A New Era in Visual Simulation

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Microsoft ACES Studio
Microsoft® ESP™ is a visual simulation platform that brings immersive games-based technology to training and learning, decision support, and research and development modeling for government and commercial organizations.
25 Years of Innovation
ESP Architecture

Vision

- Entertainment
- Training & Learning
- Decision Support
- Research & Development

Microsoft ESP

- Geo
- Cultural
- Environmental
- Scenery Objects
- Dynamic Objects

Tools and SDKs

Simulation Engine
Simulating The World
How We Simulate The World

DEM
Space Shuttle
CTOP 30
NED (US)
Earth (Europe)
GeoScience (Australia)

Landclass
Tiling Textures
Satellite Imagery

Vectors
Roads
Rivers
Lakes
Coastlines
Pipelines
Power Lines
Etc.

World
Weather
Seasons
Celestial Catalogue
Moon Phases
Time Zones
Magnetic Variation

Autogen
Buildings
Houses
Trees
Fences
Etc.

Objects
Landmarks
Bridges
Dams

Facilities Data
Jeppesen Navdata
NOAA Hazards
DAFIF
FAA

Vehicle Simulation
Airplanes
Boats
Ground Vehicles
Cars & Trucks
Trains
Ambient Traffic

AI Paths and Waypoints
Jeppesen
Navtech

Triggers
Text
Audio
Cameras
Animations
Cut-Scenes

After Action Review
Goals
Timing
Scoring
12 Monthly Seasonal Variations
Five Seasonal Textures

Spring
Fall
Hard winter
Night Textures
Synthesized geotypical textures
Geospecific imagery and DEM

Courtesy Horizon Simulation Ltd
Autogen

- Automatic generation of default 3D scenery objects at runtime
- Annotation file associated with each landclass texture
- Footprints for buildings, vegetation, etc.
- Default annotations can be modified using annotator tool
Terrain without autogen
Terrain with autogen
5,000 Weather Stations Worldwide
AI-Driven Traffic Patterns
Missions/Structured Experiences
After Action Review
Multi-Player

- Coordinated Mission Training
  - Native peer-to-peer support
- Shared Cockpit
  - Native peer-to-peer support
- Distributed Simulations
  - DIS/HLA
Software Development Kit

- Core Utilities
  - SimConnect (Runtime API)
  - Camera System
- Environment
  - Terrain, Scenery, Weather, Special Effects
  - Visual 3D Object Creation
- Simulation Object Creation
  - Cockpit, Systems Definition
  - Flight Model Definition
- Mission Creation
- Documentation
Microsoft ESP Summary

- Rich visual simulation platform
- Dynamic, immersive environment
- Improved outcomes and ROI
  - Training, decision support and R&D modeling

ESP Capabilities Roadmap
- v1.0 – Aviation focus: Available now
- v2.0 – Adds land/air capabilities
- v3.0 – Adds marine / indoors / avatars