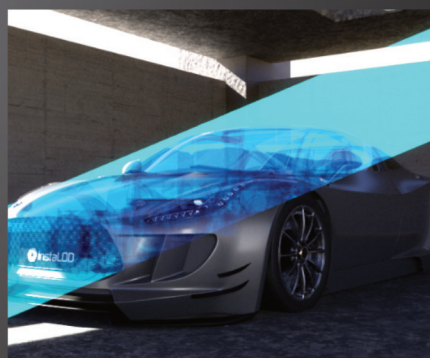


# Occlusion Culling



**Automated removal of hidden polygons has never been easier and more precise.**

InstaLOD supports the automatic removal of hidden polygons via the occlusion culling functionality. For maximum accuracy we have developed a ray-tracer that generates precise results when determining the visibility of polygons in your scene.

Occlusion culling with InstaLOD can be performed in two ways: Either by placing cameras in your scene or by automatically removing interior faces. Full control over the precision of the operation enables you to handle even highly tessellated geometry.

**Automatic removal of interior geometry with zero configuration required.**

InstaLOD is able to automatically remove interior polygons from any kind of input geometry.

This unique feature is engineered in a way that it requires no additional scene or camera setup, allowing it to be deployed in a large scale in fully automated data-prep scenarios.

InstaLOD's automatic interior culling works on any kind of input geometry - even if it is not fully watertight or non-manifold.



**Camera based occlusion culling for fast generation of shadow-caster meshes.**

InstaLOD's excellent support for multiple perspective and orthogonal cameras in a single occlusion culling operation enables precise culling and super fast shadow-caster mesh generation. These highly optimized meshes can be used to render highly optimized shadow maps in any realtime scenario.

The occlusion data generated by InstaLOD can be used in many different ways: removing polygons, writing the occlusion data into vertex colors or using the data as optimizer weights with our polygon optimizer - everything is possible.

# Baking and More



**Killer baking with up to 32k textures.**

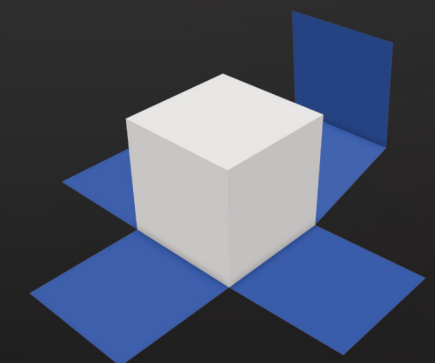
InstaLOD can generate ultra-high resolution textures of up to 32k. High quality dilation and a killer post-process solidification ensure perfect results with every bake. Long standing pain-points have finally been solved with the introduction of baking cages that can be topologically different to the target mesh.

Avoid complex baking setups by match source and target meshes by name. Next to transferring source mesh texture data, InstaLOD's baker can also output all textures typical to modern texturing and rendering workflows: Tangent/Object Normals, AO, Position, Bent-Normals, MeshID, Thickness, Displacement, Curvature and Opacity.

**High-Quality imposter creation for foliage and regular geometry.**

Creating imposter has never been as easy as it is when using InstaLOD. Simply select your object in the scene and click a single button. The selected object will automatically be converted into an imposter and placed at the correct location within your scene. The exact same workflow applies when converting large selections like forests or skylines: Simply select your input meshes and convert your selection into a single imposter by clicking a single button.

InstaLOD's imposter pipeline makes use of our baking technology, this means when creating an imposter you'll have full access to the entire texture generation stack!



**Automatic UV unwrapping and more.**

InstaLOD is a versatile toolkit for mesh processing. Use one of three different UV unwrapping algorithms to automatically generate UV parameterizations for any kind of input geometry.

Repacking of existing UV layouts and super fast area and angle-weighted recalculation of mesh normals and tangents are just a small sample of the mesh processing functionality at your disposal.



**Easily achieve more than 10x in cost-savings when creating new assets or optimizing existing data with revolutionary workflows.**

**Optimization.  
Remeshing.  
Material Merging.  
Occlusion Culling.  
Automatic UV.  
Imposters.**

**Pipeline Automation.  
CAD Import and Tessellation.**

**Everything you need for the production and automatic optimization of 3D content.**

Visit us at <http://www.InstaloD.com>  
or contact us directly at [hello@InstaloD.com](mailto:hello@InstaloD.com)

# Polygon Optimization



**Award-winning Polygon Optimization capable of optimizing large data sets.**

InstaLOD brings AAA-grade polygon optimization at blazing-fast speeds even when operating on large data sets with multiple millions of polygons. With InstaLOD you will get a killer result with every single optimization. InstaLOD's unique way of preserving surface attributes enables optimized geometry to render and shade true to the original geometry.

InstaLOD's highly scalable data processors can handle large data sets that other solutions simply fail to optimize. InstaLOD pushes the limits of polygon optimization and is the secret ingredient of automatic data-prepping pipelines for top-tier game developers and enterprise customers alike.

# Remeshing



**Remeshing that delivers on quality, speed and versatility.**

InstaLOD's multi-resolution remesher is fast, memory efficient and can easily handle big data input with multiple millions of polygons. The surface that InstaLOD constructs in the process is fully unwrapped and existing texture data is automatically transferred onto the new surface - including existing normal map information.

When remeshing skeletal meshes or rigged objects InstaLOD will construct a surface that is fully rigged to the same skeleton, so your existing animation data still applies. If your input mesh is not water tight, simply enable automatic occlusion geometry to avoid the creation of interior polygons.

# Draw-Call Reduction



**Break the GPU bottleneck by merging your draw calls.**

Reducing the amount of draw calls required to render a scene is paramount to achieving a flawless experience. InstaLOD is capable of reducing draw calls by combining multiple material textures into a single material texture.

In the process InstaLOD generates new UV data by repacking existing UV data onto a single texture. InstaLOD is able to material merge both static or skeletal meshes - or a mix of both.

# CAD Workflows



**Experience ultra-robust CAD import and tessellation for native formats.**

InstaLOD's high-fidelity CAD tessellation for NURBS and BREP data creates fantastic results every time.

InstaLOD can automatically correct reflection discontinuities or bad shading during tessellation making manual adjustments a thing of the past. Advanced features for design review and surface analysis such as zebra rendering enable rich surface inspections for Class A surfaces.

With InstaLOD creating striking visualization assets is about as easy as it gets.

**Adaptive skeletal mesh optimization for perfect animations.**

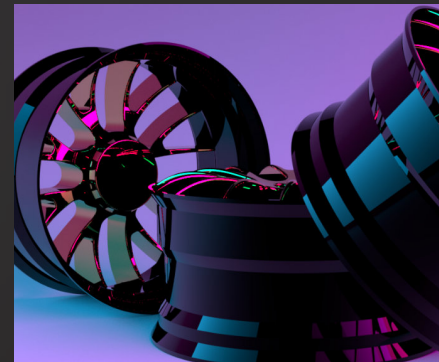
InstaLOD's adaptive skeletal mesh optimization automatically detects parts of your skeletal mesh that are critical for the animation. The optimizer will automatically generate additional weights and apply them to these important parts so they're best preserved. InstaLOD produces excellent skeletal mesh optimizations that animate perfectly - even when removing large amounts of data.

InstaLOD's rig optimization can automatically cull bones from your rig based on distance or depth to reclaim processing time when animating the character in your 3D engine.



**Turn unprepped high-polygon 3D data into realtime ready assets.**

InstaLOD's Game-Ready workflow creates 3D assets that are directly usable with every realtime 3D engine from high-polygon input geometry like 3D scans, sub-division surfaces or sculpted models. InstaLOD automatically generates every texture map required for modern texturing workflows so you can go from high-polygon input straight to texturing your game-ready asset with tools like Substance Designer or Painter. All without having to waste time by manually creating a low-polygon mesh, unwrapping, setting up a baking-cage and baking. With InstaLOD you can just focus on the creative part and get your assets fully textured within minutes. And if your input mesh changes? Simply run InstaLOD again.



**The perfect pack. Every time.**

Precise control over material weights, stacking duplicate UV shells and support for high resolution textures enables developers to reap all the benefits of draw call reduction without sacrificing image quality.

With InstaLOD's unique visual-importance feature the input UV data will be packed based on the amount of pixels that are actually covered by each material. Applying rotation constraints to InstaLOD's packing avoids aliasing and stair-stepping effects in the rendered image that is typical to other solutions.

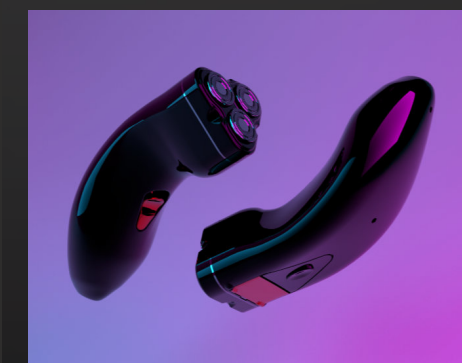


**The missing link to your data.**

With InstaLOD's CAD Live Link you can selectively retessellate specific parts of your assembly even long after the scene has been fully loaded.

Simply select a part or a group and click retessellate. This workflow enables you to first select materials to develop the right look and inspect the shading and then choose the perfect tessellation to achieve a high quality visualization asset.

InstaLOD takes CAD meta data and PLM information and fuses it into the resulting visualization asset, enabling you to build your business logic on top of the visualization asset.

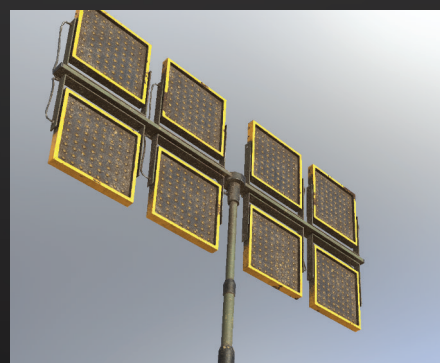


**Limitless possibilities for power users.**

It's our mission to make every single feature of InstaLOD produce outstanding results without the need to setup specific optimization profiles or settings.

However, fine-grained control and sophisticated settings are at your disposal if you want to dig deep. Advanced users can make use of vertex colors to mark areas that may not be optimized by InstaLOD or areas that can be optimized early on.

Optional constraints can be applied to the optimization, so it's easy to preserve the topology of vertices on boundaries - even when removing large amounts of data.



**Handle every situation from individual objects to complex scenes.**

InstaLOD's remeshing works great without having to setup complex options, but artists have precise control over individual options to make sure that every use-case can be handled by InstaLOD.

Keep your individual mesh parts from becoming a single mesh, by enabling distinct construction and your mesh parts will remain separate objects. Mark certain mesh parts as bake mesh to avoid influencing the surface construction but include bake meshes when baking the texture data. These are just a few of the options available to pro users when using InstaLOD.



**Just. One. Drawcall.**

InstaLOD is designed to handle large datasets and that holds true for our texture pipeline as well.

Packing a large scene with hundreds of input textures onto a single 32k texture is something only InstaLOD can handle. Super-sampling and a high quality solidification algorithm ensure that the packed texture renders great even in mip-mapping scenarios.

Even complex packing operations like packing to or from non-power-of-two textures or non-square textures are handled perfectly by InstaLOD.



**Painless Automation.**

Take the pain out of gigantic assemblies and data regeneration using InstaLOD's rules engine. The rules engine is setup without any programming and automates many tasks: from cleaning the assembly to combining parts, setting up materials or configuring the tessellation. This enables you to fully automate processes that would normally require manual data prepping everytime the CAD file has been changed.

Take automation to the next level by extending the rules engine to integrate with your PLM system and other custom processes using the InstaLOD SDK.