows up and

says, “Nice research you have there. Shame if something happen to it.”
My Ars colleagues have detailed the work that followed. Labs have figured out how to supply specific genetic information to Cas9 proteins that can then go through an organism’s cells and snip specific information out of their DNA. *Human Nature* doesn’t offer nearly as comprehensive a look at all the trial and error that followed as researchers developed this process. The film’s animated sequences and friendly voices simply make a basic and clear case for why this method of gene therapy is indeed feasible.

From there, of course, *Human Nature* takes us to the scariest extremes of what could follow.

That includes requisite footage of Vladimir Putin at a Russian science event describing what future CRISPR-driven gene editing might look like. After talking up the wholesome angle of medical care and eradicating diseases, he adds a pretty on-brand suggestion: “This could be for a soldier” to “fight without fear or pain.” His speech is followed by images of Aldous Huxley’s likeness and passages from his 1932 novel *Brave New World*.

“Every five years, we hear these horror stories,” one of *Human Nature*‘s researcher points out, asking viewers to belay their fear of the worst in terms of CRISPR ushering in a wave of eugenics. As one way to remind viewers that CRISPR could solve some real medical problems, the film tells the stories of a teen boy with a “milder” form of sickle cell anemia and a teen girl with severe myopia as brought on by albinism.

In both cases, the affected kids and parents remark upon the possibilities of those diseases having never emerged… and then offered their own shoulder shrug. “I learned patience,” the boy with sickle cell says about his disease. “I learned to be positive. I wouldn’t be *me* if I didn’t have sickle cell.” This is followed by an explanation that sickle cell’s prevalence in

sub-Saharan Africa is a likely evolutionary reaction to the region’s scourge of malaria, as sickle-cell sufferers aren’t as likely to contract that disease.

“You say *Jurassic Park*, I say coral reefs”

Enlarge / Aspirational goals. (The film also stars some pigs, who may have a more immediate impact on human life.)

Human Nature is careful to let advocates for every talking point get their fair share of screen time. A CRISPR-obsessed researcher named Stephen Hsu talks up his hopes for increased human intelligence as a result of wider access to gene editing. Other speakers opine, well, what metric of intelligence are we even talking about? Another gene-editing

researcher, George Church, admits that his stated goal of resurrecting the woolly mammoth via the practice is “quixotic” but is positioned as a reminder that his work could apply to work on other endangered or declining animal and plant populations.

It’s around this time that *Human Nature* shows a few sequences from a certain 1993 film about a dino-filled theme park, to which one researcher replies, “You say *Jurassic Park*. I say coral reefs.”

But that simple statement could itself weave its own web of an entire two-hour film: what might the scientific community believe is the best practice to preserve coral reefs by way of gene editing? Or bee populations? Or deciding which genetic conditions should be snipped out of people, either via “tissue line” applications (to mature cells, thus not affecting embryos) or “germ line” (meaning straight to the embryo and affecting future generations)?

The last point—researchers’ stance on germ-line gene editing—gets the most airtime in this documentary. This mostly reveals an evolving stance, from hard-line “nope nope nope” to a growing willingness to address serious genetic disorders at the embryo level. For the most part, however, *Human Nature* is a film about human history and ambition, not the research community’s exact next steps.

We see wide-eyed researchers trumpet their highest-level hopes or express fatigue with doubters. We see affected families talk about what illnesses they want eradicated forever or what illnesses might actually define the human condition. We see archaeologists and agriculturalists remind viewers that humanity already has a rich tradition of “gene editing” by way of artificial selection, via what we choose to plant, how we domesticate animals, and more.

[embedded content]

Human Nature world premiere trailer
There’s just enough data in *Human Nature*—really, right on the edge of an information deficit—to make a case to casual viewers. As one of this site’s science novices, I admit that the film had me eager to hit up my colleagues’ articles and join the conversation. We’re potentially on the brink of wider CRISPR-driven gene editing in humans and other mammals (including a startup that wants to harvest human-compatible organs from gene-edited pigs), and the film made me hungry for more context—but it included enough smart commentators to respect my inherent skepticism.

Is this the future of health? The future of a Putin-fueled super-soldier nightmare? By anchoring both of those extremes with a funny, human touch, *Human Nature* made me feel comfortable with a landing point somewhere closer to the middle.

Human Nature *received its world premiere screening at SXSW 2019. The film does not yet have a distribution deal in the United States.*

https://arstechnica.com/?p=1473053

Sloth-by-sloth-west: The good and the Goop of SXSW 2019 (in pictures)

reader comments

14 with 14 posters participating

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- Breathe in that calm Convention Center floor on Day 1 of registration—the chaos will be coming soon.
  Nathan Mattise
- If you love film poster art, SXSW gives you ample sessions, workshops, and art exhibits to enjoy it…
  Nathan Mattise
- Within the SXSW Film Poster exhibit, we are filled with deep regrets for not catching *Well Groomed*, about… artisanal dog grooming?
  Nathan Mattise
- 2D films are so SXSW 2012. Sam Machkovech's pick for SXSW 2019's best VR film, *Metro Veinte*, asked viewers to sit in wheelchairs while they watched the 18-minute film.
  Sam Machkovech
- The *Daily Show* team came to SXSW to keynote the comedy portion, so naturally they had to bring their recent traveling exhibition: The Daily Show Presidential Twitter Library.
  Nathan Mattise
- The library had every kind of tweet you could imagine—a memorial to deleted ones, testimonies from people mentioned, and a best-of compilation on everything from climate change to athletes just for starters. It also had some original artwork like this, Trump Crossing the Delaware.
  Nathan Mattise
- The exhibition left no space un-joked, even those little art-information plaques. Apparently *The Daily Show* reads Ars and knows all about X-ray art archaeology techniques.

Nathan Mattise

- The *Game of Thrones* installation doubled as a blood donation center. Can all future blood drives take place in recreations of the King's Landing castle?

Nathan Mattise

- Once completing the immersive experience, you get perhaps the more impressive aspect of this installation: an interactive set of a throne room, complete with knighting ceremonies for donors…

Nathan Mattise

- We don't mean to brag, but we did get to kneel before the Iron Throne this SXSW. (It was an *interesting* experience.)
- Among the politicians on the schedule for the first weekend of SXSW 2020, Massachusetts Sen. Elizabeth Warren took the stage to field questions and address that tech monopoly proposal of hers.
- *Sigh* the line to get into the presumably pseudo-sciencey keynote from Goop CEO Gwyneth Paltrow was one of the longest Ars saw throughout the week. (Here we are facepalming in the overflow streaming room.)

Nathan Mattise

- The CIA didn't bring board games this time, but the agency was on the schedule again for 2019. Two staffers talked about in-house approaches to creative problem-solving, like this: making folks draw out their problems and ideal solutions. (Evidently, this picture depicts challenges with a terrorist group and strategies to address that… no names were named.)

Nathan Mattise

- Oh hey, it's Briggo—the Austin Coffee-making robot (or series of automated machines, available at the Convention Center and typically the airport).

Nathan Mattise

- Obligatory music consumption (courtesy of Australia's San Mei).

Nathan Mattise

- This band is not called “Internet commenters in any politics thread.” (It’s Blood Cultures, a dream-y synth rock band from NYC).
  Nathan Mattise
- Not enough neon green for this to be real.
  Nathan Mattise
- Uber Eats, but as a meatspace restaurant?
  Nathan Mattise
- Another SXSW, but we still can’t seem to get our disk drive repaired here.
  Nathan Mattise
- Stay weird, Austin.
  Nathan Mattise
- Last year, DC brought Superman to SXSW. This year, Batman is celebrating his 80th anniversary.
  Nathan Mattise
- OK, we did give into one bit of SXSW branded experience. (Nathan Mattise evidently grew up in the era of The Rock.)
  Nathan Mattise / WWE at SXSW
- Mattise wasn’t the only Ars staffer immortalized at SXSW 2019, of course: Sam Machkovech presented at the conference gaming awards (and delivered an epic burn on Technical Achievement winner, *Red Dead Redemption 2*).
- Bless the pedicabbers of Austin. The community recently experienced a warehouse fire that wiped out a fifth of the licensed vehicles right before SXSW 2019, yet they’re still punk AF and ready to be the lynchpin of downtown commuting.
- Fresh new mural dotting a certain cyclist’s route to the Austin Convention Center (pretty sure it’s permanent and not in honor of the new *Apollo 11* doc, though that dog has lift-off).
  Nathan Mattise
- Is it really a SXSW without at least one, in-the-wild McConaughey sighting?
  Nathan Mattise

- Behold, peace and tranquility slowly returning to Austin’s 6th Street as a SXSW evening winds down.
  Nathan Mattise
- Some of the SXSW Trade Show floor has a distinctly county-fair feel in terms of hawking odd goods. Like these Apollo-themed clocks, statues, and phone-charging bricks.
  Sam Machkovech
- Why is this demo kiosk playing four keyboards at once with robotic arms? Search us, man.
  Sam Machkovech
- Lockheed Martin reps came out on a regular basis to show off an idea for interstellar “exosuit” technology.
  Sam Machkovech
- Sadly, they didn’t get into any fights while wearing the gear.
  Sam Machkovech
- Sam Machkovech
- This “game-playing robot” didn’t actually touch any of the buttons shown here. Boo, Bandai Namco. Boo.
  Sam Machkovech
- A small robot arm manipulates random kitchen appliances. Not nearly as awesome as Pee-Wee Herman’s rig.
  Sam Machkovech
- It wouldn’t be a tech expo without a freaking VR demo on a freaking treadmill. No thanks, not until VR headsets truly become breathable in terms of heat and sweat. (Truth be told, this was the nicest one we’d ever used, thanks to its stop-on-a-dime options and comfortable harness.)
  Sam Machkovech
- One kiosk had a pair of sloths hanging out to attract a crowd. The crowd showed up…
  Sam Machkovech
- … but we were all too busy gawking at a pair of sloths to figure out what they were doing in a convention center trade hall.

Sam Machkovech

- Bucket sloth is a mood.
  Sam Machkovech

AUSTIN, Texas—While sitting in the auditorium waiting to hear Massachusetts Senator Elizabeth Warren talk further about her views on Silicon Valley, an older gentleman leaned over to ask about something that had absolutely nothing to do with politics. “I don’t get it,” he began. “It’s a music festival, but a film festival, too? And you’re here for the technology stuff, right? Where do all these politicians fit? How do you describe this conference to someone in 30 seconds?”

Ars at SXSW 2019

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The answer, of course, is obvious to Ars after our fourth straight year of coverage: *you can’t.* While the three core tenets of South by Southwest remain film, music, and tech, this conference has become the ultimate convergence event—not just of topics, but of people. Where else can you, in a single day, see a cookie vending machine from Milk Bar baking guru Christina Tosi, a massive HBO installation to promote *Game of Thrones,* experts from Unicode talking about emoji evolution, and then Senator Warren on -isms from capital- to rac- all in the same place? *None* of that stuff perfectly fits into SXSW’s overarching programming tracks, but perhaps that itself is the message. These days, the boundaries between art, business, and innovation blur together more than ever. Put a bunch of movers and shakers in those areas together for a week, and interesting stuff is bound to happen.

Unfortunately, explaining that (even succinctly) takes more than 30 seconds, so we failed this impromptu summarization quiz. But our time in Austin certainly felt like a success overall. Above is just a small sampling of the sights that

spanned almost every topic you can find on the pages of Ars Technica. We may have missed Bill Nye crashing New York Congresswoman Alexandria Ocasio-Cortez's Q&A to talk about the environment, but we damn well made sure to snag one of those cookies.

Listing image by Nathan Mattise

https://arstechnica.com/?p=1469743

It's time to start caring about "VR cinema," and SXSW's stunners are proof

reader comments

47 with 32 posters participating, including story author

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- My pick for SXSW 2019's best VR film, *Metro Veinte*, asked viewers to sit in wheelchairs while they watched the 18-minute film.
  Sam Machkovech
- Another top pick, the BBC's *Nothing to Be Written*, had viewers sit next to a wall of replica postcards from WW1.
  Sam Machkovech
- *Runnin'*, the dance-filled music experience from Intel, was demonstrated with the HTC Vive Pro and its wireless adapter. Being able to dance around without any wires

didn’t hurt the fun of this one.
Sam Machkovech

- One disappointing demo asked viewers to sit in pod chairs that would move and rumble in sync with the film. That part was kind of cool, but the attached film was disappointing, confusing, and often ugly.
  Sam Machkovech
- This strange art-installation demo had an attached sculpture that would “react” to how the user in VR acted. But… then you couldn’t see how the sculpture moved. Weird and disappointing.
  Sam Machkovech

AUSTIN, Texas—You may love, hate, or shrug at the idea of virtual reality, but one niche is still unequivocally devoted to the format: film festivals. The reasons aren’t all great.

Because VR usually requires one-at-a-time kiosks, it invites long lines (which film festivals love for photo-op reasons). These films also favor brief, 10-15 minute presentations, which are the bread-and-butter of the indie filmmaking world. And the concept reeks of exclusivity—of the sense that, if you wanna see experimental VR fare, you *need* to get to Sundance, Cannes, or SXSW to strap in and trip out.

Ars at SXSW 2019

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But—seriously, hear me out—VR filmmaking at its best replicates the experience of live theater in a really accessible way. (I’ve been saying this for years.) You can’t watch something like *Hamilton* on DVD and expect the same impact. And when a VR “film” is done right, with smart technical decisions at play, it really meets (or, sometimes, exceeds) Broadway’s best without requiring a flight to New York or a ticket lottery.

This brings me to my favorite thing about this year's South by Southwest VR Cinema Competition: its best stuff nuked the whole "inaccessible" thing.

Sure, a couple of this year's features benefited from a "nicer" computer or headset. But filmmakers en masse are finally tuning in to a very cool reality about VR's immersive power: an artful eye and smart production is almost always more effective than an expensive, unwieldy rig to answer the question, "Why watch this in VR instead of a flat screen?"

Ars' Grand VR Prize, SXSW 2019: *Metro Veinte: Cita Ciega*

This year's best VR filmmakers have been delivering something surprising: 360-degree video.

I've been a frequent hater of this format because of how it wraps a flat-screen image around your head like a dome. Seeing this usually prompts me to ask, "Why can't I watch this on a flat screen instead?" The stretched images often force viewers to crane and turn their head, usually just to emphasize VR's gimmick of, "yowzers, there's something behind you!"

Enlarge / A still taken from the 360-degree film *Metro Veinte*.

Metro Veinte: Cita Ciega, an Argentinian film about a disabled woman's blind date, is the best 360-degree film I've ever seen, in part because its wrap-around images get VR's principles right. Crucially, its scenes limit their interesting content to a 140-degree focal range, thus requiring only a bit of peripheral glancing. The scenes organically show viewers that turning around won't pay off. Peek behind you, and you'll see the windowless corner of a bus seat, a blurry-focused field in a park, or the same bedroom background that has appeared a few times already.

Instead of being a distraction, this background content feels like an anchor. That's crucial, because each sequence takes long enough to establish a comfortable, intimate look at a

wheelchair-bound life. *Metro Veinte*‘s opening sequence sets this tone in emphatic fashion by placing a camera mere feet from a bathtub, where we meet lead character Juana. She’s having a silent soak while watching porn on her smartphone. (It’s not until later that we find out about her wheelchair.)

This opening scene establishes a rare moment of comfort and quiet contentment, only to be interrupted by her meddling mother. The rest of the film doubles-down on her push-pull relationship with help and kindness, all emphasized with “feet from the camera” sequences where she either resists or dejectedly accepts someone else’s attention.

Thankfully, this isn’t a painfully slow film. *Metro Veinte* wisely punctuates its slow-moving scenes by having Juana send texts and audio messages to a good friend. (This is shown in *Sherlock*-like fashion in the VR field of view.) In one great example, Juana goes back and forth with her friend about a possible date, letting us get some sense of story and character while hanging out in a bus for a minute. Soon after, an elderly passenger says hello to Juana in pitying fashion—and there’s a sense that we’re meant to empathize with the feeling of sitting on a bus with someone in a wheelchair, maybe feeling awkward or wanting to say something.

But Juana could do without the “polite” banter. “Where are you going?” the older woman asks. “Oh, I’m going to fuck a guy,” Juana responds. End of conversation. But not end of the moment.

I absolutely bought into this visceral experience, having shared that bus with Juana for so long. It’s the same way I bought into having a front-row seat on her blind date, or examining all of the anti-establishment stickers on her wheelchair, or having her family members’ faces so close to the camera when they reacted to Juana’s sexuality.

In *Metro Veinte*, intimacy and struggle hover comfortably in a

VR headset's lenses, though the film admittedly has two "ugh, I have to stretch my head to see something" moments. And these might be my favorites in the film, because in these, I caught myself saying, "gosh, this is inconveni–" then stopping myself. It's a rare case of a *good* 360-degree gimmick, and *Metro Veinte*'s best storytelling beats earn the right to play that card.

Best of the rest: Reggie Watts, spooky-cute zombies, World War 1, and spiteful lovers

- Gloomy, a zombie boy with good and evil sides.
- Nina, a human girl with the power to generate light.
- Gloomy finds Nina's dog.
- In *Gloomy Eyes*, Nina's uncle is protective. Perhaps too much so.

Gloomy Eyes: Colin Ferrell lends his voice as a narrator to this all-too-brief, all-too-incredible demonstration of VR theater done right.

Gloomy Eyes (Oculus Rift, SteamVR) introduces a universe where dangerous zombies roam freely and natural light has not shone in years. Via narration and short, cute scenes, the film introduces a few characters: Nina, a sad girl who keeps losing her puppy but also has mysterious access to a magical light source; her uncle, a grumpy overseer who seeks to establish order in the dark world and wipe out its zombies; and Gloomy, a young zombie boy who seethes with equal parts good and evil.

His duality hints at a potentially interesting conflict and story. But right when the video's narrative roots are set, they're immediately yanked out with a "to be continued" alert.

I look forward to the series' final two episodes, which the

filmmakers say will each run 10 minutes and launch on commercial platforms (Oculus Rift, SteamVR) “this Halloween.” In the meantime, every moment in the eight-minute short plays with shadow and light in incredible fashion. Its use of spotlights does well to direct your VR eyes to only one concentrated point at a time, not a bunch of background or behind-the-back scenery.

This focused attention does something dramatic in the short: it gives viewers mental permission to lean into each diorama, rendered in real time, to take in the tiny details of its immaculately animated characters and the depth and scope of each miniature stage. A flash of light or a wildly animated shadow will direct your eyes to follow characters to the next set piece, where, again, you can linger for long enough to soak up its details without craning your neck to look every which way.

The result is a number of moments I still clearly remember after stepping away from the demo, including a showdown between the overseer and his minion in front of a cathedral, bathed in red light; a spooky drive-in movie that sees the boy character unleash his demonic potential; and an in-your-face moment where the boy and girl finally share a moment of kindness, as he builds a bridge so that she and her cute pup can pass. The results reminded me of the VR dollhouse effect I got from playing the video game *Moss*, only this time with a focused story that let viewers get sucked into a “spooky-cute” universe without having to hold a game controller.

I watched this short more than any other at SXSW, because I found myself captivated by its unique world. The catch: because this film supports leaning in and admiring its smaller details, it requires a more powerful VR rig than Oculus Go or Google Cardboard. Even so, the limited details and focused lighting help this experience scale to weaker computers, so it still falls under the “accessible VR” umbrella that I mentioned earlier.

Listing image by Sam Machkovech

https://arstechnica.com/?p=1471085

Wingspan review: A gorgeous birding board game takes flight

reader comments

14 with 11 posters participating

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Welcome to Ars Cardboard, our weekend look at tabletop games! Check out our complete board gaming coverage at cardboard.arstechnica.com.
"*Wingspan* is a competitive, medium-weight, card-driven, engine-building board game from Stonemaier Games."

Call me odd, but the above description was enough to get my heart racing and my brain spinning up a premature take about how *Wingspan* will be the best board game of 2019.

I wasn't alone in my excitement. Officially released last weekend, the game has been racking up some piping hot early buzz, so much so that publisher Stonemaier Games undershot demand for the title's initial print run and is now playing catch-up. eBay scalpers are cashing in on the short-term FOMO, with copies going for as high as $200 over its retail price

(one slightly suspicious listing went for $690). Even *The New York Times* published a piece about the game and its first-time designer, Elizabeth Hargrave.

It’s easy to see why. For starters, the game is absolutely gorgeous.

- LOOK AT ALL THIS FUN STUFF.
  Aaron Zimmerman
- In *Wingspan*, players are bird enthusiasts trying to attract birds to their aviaries. There are 170 unique bird cards in the game.
  Aaron Zimmerman
- A game in action.
- The birdhouse dice tower is adorable.
  Aaron Zimmerman
- When you pick a die from the birdfeeder, you take a corresponding food token.
  Aaron Zimmerman
- These are not chocolate eggs, no matter how much you may want them to be.
  Aaron Zimmerman
- The game comes with these handy plastic trays for storage both in and out of play.
  Aaron Zimmerman
- Cards are stored in this included box, which reminds me of a baby wipes container.
  Aaron Zimmerman
- Its lid serves as a card display during play.
  Aaron Zimmerman
- Player colors are often boring. Not here!
  Aaron Zimmerman
- Objective cards give you end-game goals to shoot for.
  Aaron Zimmerman
- (They even show the percentage of applicable cards in the deck. More games need to do this.)
  Aaron Zimmerman

- Variable end-of-round bonuses keep you on your toes throughout the game.
  Aaron Zimmerman
- Here’s all you need to play a quick solo game.
  Aaron Zimmerman

Stonemaier is known for its lavishly produced board games, and *Wingspan* is a Stonemaier game through and through. Colorful player boards, a stack of 170 cards with unique (and beautiful) illustrations, pastel plastic eggs so pretty you wish you could eat them, custom wooden dice that nest in an adorable birdfeeder-style dice tower—the game is almost aggressively *lovely*. It’s like Easter Sunday threw up on your table and you couldn’t be happier about it. Even the rulebook has an indulgently sturdy linen finish to it that seems to say, “Sure, we didn’t need to do this, but it’s *really nice*, right?”

Looks can be deceiving, though, and hype is a fickle beast. How does the game actually play?

Bird in the hand

Wingspan puts you and your friends in the role of bird enthusiasts trying to attract birds to your individual aviaries. Birds are represented by cards, which slot into one of three rows on your personal player board; the rows represent the three different habitats in your preserve—forest, grassland, and wetland. But the habitats also cleverly double as action spaces.

Enlarge / You play bird cards into one of three habitats, each corresponding to a specific action. The more cards you've played in a row, the more powerful that action becomes.
Aaron Zimmerman

Over the game's swift four rounds, players take one action per turn; actions are tracked by placing little cubes on one of the four areas on your personal player board (the three habitats plus an extra space). The forest action lets you scavenge for food resources—which is to say, grab some dice from the dice tower and convert them into the appropriate food tokens. The grassland action lets you lay eggs in the nests of birds already on your board. The wetlands action lets you draw more bird cards. And an additional space allows you to play the bird cards themselves.

The game is remarkably simple—you're only ever choosing between four actions. The fun is in how the cards you've already played on your board make the actions more powerful.

To play a bird card, you must put it in the correct habitat

and pay its food requirements. Some birds will only nest in one of the habitats, others are more flexible, and a few even flit from habitat to habitat throughout play.

Bird cards come in four main varieties, each providing a different sort of effect. There are one-time “when played” effects, triggered effects that key off other players’ actions, big-point-scorers with no special abilities, and “engine” cards (the bulk of the deck) that give you special effects every time you take that row’s base action.

When you place a cube to take an action, you put it on the right-most uncovered space in that action’s row and take the rewards. You then move your cube leftward across the row, triggering every special ability you pass along the way.

“Engine building” is a staple mechanic in Euro-style board games—essentially, you start with nothing, but as you build up a collection of different pieces (cards, in this case), your “machine” starts to churn out stuff for free. So while my first “draw bird card” action of the game might be simply “draw one card,” once my wetlands fill with birds, that action will be much more powerful. In the above example, I’d get upwards of *eight* cards and four points for that same action. Now that’s value!

Get those worms

With so many good things going for it, I was surprised that I felt a bit let down by my first play of *Wingspan*. Because of its “medium-weight” designation, I was expecting a little more

crunch in the decision-making, a little more complexity in running my three engines. My favorite part of engine-building games is the sense of accomplishment you feel when you piece together a particularly clever point-generating machine, with parts that feed into each other and explode in combos that shower you with well-earned rewards.

Wingspan has these elements, of course, but the game's card-driven engine-building is not as complex as something like *Terraforming Mars* (a game Stonemaier mentions in its *Wingspan* trailer). While the stats on the bird cards differ, card effects are repeated across different cards; by my count, there are 39 unique abilities. This makes getting the cards you need more consistent, but it also limits the number of crazy card interactions in the game.

Running your engines also feels pretty plug-and-play—slot in some cards and watch as they give you free stuff. You can specialize and dig out combos, but you can also just throw cards out there and watch your rewards roll in.

None of this is a bad thing, of course. Early comparisons to other games skewed my expectations a bit, but when I recalibrated and played the game for what it is, I really fell in love with it. This is an approachable, "gateway-plus" game that provides an accessible entry point into engine-building games while offering fun decisions for seasoned gamers. Gaming vets will probably school newbies, but everyone can build something to take pride in.

Wing it

Like *Viticulture*, another Stonemaier game, *Wingspan* asks you to roll with the punches. There's randomness in the dice and cards you can choose from, and the private "objective cards" that give you an end-game goal to shoot for may or may not align with your starting hand—or with any of your session's end-of-round bonuses. The game gives you tools to mitigate

some of this randomness—rev up your card-draw or resource-gathering engines to dig for what you need, for example—but players who want to decide on a strategy at the start of the game and stick to it inflexibly are likely to have a bad time. The key is to react quickly to what the game throws at you.

[embedded content]
Balance seems good overall, but the “lay eggs” action is quite powerful, particularly toward the end of the game. If you’re not laying eggs on your last couple turns, you better have a very good reason to be doing something else. I hesitate to call it “overpowered,” but it does seem powerful enough to potentially make the endgame a bit one-note.

Player interaction is limited to competition over cards and resources, jostling for majority in end-of-round bonuses, and cards that trigger on other players’ turns. That’s plenty for a game of this type, and you probably know if your gaming group enjoys that style of play.

Finally, *Wingspan* includes a nice little solo mode. The AI “automa” is not as robust as the one seen in Stonemaier’s *Scythe* or *Viticulture*, but it gets the job done and throws enough challenges at you to coax slightly different tactics out of you over multiple games. And it plays *incredibly* quickly.

If you’re a birder or have any sort of affinity for our fine feathered friends, you need to own this game. Small details help sell the game as a “game about birds” as opposed to just “a game with a bird theme.” Each card lists both the common and scientific name of the species, along with a brief fact and a map of the areas it can be found in the wild. The card effects have cute thematic flourishes, like predators who let you draw a bird and “eat” it (tucking it under the predator for points) if the prey’s wingspan is small enough. Flocking birds have a similar tucking mechanic, while mockingbirds let you copy the power of another card. Vultures get to grab a

food resource when someone else makes a predator kill on their turn. A full board simulates a bustling avian ecosystem.

An expansion is already in the works, and we're hoping it gives us a bunch of new abilities to experiment with. But *Wingspan* is already a fun game with a lovely theme, and it should find a happy home in many groups' collections.

Stonemaier Games is currently reprinting Wingspan*; a preorder is available on the publisher's website for an early April shipment.*

https://arstechnica.com/?p=1474143

Report: James Gunn has been un-fired from Guardians of the Galaxy Vol. 3

Enlarge / Peter Quill/Starlord, Groot, Draxx, and Gamora: dusted Guardians of the Galaxy.
YouTube/Marvel Studios

reader comments

143 with 83 posters participating

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Guardians of the Galaxy Vol. 3 is back in production after an unofficial hiatus, according to reports from Deadline and *Hollywood Reporter*. If you're for any reason fatigued by

Marvel Studios sequelitis, you may be more intrigued by why it's back on: because its original director, James Gunn, has been rehired.

Gunn's departure from Marvel Studios and Disney became an airing of dirty laundry in July of last year, after tweets and blog posts from as far back as 2009 were resurfaced by an alt-right proponent of Pizzagate conspiracy theories. The "joking" tweets in question were, on their face, well on the side of bad taste, although because they appeared in an earlier version of Twitter, they lacked the site's newer, reply-linked metadata that might have offered more context.

Gunn's last comment on the matter was an apology posted on Twitter that same month:

> *I am very, very different than I was a few years ago; today I try to root my work in love and connection and less in anger. My days saying something just because it's shocking and trying to get a reaction are over. In the past, I have apologized for humor of mine that hurt people. I truly felt sorry and meant every word of my apologies.*

After that statement, Gunn went completely silent on Twitter, which also meant that he stopped frequently critiquing President Donald Trump on the site (a possible reason alt-right critics targeted Gunn's older tweets in the first place). In fact, he didn't even use Twitter to announce the wild career about-face that soon followed: that he'd been hired to direct and write a new "reboot" film for the DC Comics series *Suicide Squad*.

Today's *THR* report clarifies that Disney's search for a new *Guardians* director may have never happened after all. Instead, while the film industry guessed who might take the helm and agents made bids for their clients, Disney waited a few weeks, then went back to Gunn in secret to strike a deal. This deal included letting Gunn go ahead with work on *Suicide Squad*,

which is currently pegged for a 2021 release. This, then, would mark the second major friendly shift of a Marvel Studios film director to a DC franchise, following Joss Whedon's work completing the 2017 *Justice League* film.

Deadline's report included suggestions that Disney chairman Alan Horn was the one to reverse course on the firing, specifically because of the above quoted apology and follow-up meetings with Gunn himself.

This article has been updated with further context from Deadline's report.

https://arstechnica.com/?p=1474789

Any Steam game can now use Valve's low-latency, DoS-proofed networking

reader comments

49 with 38 posters participating

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Valve is opening up its latency-reducing, DoS-protecting network relay infrastructure to every developer using its Steamworks platform.

A few years ago, large-scale denial-of-service attacks against

game servers were making the news and becoming a frustratingly frequent occurrence in online gaming and e-sports. To protect its own games, Valve has for a number of years been working on developing a networking infrastructure that makes the system more resilient against denial-of-service attacks and lower latency to boot, and the company is using this system for both *Dota 2* and *CS:GO*.

At 30 different locations around the world, Valve has established relaying servers that route networking traffic between clients and servers. These relay points provide DoS-resilience in several ways. They're equipped with an aggregate of several terabits of bandwidth, so they can handle a certain amount of flooding in any case. Games can also switch from one relay to another without necessarily interrupting their connection. This switching can be to another relay in the same location or even to another point-of-presence entirely.

The relaying also enables Valve to mask both the IP address of the game server and the IP addresses of clients connected to the server. This prevents direct attacks against another person on the same server.

Valve's system also makes decisions about how to route traffic. The company has a private backbone network peered with more than 2,500 ISPs around the world, used for both Steam downloads and game networking traffic, and it prioritizes the network traffic over the downloads. Clients can estimate latency between two endpoints via the relays without having to send any traffic between those endpoints, enabling the clients to make decisions about which point-of-presence to use to ensure the best ping time. Valve says that this has enabled some 43 percent of players to see some reduction in their ping times, with 10 percent seeing an improvement of 40ms or more.

Additionally, Valve operates STUN/TURN servers, which provide a reliable way for machines behind firewalls and network

address translation systems to send and receive network traffic.

This relaying system is now available to any developer building a game using Valve's Steamworks toolkit. The underlying network protocol, without the relaying, has been available as open source for some time. As with many custom network protocols (such as the forthcoming HTTP/3), this is built on the lightweight, unreliable UDP (User Datagram Protocol) rather than the more complex but reliable TCP (Transmission Control Protocol), with custom reliability features built on top of the UDP layer. The protocol is encrypted and handles many of the various tasks required to build reliable transmission over UDP, making it useful even without the Steamworks relaying features.

As a *Dota 2* fan, I can report that Valve's network work seems to have done the job admirably. For a time, attacks were a common feature of the professional scene, with many pro games being disrupted as both players and servers were flooded with traffic. Those same attacks seem to have disappeared entirely.

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Epic says its Game Store is not spying on you

Enlarge / Despite what you may have read, Epic says this is not spyware.

reader comments

83 with 57 posters participating

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This week, certain corners of the gaming Internet have been abuzz with a bit of self-described “amateur analysis” suggesting some “pretty sketchy,” spyware-like activity on the part of the Epic Game Store and its launcher software. Epic has now stepped in to defend itself from those accusations, while also admitting to an “outdated implementation” that can make unauthorized access to local Steam information.

The Reddit post “Epic Game Store, Spyware, Tracking, and You!” points to a wide-ranging set of implications based on some broad file and network access traffic observations when the Epic Game Store is running. But much of the post is focused on Epic’s association with Chinese gaming giant Tencent, which owns a share of the company.

“Tencent is a significant, but minority shareholder in Epic,” co-founder and CEO Tim Sweeney wrote in response to the conspiracy theory in one Reddit thread. “I’m the controlling shareholder of Epic… The decisions Epic makes are ultimately my decisions, made here in North Carolina based on my beliefs as a game developer about what the game industry needs!”

Sweeney offered a similar defense of Epic’s relationship with Tencent back in December, when similar concerns first popped up. “Epic does not share user data with Tencent or any other company,” he wrote at the time. “We don’t share it, sell it, or broker access to it for advertising like so many other companies do. I’m the founder and controlling shareholder of Epic and would never allow this to happen.”

“Epic is controlled by Tim Sweeney,” Epic’s VP of Engineering Daniel Vogel added in response to another recent thread. “We have lots of external shareholders, none of whom have access

to customer data.”

Vogel went on to offer explanations for some other suspicious-looking Epic Games Store app activity. A “tracking.js” file, for instance, is used to track revenue-sharing statistics for Epic’s Support-a-Creator program, he wrote. Vogel also pointed to the open source code behind features like the anonymized hardware survey, the Unreal Editor, and the Chromium-based launcher UI, which he said cause most of what the original post identifies as “sketchy” app activity.

Vogel does admit, though, that “the launcher makes an encrypted local copy of your localconfig.vdf Steam file” automatically and without explicit user permission. However, he writes, that hashed file is only sent to Epic if you choose to import your Steam friends to the Epic Game Store in order to find potential matches with others that have opted in.

Still, Sweeney acknowledged that Epic making local access to Steam files without direct permission might justifiably rub some users the wrong way. “You guys are right that we ought to only access the localconfig.vdf file after the user chooses to import Steam friends,” he wrote on Reddit. “The current implementation is a remnant left over from our rush to implement social features in the early days of *Fortnite*. It’s actually my fault for pushing the launcher team to support it super quickly and then identifying that we had to change it. Since this issue came to the forefront we’re going to fix it.”

“This sort of independent analysis of what data software accesses… is a healthy trend and I’d love to see it done more widely,” Sweeney wrote in another comment. “In analyzing the results, it’s important to distinguish the normal from the abnormal… and to separate technical analysis from inflammatory rhetoric, such as the insane claim that we’re a bunch of Chinese spies.”

https://arstechnica.com/?p=1474647