Sky VR - an immersive journey

Richard Mills: Technical Director - Sky VR Studios
Hardware technology has evolved, with accelerating change
Trend to Standalone, Inside-out tracking
Better AR Tracking
Mixed Reality – here at last
Haptics
The biggest advance has occurred in:
Understanding of the Medium, Ideas and Creativity
VR and Entertainment

What should VR achieve?

A unique experience, designed expressly for VR
Credible Immersion in an environment
Achieve a true sense of presence
Immersion into the narrative
Best of all:
Involve a viewer in the action and outcomes by giving them agency
VR Storytelling worldwide – significant Works

- Mat Collishaw – Thresholds
- Installation work – premiered at Somerset House 2017
- Accurate real-world tracking of Practical set,
- Atmospheric Audio and Visuals
- Leap Motion Hand Tracking, Multi-player tracking
VR Storytelling worldwide – significant Works

- Jordan Tannahill, National Theatre – Draw me Close
- Installation work: one-on-one with an Actor
- Accurate real-world tracking of Practical set,
- A really emotional experience
VR Storytelling worldwide – significant Works

- Star Wars – Secrets of the Empire, ILM/The Void
- Installation work: Team multiplayer
- Accurate real-world tracking
- Haptics, Motion simulation, weapons, Headgear and backpack
- Convincing and Fun – significant because of the revenue stream
VR Storytelling worldwide - significant Works

- SANDBOX VR – The Curse of Davy Jones and Deadwood Mansion
- Installation work: Team multiplayer
- Catchphrase: “Basically – it’s the Holodeck”
- Haptics, Props, weapons, Headgear and backpack
- Proven revenue stream
Sky VR – The Journey

April 2016: Formation of Sky VR Studios

1st UK broadcaster to launch VR app – Oct 2016

Sky VR Productions & Commissions

Engagement & Interactivity
Content genres/types

Sports

Entertainment

Doc/News

Drama/Entertainment
Sky VR – Research and Learnings

Extensive Audience research: How can VR be best employed?
- Original content – novel and unique, designed for VR
- Live/event content – alternative approaches
- Extension to existing content – Bonus experiences
- Extensive research into favorite genres

Audience research: Quality of experience
- Best Playback quality important
- Comfortable experience
- Less fiddly the better
- Long battery life and no overheating
Sky VR – Techniques

360 Shooting
Volumetric Capture and Visual Effects
Photogrammetry and Scene Scans
Character Scans
Case Study – Documentary: Arctic Mission

- Genuine concern for destruction of environment
- Contributors addressing the camera – personal and engaging
- Location: wide landscapes that make you want to look around
- Contrasting scales: bottle caps and drone shots
- Wildlife shots: rare, emotive – captured thanks to specialists who knew where to find them
- Voice over – poignant, real, sense of subject
- Sense of Community and team efforts
Case Study – Entertainment: Revolution

- The first of its kind worldwide – a companion 360 production released each week at end of each TV episode

- VR team were involved early in the process, giving a better shooting experience

- A gap in the market with an existing audience hungry for this kind of content

- Shot in 360 and 180 using 18 cameras

- Shooting style complemented TV show
Volumetric capture use cases

Assets can be deployed in:

VR, AR, and traditional broadcast

Sky VR has captured VolCap assets for:

Sports talent showcase – Anthony Joshua

Sports analysis – demonstration

Meet your heroes – David Attenborough

VR Drama – Principal Characters

On-stage assets for events
Volumetric capture – Process and Management

Two Major systems:
- Microsoft: Dimension and MetaStage
- Fraunhofer: Volucap

Post Process similar:
- Drive PointCloud,
- Create Mesh,
- Add Video Texture,
- Create Volumetric Video
Volumetric Capture: use cases

Sky VR’s first Volumetric production:

*Hold The World* (2017)

Extensive research undertaken into the existing VolCap technologies during 2016

Volumetric Capture of Sir David in Seattle

Vol-Cap optimised for best performance

The assets can be given atmospherics and re-lit

Pic: Factory 42/Sky
Hold The World - Techniques

Photogrammetry and Scene Scans

Volumetric Capture

Object Scanning

Creature Animations
Volumetric Capture: use cases

Sky VR’s Volumetric Productions:

Anthony Joshua - Champion

A Discovery of Witches

Britannia – Series II

More has been learned: Costume, Make-up

MoCap of Scanned character assets

Used to increase number of characters in scene

Pictures: Sky UK
Photogrammetry: use cases

Process involves capturing real scenes and objects
Photography forms the basis of the technique
Can be used for fine detail and reconstruction

Produces heavy-duty, highly accurate assets
Requires Decimation and Polygon reduction
Can be combined with CGI - Photo-modelling
The models can be given atmospherics and re-lit

Deployed by Sky for VR Drama & Entertainment

Pics: Sky UK
VR Storytelling – a new genre

Sky VR has explored:

- VR Scripting
- Spatial narrative
- Embodied narrative
- Branching narratives
- Location-based experiences
- Audience research:
  - Testing on Naïve and habituated audiences
Sky VR themes: Embodied Narrative – A Discovery of Witches

- Premiered at:
- Created using:
  - VolCap
  - Character scanning
  - Photogrammetry
- Aims and concepts:
  - Who am I in this experience, and how does my body affect my experience and the narrative?
  - Experiences should be translated through senses
  - The more senses used, the more immersive it feels
Sky VR - an immersive journey

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