



RealBiomes

Case Study



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Accelerating the Art of Worldbuilding: HP ZBook Ultra **Supercharges** RealBiomes' 3D Environment Creation



From lava beds and primeval forests to arid deserts and tropical beaches, innovative start-up RealBiomes fuses photogrammetry and procedural systems to offer drag-and-drop, high-fidelity 3D environments in Unreal Engine. While the gaming industry might have been the first to ask for such biomes, there is a fast-growing cohort of companies

seeking RealBiomes solutions. Customers across a range of industries are clamoring for biomes, including leading automotive manufacturers, real estate and architectural companies, even military agencies are discovering how biome packs can deliver on-location experiences at a fraction of the cost.



Johan Storkersen, co-founder at RealBiomes, explained how his team enables clients to capture reality—without the massive cost and effort typically associated with such undertakings. “Re-creating realistic digital environments from scratch for games, films, or advertising traditionally requires million-dollar budgets, crews of hundreds or even thousands, and tons of equipment,” he shared. “RealBiomes changes that equation, delivering photorealistic worlds straight to the desktop.”

Traditional from-scratch development can take thousands of hours to model terrain, add textures/lighting/foilage, and optimize for real time. RealBiomes condenses that into mere hours with production-proven biome options. “It’s faster and easier to license our biomes than to send teams on location or build from zero,” Storkersen clarified. “We also help bridge a critical skills shortage: very few experts can create natural environments at this fidelity.”

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Johan Storkersen
Co-founder
RealBiomes





HP Z enables game-changing performance

Precision capture for immersive environments

Expanding the RealBiomes portfolio with new biomes is a significant, resource-intensive effort. Storkersen and his team venture out on weeks-long trips to diverse, often remote and treacherous, locations to capture thousands of images and videos. In the past year, they have been to the Icelandic tundra, the primeval Białowieża Forest in Poland, New Zealand's deep, mossy forests, and the vertical rises and narrow valleys of the Dolomites in northern Italy.

Whether they're massive cliff walls and rock formations or individual trees, branches, and stones, RealBiomes focuses on selecting elements that can be repeatedly placed to build realistic, life-like environments. For example, they might choose five large rocks that are later scattered randomly across the digital biome. This method is repeated for every component that makes up the real-world setting.

On each expedition, RealBiomes scans 80 to 90 unique objects. For each one, hundreds—or sometimes thousands—of images are scanned



from every possible angle to enable precise 3D reconstruction. “When we take 1,000 pictures of a huge object, it’s easy to lose track of which angles have been covered,” Storkersen described. “Trips are a big investment, and if an angle is missed or a shot doesn’t turn out, the object can end up incomplete or even unusable.”

Adding to the challenge, these environments are inherently changeable. Objects can shift from one day to the next, and even images taken just 24 hours apart may not align, making it difficult, if not impossible, to fill in gaps later.

The team has a new asset to streamline development: the HP ZBook Ultra G1a 14” Mobile Workstation PC powered by an AMD Ryzen™ AI Max+ PRO 395 processor.

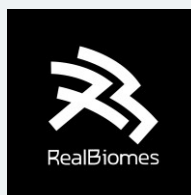
**“HP ZBook
provides huge
potential
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It’s a game-
changer.”**

Johan Storkersen
Co-founder
RealBiomes



Power without compromise

Like most of the trips Storkersen takes for RealBiomes, the one to the Dolomites had significant physical challenges. The stunning landscape is made up of more than 350,000 acres of jagged peaks, sheer rock faces, icy glaciers and deep gorges. Operating in the rugged terrain required carrying heavy drone equipment, so every piece of gear had to earn its place. The sleek, thin, battery-efficient AI PC mobile workstation seemed designed for such challenges. Storkersen emphasized, “The HP ZBook is so small and light, which was appreciated given how loaded we were. And yet, it’s still so powerful.”



About RealBiomes

RealBiomes delivers high-quality procedural 3D biomes for Unreal Engine 5, fully compatible with Nanite, Lumen, and VSM. Their products enable fast, efficient workflows with AAA visual fidelity, helping creators build diverse and immersive natural worlds for games, films, automotive environments, and more.

He continued, “The primary advantage of the HP ZBook Ultra is the AMD Ryzen™ AI Max+ PRO 395 processor. It’s one of the strongest laptop CPUs that you can get.” This is important in supporting the various stages of the RealBiomes process, from alignment and depth mapping to meshing and building the actual model. “Because the CPU is so strong, meshing becomes ideal on this machine.”

Storkersen also valued the HP ZBook Ultra G1a’s unified memory, which offers up to 96 GB of memory and 2 TB of internal storage, efficiently supporting intensive GPU and CPU processes like meshing and texture building, as well as managing the massive volumes of data collected in the field. “We capture anywhere from five to ten terabytes of data per trip.” He had planned to purchase additional storage drives, which are quite expensive, so the ample memory on the HP ZBook Ultra G1a proved to be a highly cost-effective solution.

“The HP ZBook [Ultra G1a] provides huge potential video memory compared to a normal laptop, which might have 8 gigabytes or 16 gigabytes, perhaps 24 gigabytes on the highest end gaming laptops with an RTX 5090,” Storkersen added. “It’s a game-changer.”

The team used the laptop to align and validate models on-site, significantly reducing the risk of gaps or unusable data and minimizing rework after returning to the office. They could also organize and prep SD card data in the field, streamlining their post-processing workflow.

Storkersen noted, “The battery life is good, allowing us to verify our captures without recharging too often, allowing us to verify four to five scans, approximately three hours of heavy usage, per recharge.”

Industry

Technology

Objective

Enable fast, cost-efficient creation of high-fidelity photorealistic 3D environments that replicate real-world locations with cinematic accuracy.

Approach

Leverage the compact and powerful HP ZBook Ultra Mobile Workstation to accelerate field capture, data processing, and biome development.

And he found the responsive touchscreen unexpectedly useful, especially for flight planning in Italy’s restricted airspace, allowing him to zoom in and out of different regions with ease; the screen’s bright, sharp resolution enhanced usability. “All of this, combined with excellent build quality makes the HP ZBook [Ultra G1a] feel very solid, very professional,” Storkersen observed. “It is a reliable, high-performance tool equally capable of managing both demanding AI workflows and field expeditions.”

Crafting efficient solutions

For the team at RealBiomes, developing a diverse set of top-quality photorealistic environments is more than a job, it’s a passion. Every project is driven by a commitment to



IT matters

- Powerful AMD Ryzen™ AI Max+ PRO 395 CPU supports intensive tasks including alignment, depth mapping, meshing, and texture building
- Up to 96 GB unified memory and 2 TB internal storage efficiently handle 5 to 10 TB of data
- Real-time model alignment and validation in the field minimizes rework and ensures data completeness
- Compact, lightweight HP ZBook Ultra G1a delivers workstation-class performance in remote, rugged environments

Business matters

- Speeds time-to-market through on-site model validation and faster post-processing
- Cuts production costs by reducing repeat field trips and rework
- Streamlines workflows and boosts operational efficiency
- Expands portfolio and delivers photorealistic environments faster

push the boundaries of what's possible in digital world-building. As more industries uncover the promise of cost-effective, unique, and visually stunning natural environments, expectations for realism and variety will continue to rise. Meeting those demands requires artistic talent, an intrepid disposition, and high-performance tools for streamlined, highly efficient workflows.

HP ZBook Ultra G1a meets the moment, helping to flatten the resource-intensive development process with industry-leading performance in a sleek, portable format. Storkersen said, "The HP ZBook [Ultra G1a] maximized our field time, facilitating on-the-spot verification of complete object capture to meet client expectations, and accelerated biome development back at the office."

By uniting the cutting-edge technology of the HP ZBook Ultra [G1a] with RealBiomes' creative vision, the team is able to craft immersive worlds that set new standards in real-time visualization.

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