As one of the game industry's largest and most influential gatherings in China, the Unreal* Open Day showcases well-known hardware, software, game development, film production, and design companies from around the world. This year's event was held from May 23 to 24 in Shanghai and, as usual, Intel had a strong presence. Presenters shared their exciting innovations and latest developments, demonstrating yet again why the Unreal* Engine is such a popular choice for a wide variety of applications.

Intel shared hardware updates, software innovations, developer support, and more, to promote optimal integration with Intel® architecture. Intel also provided case studies on game performance and user experience optimizations and showcased multiple achievements in game development
technology and innovation. The Intel sponsored demos, presentations, sessions, and booth displays were a big draw, and resulted in establishing important contacts with China’s growing game development industry.

Creating Imaginary Worlds with the Unreal* Engine

During the main forum, Epic Games founder Tim Sweeney, General Manager of Epic Games China Region, Wu Hao, and other experts presented the outstanding achievements of the Unreal Engine in markets around the world, with special focus, of course, on China. They shared Unreal Engine’s innovative features with the audience and explored in depth the concept of “cross-platform, interactive games.”

![Figure 1: Tim Sweeney, founder of Epic Games, delivering the keynote address.](image)

The number of Unreal Engine developers has continued to increase, Intel reported. As of March 2018, it scaled up to five million developers worldwide, an increase of one million developers in six months. The number of developers from China ranks second, just behind North America. In 2017, the total revenue of games on Steam* that were developed using the Unreal Engine exceeded USD one billion and included mainstream titles such as

Unreal Engine's latest real-time ray tracing technology and facial motion capture technology was showcased. These technologies present gamers with the ability to create more realistic and dynamic game worlds and upgrade the esthetics of gaming environments.

**Intel and Epic Games Partnership**

China's Regional Director of the Intel Partner Relations Department, Li Wei, announced the Intel game development partnership with Epic Games, sharing the presentation, “Creating Stunning Game Worlds with Intel.”

![Figure 2: Li Wei, Director of Intel Partner Relations Department, China Region.](image)

Wei explained that this partnership enables exploration into emerging fields, such as virtual reality (VR).

Epic Games supports independent game developers in a number of ways. For instance, they recently launched a grants program, Unreal Dev Grants, that provides financial support for “innovative projects built in and around Unreal Engine 4.” In 2017, the program invested USD 400,000 in 28 developer teams, who produced titles including *Lost Soul Aside*, *Sinner*, *Bright Memory*, and *Halflight*. 
A representative from Epic Games stated that cross-platform interaction, along with high-quality games, gives developers a competitive edge in the marketplace. The company promoted their interoperability and linkage between PC, PlayStation* 4, Xbox One*, iOS*, Android*, and other platforms.

Epic Games showcased the cross-platform linkage and social functions in the popular cross-platform battle game *Fortnite*, which drew enthusiastic crowds. Social networking is a critical part of successful games. The more active players are on the game’s social network, the more successful the title will become. Epic Games plans to update Unreal Engine tools to meet developer requirements for gaming social-network creation.

Epic Games also disclosed the awards for games developed using the Unreal Engine, which included:

- Best Independent Game Award: Dark Star, *Sinner*
- Game of the Year: Tencent and Lightspeed & Quantum Studios Group, *PlayerUnknown’s Battlegrounds*

The award for Best Enterprise Application went to Mackevision.
Technical Presentations

Intel also shared technical information for game developers in a number of presentations that focused on areas such as anti-dizziness game design, CPU multithreading optimization, render thread optimization, and content differentiation. These techniques can help game developers on different platforms and provide a better gaming experience for users.

Intel also discussed the importance of CPU processing power for an optimal VR experience. In order to get a smooth, panoramic VR experience, computing power from high-performance processors is essential. Intel presented their CPU optimization efforts in VR applications and discussed how to utilize CPUs more efficiently to enhance the VR gaming experience.

VR in Game Worlds

Intel's Wang Wenyu joined with the CEO and founder of First Moma Entertainment Technology, Wu Yaguang, to describe the development of Code 51: Mech Arena* and share their expertise on how to reduce dizziness in the VR gaming environment.

*Code 51: Mech Arena is set in an energy-depleted, post-apocalyptic world. In order to obtain the mysterious energy source named Code 51, factions developed heavy mechanized robots (mechs) to fight and compete. Developer Smellyriver said they believe this game shows that VR gaming is a
viable option and that their team is exploring more engaging ways to play VR games.

Unity* Technologies, meanwhile, showcased their facial-capture technology with Project Siren. With the help of this technology, actors can perform in front of a green screen, while the engine captures their facial expressions in real time. The engine then renders the images synchronously and feeds them directly back to the modeling process. The results are very realistic.

**Hands-on Experience Zones**

More than ten experience zones were set up for visitors to experience the latest innovative technologies. Inside Intel's display area, both Code 51: Mech Arena and Sinner were available for hands-on playing.

![Figure 5: Cross-platform demonstration of Epic Games' Fortnite*](image-url)
Sinner is an action game developed by the Shanghai, China-based Dark Star Studios, that has gained considerable attention from independent game enthusiasts.

**Sharing Innovative Technologies**

Key technical personnel from major hardware, software, game development, film production, and design companies shared their experiences with the Unreal Engine.
Respecting Technological Innovation and Promoting the Development of China’s Game Industry

Dr. Xiao Yu, CEO of Perfect World Entertainment, stated that mature and systematic new technologies are very important to developers. He believes that all development companies and technologies should be respected, and he encouraged better integration of new technologies. A perfect world is a world in motion, he said, and one that integrates everything, including developers.

Using Diversified Engines to Accelerate Game Development

Although many game companies develop their own engines, the open nature of the Unreal Engine gives game developers an important alternative tool. Liu Xi, vice president of Seasun Entertainment, an influential game developer in China, discussed the problem of balance in different engines. He said that although Unity is easy to use and can help develop games quickly, the Unreal Engine is more open than other tools and can be used for
source code authorization. He sees even more opportunities for customization and optimization improvements.

![Jeff Sullivan, senior project manager at Microsoft.](image)

**Figure 9:** Jeff Sullivan, senior project manager at Microsoft.

**Assisting Overseas Games Publishing and Improving Gaming Experience with PlayFab**

PlayFab mainly provides back-end support to game studios, and also provides support for data storage, friend's lists, leaderboards, custom game server hosting, and in-game purchasing. PlayFab also helps game developers accelerate their overseas publishing process. Jeff Sullivan of Microsoft demonstrated some of PlayFab's features using a demo developed with Unreal Engine 4. Due to the costs and complexities involved in customization, server end tools, and technology implementation to achieve these objectives, PlayFab provides developers with a model that can naturally adjust its scale according to the number of gamers.
Providing More Support for Game Developers

Sony's Takehito Soeda indicated that his main concern in China is to provide PlayStation hardware and software support for Chinese gamers. He encouraged Chinese developers to develop original IP products that have Chinese cultural connections. China has the largest number of game development teams and gamers in the world, and thus is a key market. PlayStation currently has signed letters of intent for development with nearly 250 game development teams in China.

Advanced Real-time Ray Tracing
At this year’s Game Developers Conference, Epic Games used an advanced real-time ray tracing technology to enhance the scenery in *Fortnite*. At the Unreal Open Day, Senior Developer Relations and Technical Artist Zak Parrish described how game developers could apply the ray tracing technology used in *Fortnite*, sharing details about settings, optimization, efficiency, and other features.

![Image](image1.png)

**Figure 12:** Chris Murphy, Unreal* Engine architect.

**Changing Workflows**

As real-time rendering becomes increasingly popular in film and animation, traditional workflows will also change. Unreal Engine Architect Chris Murphy talked about his experience with the creative process behind making the trailer for *Fortnite*, and discussed the engine’s potential applications in real-time films and animation.
Plugins for Editor Customizations

Chai Yuntian, Unreal Engine technical support engineer at Epic Games, introduced how to write plugins for editor customizations and extensions, and shared which plugins have editor extensions. He also showed developers how to find the right plugins to quickly create editor extensions.

Unreal Engine and Datasmith*

Unreal Engine's influence already extends beyond gaming. Increasingly, design teams have started to use Datasmith* as a bridge between design software and the engine. Li Feng, technical account manager at Epic Games, explained that before data is imported from Autodesk's 3ds Max* into the Unreal Engine, there are some considerations and optimizations that can make the work process smoother and increase engine efficiency. He covered the pros and cons between the Datasmith and Filmbox* (FBX) work processes to improve user understanding of and experience with Datasmith.
Ray Tracing Innovations

Ray tracing technology appears to have a bright future in applications, but it requires powerful hardware specifications. Li Yunheng from NVIDIA analyzed the differences and similarities between ray tracing and rasterization technologies during his presentation. He also discussed the technical details of the Microsoft DirectX* Raytracing (DXR) interface and how to use it, and explained a series of special effects available when run on NVIDIA RTX*.

Unreal Engine and Automotive Design

Executives from Mackevision Beijing introduced the advantages of using the Unreal Engine in the automotive industry, and presented techniques for creating digital models of automobiles, from data design to content creation. They indicated that designers can modify images and effects in real time,
responding to client feedback and reducing the image production process; this lowers costs and improves communication with clients.

Unreal Engine and VR Game Development

Many years of accumulated experience are available for game development on traditional platforms, while constant trial and error is required for new generation VR games. During his presentation, Zhang Hao focused on how to utilize Unreal Engine 4’s prototyping capabilities to quickly improve a developer team’s innovative capacity, and how to break through the limitations in traditional game making, and design new ways to play with VR.

Blockchain and Game Development
The combination of blockchain technology and gaming is gaining traction. Blockchain technology enables effective resolution of problems associated with centralized mechanisms—opaque rules, asset interconnection, asset value preservation, and other common problems faced by the game industry. During his presentation, Zhang Jinsong from CellLink analyzed the current state of blockchain and game development, and discussed the pain points for using blockchain in games.

Figure 19: Zhang Xin, CEO and co-founder of Shanghai Youhu Co. Ltd. (UWA).

Innovations for Game Sceneries

The major mobile games released in recent years have had growing demands on in-game sceneries. Zhang Xin, and his team from Shanghai Youhu Co. Ltd. (UWA), studied the dynamic loading function in large terrains on the Unreal Engine, and showcased the simplicity and efficiency of the production process.
**Coloring and Rendering**

*IncrediBuild* is a programming development tool that many developers have used with the Unreal Engine to develop their products. Aside from compilation, *IncrediBuild* also has potential in coloring, rendering, and other areas.

![Dori Exterman, CTO ofIncrediBuild](image)

**Motion Capture in VR**

Motion capture has always been a difficult technique in VR technology, but it is an essential piece of the puzzle in creating more realistic VR worlds. Dai Ruoli shared case studies of his partnerships with the television industry, in commercial VR projects, and with NASA, to open up alternative paths of implementation for VR entrepreneurs using the Unreal Engine.

**Wrapping Up: Contacts Made, Relationships Started**

Of the 1,600 developers gathered at Unreal Open Day in Shanghai, Intel collected contact information from over 1,300 attendees. Going forward, Intel will provide even more technical support for Unreal Engine developers and inject more innovative power into the game industry.

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