



GDC

UBISOFT - GDC Digital Leaflet



SCHEDULE OF UBISOFT TALKS

Monday, March 18

9:30
-
10:30am

GAUTHIER VIAU / MASSIVE ENTERTAINMENT – A UBISOFT STUDIO
Advanced Summit: Introduction & DX12 Memory Management in Snowdrop on PC

9:30
-
10:30am

VALENTINA TAMER / UBISOFT PARIS MOBILE
Game Narrative Summit: The Playable Series: Writing Seasonal Narratives for Live Games

9:30
-
10:30am

GEORGES NADER & ANTOINE HOUDARD / UBISOFT BORDEAUX
OLIVIER POMAREZ / UBISOFT LA FORGE
Machine Learning Summit: Real-time Neural Textures for Materials Compression

10:50
-
11:50am

QUENTIN KUENLIN / MASSIVE ENTERTAINMENT – A UBISOFT STUDIO
Advanced Graphics Summit: Raytracing in Snowdrop: An Optimized Lighting Pipeline for Consoles

10:50
-
11:50am

LANIE DIXON / UBISOFT MONTREAL
UX Summit: Difficult Games by Data and Design

4:10
-
5:10pm

LOIC ANQUETIL & JEAN-BAPTISTE ROLLIN / UBISOFT MONTPELLIER
Prince of Persia: The Lost Crown - A Versatile Approach to Stylized Environment Art

5:30
-
6:30pm

QUENTIN KUENLIN & GAUTHIER VIAU / MASSIVE ENTERTAINMENT – A UBISOFT STUDIO
Advanced Graphics Summit: All You Can Ask!

5:30
-
6:30pm

GEORGES NADER & ANTOINE HOUDARD / UBISOFT BORDEAUX
OLIVIER POMAREZ / UBISOFT LA FORGE
Machine Learning Summit: All You Can Ask! (Day 1)

Tuesday, March 19

1:20
-
2:20pm

PATRICK REDDING / UBISOFT MONTRÉAL
Production Workshop: Panel: Producers as Partners

2:10
-
2:40pm

SARRA HABCHI / UBISOFT LA FORGE
Machine Learning Summit: Taming the Beast: Leveraging Machine Learning to curb the cost of continuous integration

4:10
-
5:10pm

DANIEL OCEAN / UBISOFT SAN FRANCISCO
Technical Artist Summit: Using Generative AI as a Tool for Tech Artists

5:30
-
6:30pm

GABRIEL ROBERT / UBISOFT LA FORGE
AI Summit: Building ML Bots at Ubisoft La Forge: From Research to Production

5:50
-
6:40pm

SARRA HABCHI / UBISOFT LA FORGE
Machine Learning Summit: All You Can Ask! (Day 2)

Wednesday, March 20

10:30
-
11:30am

HAMPUS SIVERSSON / MASSIVE ENTERTAINMENT – A UBISOFT STUDIO
High Performance Rendering in Snowdrop using AMD FidelityFX™ Super Resolution 3 (FSR 3) (Presented by AMD)

11:30am
-
12pm

ADAM RITCHIE / MASSIVE ENTERTAINMENT – A UBISOFT STUDIO
Learnings from Working with Voice Actors Remotely

2
-
3pm

OLIVIER PALMIERI / UBISOFT MONTRÉAL
Making 'Assassin's Creed Nexus VR' Comfortable and Accessible

5
-
6pm

JOEL NILSSON / MASSIVE ENTERTAINMENT – A UBISOFT STUDIO
Obstacle Traversal in the Organic World of "Avatar: Frontier of Pandora"

Thursday, March 21

11:30am
-
12:30pm

DAVID OSTERNACHER & ALEX RIVIERE / MASSIVE ENTERTAINMENT – A UBISOFT STUDIO
Everything is Connected: Ambient Sound in "Avatar: Frontiers of Pandora"

11:30am
-
12:30pm

MARC BALLART GERMÀ / UBISOFT BARCELONA
Teaching Complex Games: Onboarding Redesign for "Rainbow Six Siege"

5:30
-
6:30pm

OLEKSANDR KOSHLO / MASSIVE ENTERTAINMENT – A UBISOFT STUDIO
Ray Tracing in Snowdrop: Scene Representation and Custom BVH

Friday, March 22

10am
-
11pm

ROBERT BANTIN / MASSIVE ENTERTAINMENT – A UBISOFT STUDIO
Finding Space For Sound: Acoustics in "Avatar: Frontiers of Pandora"

10am
-
11pm

JOSHUA SIMMONS / MASSIVE ENTERTAINMENT – A UBISOFT STUDIO
Upgrading the Snowdrop Engine for the Massive world of "Avatar: Frontiers of Pandora"

10am
-
11pm

NICHOLAS BONARDI & BRIAN DIDOMENICO / UBISOFT SAN FRANCISCO
The Audio of "XDefiant"

10am
-
11pm

FABIAN SALOMON & STEPHANE BOUDON / UBISOFT BORDEAUX
Between Legacy and Modernity: Creating an Homage Game to the 15-Year Old



SUMMIT MONDAY, MARCH 18, 2024
9:30 - 10:30AM • ROOM 303, SOUTH HALL



GAUTHIER VIAU
SENIOR GRAPHICS PROGRAMMER
MASSIVE ENTERTAINMENT – A UBISOFT STUDIO

**Advanced Summit: Introduction & DX12
Memory Management in Snowdrop on PC**

To achieve good and reliable performance, games using DX12 on PC need to manage memory themselves. This presentation goes over Snowdrop's heaps allocation strategies, as well as how its texture streamer is used to manage memory.

Attendees will learn how to use the Windows Performance Analyzer to diagnose VRAM overcommitment issues coming from OS automatic resource demotion, using real examples of performance degradations due to bad memory management in Snowdrop with DX12.

Solutions to address these issues – a resource residency management system and the texture streamer usage of DirectX tiled resources to free large amount of memory while minimizing quality loss – are discussed, as well as what didn't work so well.

SUMMIT MONDAY, MARCH 18, 2024
9:30 - 10:30AM • ROOM 2016, WEST HALL



VALENTINA TAMER
SENIOR NARRATIVE DESIGNER
UBISOFT PARIS MOBILE

**Game Narrative Summit: The Playable Series:
Writing Seasonal Narratives for Live Games**

Live games have the ambition to go on for as long as they remain profitable. This means that any narrative needs to be written in a way that could potentially go on forever, too. Videogames aren't the first medium to try this, and specifically television shows can serve as means to understand how to pull it off. But due to their interactive nature, games have narrative potential and tools that are entirely unique to the medium, such as non-linear narrative, emergent storytelling, time-limited events, and using narrative design to convey a story beyond plot. This talk will dive into the manifold narrative opportunities of live games, how to structure seasonal plot with inspiration from TV shows, and how to keep a long-running story interesting for many years to come.

SUMMIT MONDAY, MARCH 18, 2024
9:30 - 10:30AM • ROOM 2010, WEST HALL



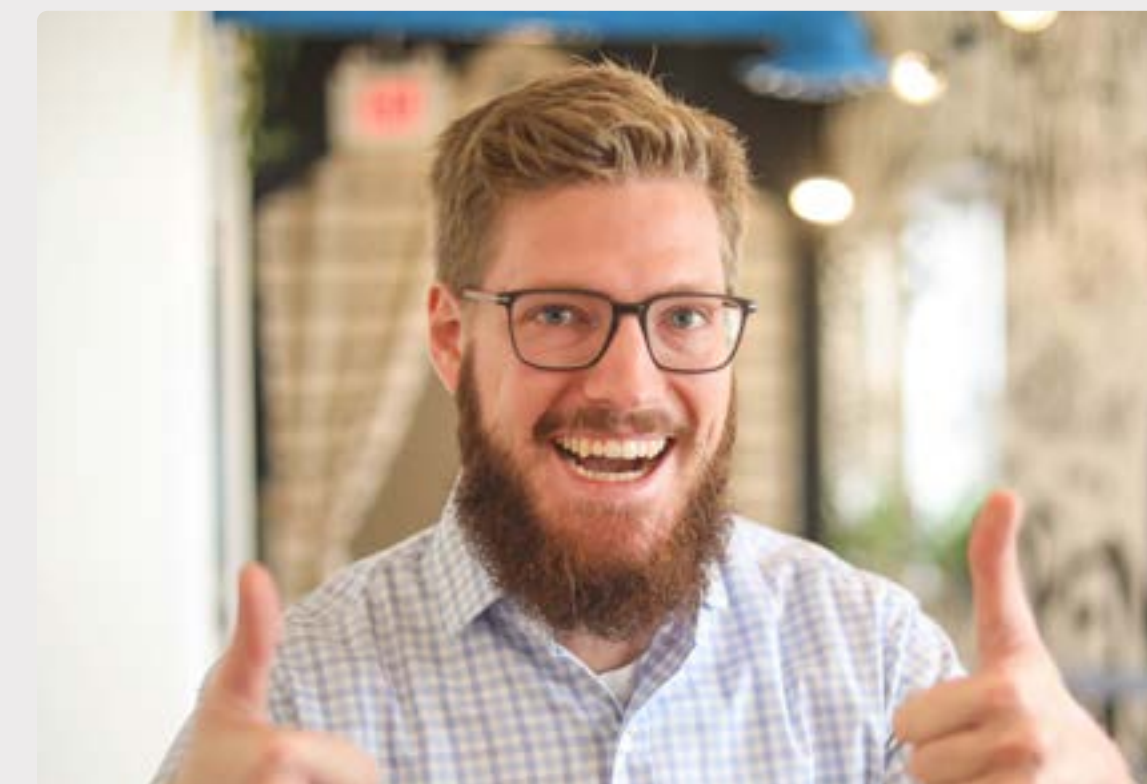
GEORGES NADER & ANTOINE HOUDARD
RESEARCH & DEVELOPMENT SCIENTISTS
UBISOFT BORDEAUX

OLIVIER POMAREZ
DIRECTOR OF DEVELOPMENT
UBISOFT LA FORGE

**Machine Learning Summit: Real-time Neural
Textures for Materials Compression
(introduction from Summit
Advisor Olivier Pomarez)**

We present a novel neural material compression technique that is designed to take advantage of hardware accelerated texture compression formats. This approach leans on a multiresolution set of block compressed (BC6H) textures that is subsequently decoded by a small neural network. In practice, our method is integrated into the current pipelines in two stages. At production stage, we use deep learning to jointly learn the texture set and the decoder network. At runtime, we sample the learned textures and then reconstruct the material information by inferring neural network in a shader.

SUMMIT MONDAY, MARCH 18, 2024
10:50 - 11:50AM • ROOM 303, SOUTH HALL



QUENTIN KUENLIN
SENIOR RENDERING PROGRAMMER
MASSIVE ENTERTAINMENT – A UBISOFT STUDIO

**Advanced Graphics Summit:
Raytracing in Snowdrop: An Optimized
Lighting Pipeline for Consoles**

This presentation provides an overview of the pipeline used for the raytraced global illumination and raytraced reflections in the Snowdrop engine. It goes into a deep dive into the probe system used to light the forward rendered objects and also as a cache for the global illumination and reflections. The two probe placement strategies, a grid based one and a new octree based one, are described alongside their advantages and drawbacks. Next, it presents the raytracing done from the gbuffer for both the global illumination and the reflection. Various optimizations are presented, including the use of screen space tracing to reduce the number of world space ray needed, as well as improving raytraced lighting quality.

The next section briefly covers the denoising strategy used in Snowdrop. Several denoiser options are provided, including AMD Fidelity FX Reflection Denoiser, Nvidia's raytracing Denoisers, as well as two custom in-house denoisers.

Finally, the presentation ends on how the raytraced result are applied to the final image.

SUMMIT MONDAY, MARCH 18, 2024
10:50 - 11:50AM • ROOM 203, SOUTH HALL

SPONSORED SESSION MONDAY, MARCH 18, 2024
4:10 - 5:10PM • TBC

SUMMIT MONDAY, MARCH 18, 2024
5:30 - 6:30PM • ROOM 303, SOUTH HALL

SUMMIT MONDAY, MARCH 18, 2024
5:30 - 6:30PM • ROOM 1010, WEST HALL



LANIE DIXON
DIRECTOR OF INSIGHTS, UBISOFT MONTREAL
WITH **SEBASTIAN LONG**
MANAGING DIRECTOR, PLAYER RESEARCH

UX Summit: Difficult Games by Data and Design

Deciding your games difficulty is, ironically, difficult. Finding 'Goldilocks' frustration — not too hard, not too easy — is perilously tough. Player feedback is essential in the search for 'just right': finding players' 'flow' by controlling the many variables, and examining the experiential outcomes. Capturing player data on difficulty offers clarity, but also potential ruin. There are many approaches to game balancing through feedback: internal play sessions, analytics, user research, QA and more... In isolation each is a flawed and biased picture of 'difficulty'. Only in combination can these approaches paint the full picture, directing teams to make confident and effective adjustments to difficulty balance. This talk presents practical, player-centric, tried-and-tested approaches to capture feedback on game difficulty from players and peers, bringing together lessons from multiple genres. Attendees will leave with a clear strategy on how to define difficulty, and how player feedback can make it easier to make the game harder.

LOIC ANQUETIL & JEAN-BAPTISTE ROLLIN
SENIOR 3D ARTIST & LEAD ENVIRONMENT ARTIST
UBISOFT MONTPELLIER

Prince of Persia: The Lost Crown - A Versatile Approach to Stylized Environment Art

Ubisoft's Lead Environment Artist Jean-Baptiste Rollin and Senior 3D Artist Loic Anquetil will share the philosophy and the different techniques and tools that helped bring the game's environments to life. They will discuss how an indie approach and a craftsman's mindset made it possible to meet the challenges specific to the Metroidvania genre, with a small team, in a short production time frame, without compromising on artistic direction or performance. They will dive into the process of creating stylized textures in Substance 3D Designer, as well as the various pipelines put in place to facilitate asset creation.

QUENTIN KUENLIN & GAUTHIER VIAU
SENIOR RENDERING PROGRAMMER
& SENIOR GRAPHICS PROGRAMMER
MASSIVE ENTERTAINMENT - A UBISOFT STUDIO

Advanced Graphics Summit: All You Can Ask!

The GDC Advanced Graphics Summit has designed this panel session to gather eminent panelists that will be on stage to answer questions from the audience, any question related to Advanced Graphics in the Video Game Industry. Unlike traditional panels where the moderator asks questions to the panelists, the 60 minutes are dedicated to the audience. We expect questions on topics such as Career Management, Working style and Processes, Cross-media and Convergence, Advanced Rendering Techniques, Ray Tracing, Participating Media, Streaming / Compression / Decompression, CPU side frame scheduling, GPU side frame scheduling, Post Effects, Machine Learning in Rendering, Hardware related aspects, and more ! This panel is all yours! All You Can Ask!

GEORGES NADER & ANTOINE HOUDARD
RESEARCH & DEVELOPMENT SCIENTISTS
UBISOFT BORDEAUX

OLIVIER POMAREZ
DIRECTOR OF DEVELOPMENT
UBISOFT LA FORGE

Machine Learning Summit: All You Can Ask! (Day 1)

The GDC Machine Learning Summit has designed this panel session to gather eminent panelists that will be on stage to answer questions from the audience, any question related to Machine Learning in the Video Game Industry. Unlike traditional panels where the moderator asks questions to the panelists, the 60 minutes will be dedicated to the audience. Questions are expected on topics such as Career Management, Working style and Processes, Simulation-to-AI, AI for behavior, AI for Online simulation, AI for Audio or Rendering, AI for Game-as-a-Service features, Generative AI, Build Stability approaches, QA, Game Balancing, Advancements from Academia, AI Developer development environment, and more! This Panel is all yours! All You Can Ask!



WORKSHOP TUESDAY, MARCH 19, 2024
10AM - 6PM • ROOM 213, SOUTH HALL

SUMMIT TUESDAY, MARCH 19, 2024
2:10 - 2:40PM • ROOM 2010, WEST HALL

SUMMIT TUESDAY, MARCH 19, 2024
4:10 - 5:10PM • ROOM 3004, WEST HALL

SUMMIT TUESDAY, MARCH 19, 2024
5:30 - 6:30PM • ROOM 2002, WEST HALL



PATRICK REDDING
CREATIVE DIRECTOR - UBISOFT MONTRÉAL

Production Workshop: Panel: Producers as Partners

Producers do not work in a vacuum. They are both leaders and supporters of teams, partners and facilitators, buffers and communication conduits, and above all else, problem solvers.

To do their job well, they have to understand the specificities of the various disciplines they work with as well as their specific needs and challenges.

In this interactive panel followed by a Q&A, Technical and Creative leaders will discuss with Production leaders tough problems they faced, how producers helped them solve these and what they expect from their partnership with producers in their respective disciplines.

Note that this panel is part of the Production Workshop and we strongly encourage attendees to come for the whole day, but this session can also be attended separately.

SARRA HABCHI
R&D SCIENTIST
UBISOFT LA FORGE

Machine Learning Summit: Taming the Beast: Leveraging Machine Learning to curb the cost of continuous integration

Continuous Integration (CI) is a common practice in modern software organizations. It plays an especially important role for AAA game development, where thousands of build jobs are submitted daily. However, the size and complexity of video games tend to inflate build size and duration, leading to a slower CI and longer feedback time. To provide faster CI feedback, studies have explored optimization techniques that can skip steps, and sometimes the entirety, of build jobs. This talk presents an overview of these techniques and highlights their costs and benefits. Then, it introduces RavenBuild, a novel ML-based technique tailored for video games. Contrarily to existing approaches, RavenBuild predicts build outcomes for both code and data submissions, providing full coverage for a game development CI. RavenBuild skips passing builds and therefore reduces the CI cost, up to 43%, while ensuring that failing builds are properly anticipated.

DANIEL OCEAN
TECHNICAL DIRECTOR
UBISOFT SAN FRANCISCO

Technical Artist Summit: Using Generative AI as a Tool for Tech Artists

Generative AI is shaking up the industry, so like any other emerging technology we, as tech-artists, can ride the wave and bend our curious eye at its challenges, promises, and time saving nature. All to fold the best parts into our workflows, pipelines, and processes.

Daniel Ocean is an Associate TechArt Director at Ubisoft currently working on XDefiant – a competitive arena shooting pulling from all the Ubisoft gaming franchises and engines, both old and new.

The session includes an evaluation of generative AI and its current place in production – both generally and within Ubisoft. Daniel takes a look at the novel and different ways AI is, and will, solve pain points for artists and designers through examples. Additionally, we look practically at how to create training data for custom GenAI, image-based, tools using Houdini. With a focus on the importance of owning the input training for tools as much as the output of the generation.

GABRIEL ROBERT
LEAD R&D DEVELOPER
UBISOFT LA FORGE

AI Summit: Building ML Bots at Ubisoft La Forge: From Research to Production

In this presentation, Ubisoft La Forge's explores the approach to developing ML bots, designed to simulate human players in our games. These bots are not only integral to enhancing player experiences, particularly for onboarding in multiplayer games, but also play a crucial role in Quality Control (QC) testing across our expansive open-world titles. They delve into specific examples to demonstrate how these bots, underpinned by cutting-edge machine learning (ML) technologies, are collaboratively integrated into game development. This synergy between production teams and innovative ML applications is pivotal in upping game quality and pushing the boundaries of technological advancement in gaming.

SUMMIT TUESDAY, MARCH 19, 2024
5:50 - 6:40PM • ROOM 2010, WEST HALL



SARRA HABCHI
R&D SCIENTIST
UBISOFT LA FORGE

Machine Learning Summit: All You Can Ask! (Day 2)

The GDC Machine Learning Summit has designed this panel session to gather eminent panelists that will be on stage to answer questions from the audience, any question related to Machine Learning in the Video Game Industry. Unlike traditional panels where the moderator asks questions to the panelists, the 60 minutes will be dedicated to the audience. Questions are expected on topics such as Career Management, Working style and Processes, Simulation-to-AI, AI for behavior, AI for Online simulation, AI for Audio or Rendering, AI for Game-as-a-Service features, Generative AI, Build Stability approaches, QA, Game Balancing, Advancements from Academia, AI Developer development environment, and more!

This Panel is all yours! All You Can Ask!



SPONSORED SESSION WEDNESDAY, MARCH 20, 2024
10:30 - 11:30PM • ROOM 3001, WEST HALL

CORE CONCEPT SESSION WEDNESDAY, MARCH 20, 2024
11:30AM - 12PM • ROOM 3002, WEST HALL

CORE CONCEPT SESSION WEDNESDAY, MARCH 20, 2024
2PM - 3PM • ROOM 2014, WEST HALL

CORE CONCEPT SESSION WEDNESDAY, MARCH 20, 2024
5PM - 6PM • ROOM 2006, WEST HALL



HAMPUS SIVERSSON
ASSOCIATE LEAD ENGINE PROGRAMMER
MASSIVE ENTERTAINMENT – A UBISOFT STUDIO
WITH COLIN RILEY
SENIOR MANAGER SOFTWARE DEVELOPMENT, AMD

High Performance Rendering in Snowdrop using AMD FidelityFX™ Super Resolution 3 (FSR 3) (Presented by AMD)

AMD FidelityFX™ Super Resolution 3 (FSR 3) is AMD's open-source upscaling and frame interpolation solution. Massive Entertainment integrated AMD FSR 3 technology in the Snowdrop engine, which supports a variety of titles and platforms.

Learn about how the integration has been done to ensure FSR 3 is well integrated into their pipeline, which issues they were facing and how the integration helped to improve FSR 3 itself during its development process.

ADAM RITCHIE
SENIOR VOICE DESIGNER
MASSIVE ENTERTAINMENT – A UBISOFT STUDIO

Learnings from working with Voice Actors Remotely

This session presents why working with voice actors remotely, whilst sometimes not ideal, can be a good decision for developers and their projects. The speaker guides attendees through lessons he has learned in planning, preparing and running successful online voice recording sessions.

Based on a working guide that Adam and other colleagues have developed over the course of several projects, attendees learn a framework and ground-rules to use as a foundation for recording sessions over distance, covering: roles and responsibilities in the session, preparation and transmission of media, communication flow and some examples from projects that have inspired and been shaped by this guide

OLIVIER PALMIERI
GAME DIRECTOR, UBISOFT MONTRÉAL

Making "Assassin's Creed Nexus VR" Comfortable and Accessible

Virtual Reality allows an amazing level of immersion in virtual worlds. But when it comes to locomotion, the ability to travel into these worlds may involve various degrees of discomfort, from fatigue to kinetosis (motion sickness). In Assassin's Creed Nexus VR, the open worlds of the game provide great opportunities for players to explore, parkour, climb, fight or go stealth, all of which presented unique challenges when designing a comfortable and accessible experience.

The team presents the journey and share our experience working for several years on designing and building various features and presets to make the game comfortable and accessible for players. To conclude, the team presents features to help with potential fear of height, as players in Assassin's Creed Nexus VR will be able to parkour, climb and reach elevated heights, and can decide to experience the game's iconic leap of faith.

JOEL NILSSON
SENIOR GAMEPLAY PROGRAMMER
MASSIVE ENTERTAINMENT – A UBISOFT STUDIO

Obstacle Traversal in the Organic World of "Avatar: Frontier of Pandora"

Stepups and mantles are an established part of the game character's repertoire, yet with increasingly complex game worlds traditional markup solutions have become increasingly cumbersome. In Avatar: Frontiers of Pandora we wanted to portray the full dense, organic beauty of Pandora while making the motion feel as flowing and unobstructed as you would expect from a Na'vi. In order to deal with these challenges we created a highly generic and (almost) markup-free system for stepups and mantling relying on a minimum of assumptions while trying to maximize freedom of movement. This talk presents the basic philosophy, concepts, and implementation of this solution. The focus is on providing a solid starting point for those just starting out with this problem and some useful tools for anyone working with it.

CORE CONCEPT SESSION

THURSDAY, MARCH 21, 2024
11:30AM - 12:30PM • ROOM 3006, WEST HALL



DAVID OSTERNACHER & ALEX RIVIERE
LEAD AUDIO DESIGNER & AUDIO DIRECTOR
MASSIVE ENTERTAINMENT – A UBISOFT STUDIO

**Everything is Connected:
Ambient Sound in "Avatar: Frontiers of Pandora"**

Creating the sound for a game in the Avatar universe presented the audio team at Ubisoft Massive with a unique opportunity. Contrary to most AAA games, the star of the show is the world in which the game is set, Pandora. Audiences can finally come a huge step closer to living their fantasy of visiting the incredible place they've seen on the cinema screen.

To make this experience believable, Pandora needs to have unprecedented fidelity, and feel like everything is connected. Every part of the world needs to have a sound, and every sound needs to have a logical link to the rest of the game. The world needs to react to the player constantly, whether they interact with it actively, or passively.

This presentation outlines the creative strategies devised to achieve these goals, how to create the enormous amount of content needed to fulfill this vision, as well as the technology that had to be built in order to realize the team's intentions.

CORE CONCEPT SESSION

THURSDAY, MARCH 21, 2024
11:30AM - 12:30PM • ROOM 2006, WEST HALL



MARC BALLART GERMÀ
UX DESIGNER, UBISOFT BARCELONA

**Teaching Complex Games: Onboarding
Redesign for "Rainbow Six Siege"**

Rainbow Six Siege is an extremely complex, ever-changing live game that if it wants to keep increasing and maintaining its community in the future, it requires to welcome correctly their new players to the game. This keynote aims to comprise what was needed to be done in terms of onboarding and early player journey to cover the needs of a newcomer while starting to play, the skills that were required to develop to become competent and how to retain them while doing so.

CORE CONCEPT SESSION

THURSDAY, MARCH 21, 2024
5:30 - 6:30PM • ROOM 3016, WEST HALL



OLEKSANDR KOSHLO
RENDER ARCHITECT
MASSIVE ENTERTAINMENT – A UBISOFT STUDIO

**Ray Tracing in Snowdrop:
Scene Representation and Custom BVH**

How do you achieve high fidelity lighting with ray tracing, while maintaining high performance target in an expansive world such as the world of Avatar: Frontiers of Pandora? It requires a good implementation of ray tracing pipeline at multiple levels. This session describes BVH and material management part. The talk shows in detail two different acceleration structure implementations: a custom one used on consoles, and a DXR-based one for PC platforms. It highlights advantages and tradeoffs available with a custom approach, and tackles both common and unique challenges of each implementation, and a range of possible optimizations. The second part talks about "average" material representation, and how Snowdrop handles calculating the average for artist-authored materials, often dependent on runtime inputs.



CORE CONCEPT SESSION FRIDAY, MARCH 22, 2024
10 - 11AM • ROOM 3006, WEST HALL

CORE CONCEPT SESSION FRIDAY, MARCH 22, 2024
10 - 11AM • ROOM 2005, WEST HALL

CORE CONCEPT SESSION FRIDAY, MARCH 22, 2024
10 - 11AM • ROOM 3002, WEST HALL

CORE CONCEPT SESSION FRIDAY, MARCH 22, 2024
10 - 11AM • ROOM 2001, WEST HALL



ROBERT BANTIN
SNOWDROP AUDIO ARCHITECT
MASSIVE ENTERTAINMENT – A UBISOFT STUDIO

JOSHUA SIMMONS
SENIOR PROGRAMMER
MASSIVE ENTERTAINMENT – A UBISOFT STUDIO

NICHOLAS BONARDI & BRIAN DIDOMENICO
AUDIO DIRECTOR & LEAD AUDIO DESIGNER
UBISOFT SAN FRANCISCO

FABIAN SALOMON & STEPHANE BOUDON
LEAD PRODUCER & CREATIVE DIRECTOR
UBISOFT BORDEAUX

**Finding Space For Sound:
Acoustics in "Avatar: Frontiers of Pandora"**

It's been 5 years since we showed how the Snowdrop Engine delivered high-fidelity environmental acoustic effects for "Tom Clancy's The Division 2". With "Avatar: Frontiers of Pandora" these technologies had to be adapted or re-designed to a planetary scale, while also maintaining their fidelity at a city scale. Not only was this achieved, but the quality bar was significantly raised to deliver ever more detailed acoustic effects such as: Physically accurate early and late reflections; and more elegant direct field estimation.

**Upgrading the Snowdrop Engine for
the Massive world of "Avatar: Frontiers of Pandora"**

Avatar: Frontiers of Pandora is Massive Entertainment's largest and most complex world to date. This session describes the changes made to the Snowdrop engine to support a huge world densely filled with procedurally generated objects, as well as the optimizations necessary to support online co-op server hosting and local servers for offline play.

The Audio of "XDefiant"

This talk will focus on the architecture, systems, and challenges creating all the Audio, Music, and VO for Ubisoft's XDefiant. We'll be looking through the actual (Wwise) audio session, breaking down various audio systems, talking design decisions, and ultimately answering how and why things are setup the way they are. The talk will lean more technical, but still intends to be approachable so that anyone with an interest in Audio can follow along and learn! XDefiant is a 6v6 first person arena shooter, with classic multiplayer modes, drawing on characters and factions from the Ubisoft universe.

**Between Legacy and Modernity:
Creating an Homage Game to the 15-
Year Old "Assassin's Creed" Franchise"**

Our industry regularly leverages the power of nostalgia, with several remakes and remasters released on iconic franchises. In that global industrial trend, 'Assassin's Creed Mirage; is a unique case that's worth analyzing. In the context of the 15th anniversary of the 'Assassin's Creed' brand, the Bordeaux team created a love-letter to AC fans, going back to the roots to propose a brand-new game focused on our legacy pillars: parkour, assassination, and stealth. This enables the game to play the nostalgic chord while proposing a brand-new AAA experience within the franchise. This presentation aims at explaining how to build an homage game that is neither a remake nor a remaster but a completely new proposition aiming at bringing fan favorite feature to the standards of and AC game releasing in 2023.



Learn more on
Ubisoft.com/technology