United States District Court
Northern District of California

△ DEFENDANT △

Case No. **4:20-cv-05640-YGR**
Case Title *Epic Games, Inc. v. Apple, Inc.*
Exhibit No. **DX-4119**
Date Entered_____

Susan Y. Soong, Clerk
By:_____, Deputy Clerk

From: Andrew Grant < ▮▮▮▮▮▮▮ >
Sent: Mon, 3 Jun 2019 19:37:04 +0000 (UTC)
To: Chance Ivey < ▮▮▮▮▮▮▮ >
Cc: Don Eubanks < ▮▮▮▮▮ >; Aden Aden-Farah
< ▮▮▮▮▮ >; Anthony Bills < ▮▮▮▮▮ >; Atli Mar
< ▮▮▮▮▮ >; Daniel Vogel < ▮▮▮ >; David
Jones ▮▮▮▮▮▮; David Nikdel ▮▮▮▮▮ EN-
Publishing ▮▮▮▮▮▮▮; Mark Rein ▮▮▮▮; Mike
Fricker ▮▮▮▮▮; Nick Darnell < ▮▮▮ >; Ozgur
Ozalp < ▮▮▮▮▮; Ryan Vance ▮▮▮▮ Tim ▮▮▮;
Sweeney ▮▮▮▮; VirtualReality ▮▮▮; ▮▮▮;
Wang Hao ▮▮▮▮; Zak Phelps ▮▮▮▮ kairos
▮▮▮▮▮▮▮

Subject: Re: [kairos] Re: Microsoft Announces Minecraft World

They showed the first demo of this today at Apple's WWDC event.

Two of the most impressive features (human occlusion of CG and live mocap) are powered by tech in the new version of ARKit and were described as "exclusive to iOS".

https://www.theverge.com/2019/6/3/18650201/minecraft-earth-demo-apple-wwdc-2019-microsoft

On Fri, May 17, 2019 at 7:28 PM Chance Ivey < ▮▮▮▮▮▮▮ > wrote:

I know Megan (the dev from the article) if we want to consult an expert

On Fri, May 17, 2019 at 4:26 PM Don Eubanks < ▮▮▮▮▮▮▮ > wrote:

Relevant reading for those unfamiliar with the struggle:

https://www.geek.com/games/penis-detection-derailed-the-lego-universe-mmo-1624034/

-Don

On Fri, May 17, 2019 at 7:05 PM Nick Darnell < ▮▮▮▮▮▮▮ > wrote:

There will also be an equally strong adversarial ML dick generator.

-Nick

On Fri, May 17, 2019 at 6:26 PM David Nikdel < ▮▮▮▮▮▮▮ > wrote:

The AI singularity will probably be some form of ML dick detector.

On Fri, May 17, 2019 at 12:31 PM Mike Fricker < ▮▮▮▮▮▮▮ > wrote:

I'm interested in their research into solving curation and offensive content over the long term, and at such scale as an entire "planet". Quote from the interview:

"There are lots of very real challenges around user-generated content," says Persson. "It's a complicated problem at the scale we're talking about, but that doesn't mean we shouldn't tackle it." Microsoft is

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*starting carefully at first **without user-generated content being freely placed into the world, and then it plans to figure out how to get this content into Minecraft Earth in the future.** "Our vision is that, over time, the collection, the building, the playing, the adventuring will lead to things that people demand they have a place to display," says Persson. "I think we've definitely taken the right steps to get started on that journey. And then we'll see how quickly we can find the right way for more people to see what you're doing."*

--Mike

On Fri, May 17, 2019 at 11:34 AM Atli Mar ██████████████████████ wrote:

> Totally. We prototyped geo storing of point clouds and fetching a while back (that's the stuff we geeked out on at E3 last year Mark R), using an early version of the RPO galaga stuff. It works reasonably well. Over time we'll have to deal with scaling storage of the point cloud, and during gameplay, density of players, persistence and replication of stuffs that the UE4 server isn't designed for.
> Sent from my iPhone

On May 17, 2019, at 23:28, Anthony Bills ██████████████████ wrote:

Ingress and Pokemon Go do placing objects via GPS reasonably well already.
I remember having to take photos with GPS enabled to submit them to google to make ingress portals, which are fairly location stable (to the GPS accuracy).

Seems like ARKit would be at least good enough to do something like "the machines" on iOS and just GPS tag a rough location for which one should appear or not.
Limited to flat surfaces such as roads.

On Fri, May 17, 2019 at 4:09 PM Chance Ivey ██████████████████ wrote:

> +Ryan explicitly. WMR Spatial anchors in UE4 are in the works, but I've not seen them running in a hololens, let alone IOS. I can say that the Hololens 2's ability to reliably identify a space that it knows and provide user-dropped anchors is pretty impressive (locally that is.) it works way better than I was expecting it to. If spatial anchors can reliably replicate that ability to other devices, this could work.

On Fri, May 17, 2019 at 8:04 AM Wang Hao ██████████████████ wrote:

> Has anyone tried the spatial anchor thing? Does it really work?

ARKit has a similar feature but it's very hard to use.

Wang Hao

On Fri, May 17th, 2019 at 11:0 PM, Mark Rein ██████████████████ wrote:

> Yes, if it works like they show in the Verge article it is actually very cool. Love to be doing this with Fortnite Creative and Unreal Engine!

On Fri, May 17, 2019 at 10:58 AM Mike Fricker ██████████████████ wrote:

> Mapping real world places to virtual spaces that can be customized by users is cool though. Ignoring their ad, I think this would be very popular.

--Mike

On Fri, May 17, 2019 at 10:56 AM Mark Rein < ▮▮▮▮▮▮▮▮▮▮ > wrote:

Yeah horribly overselling AR in a way that poisons the well for the industry. They did this same shit with Hololens.

On Fri, May 17, 2019 at 10:52 AM Chance Ivey ▮▮▮▮▮▮▮▮▮▮ wrote:

Also worth following how that plan to police content.

On Fri, May 17, 2019 at 7:51 AM Aden Aden-Farah ▮▮▮▮▮▮▮▮▮▮ wrote:

Some more info here;
https://www.theverge.com/2019/5/17/18627341/minecraft-earth-ios-android-free-ar-game-features-pokemon-go

It's a complicated problem at the scale we're talking about, but that doesn't mean we shouldn't tackle it."
Microsoft is starting carefully at first without user-generated content being freely placed into the world[...]

On Fri, 17 May 2019 at 16:36, Andrew Grant < ▮▮▮▮▮▮▮▮▮▮ > wrote:

Puzzling.

On one hand there are a lot of really cool things I could imagine a world-scale AR Minecraft experience being, on the other none of them are in this trailer. Instead it's just Magic Leap-level overselling of AR capabilities that aren't going to be anywhere close to what they release.

Feels like a sizzle reel for what's going to be a very different experience.

On Fri, May 17, 2019 at 9:39 AM Daniel Vogel < ▮▮▮▮▮▮▮▮▮▮ > wrote:

Going wider with this.

On Fri, May 17, 2019 at 9:16 AM Ozgur Ozalp < ▮▮▮▮▮▮▮▮▮▮ > wrote:

Hey All,

This just hit Kotaku: https://kotaku.com/microsoft-announces-minecraft-earth-a-minecraft-versio-1834839262

It is an AR version of Minecraft.

Here is the trailer: https://www.youtube.com/watch?time_continue=1&v=dYKxBKj29dI

Thanks

Ozgur

--
-- Daniel, Epic Games Inc.

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- Sent from mobile

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Mark Rein,
Epic Games, Inc.

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Cheers,
Nick

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