

ADDITIVE MANUFACTURING

Industry Solutions

OVERVIEW

When compared to traditional Computer-Aided Manufacturing (CAM), Additive Manufacturing (AM) face some challenges that are similar and some that are unique. The decision of a machine manufacturer to produce their own proprietary software application represents a significant investment and important strategic choice, but offers great opportunities to deliver a complete hardware-software solution enabling differentiation against the competitors, while protecting your machine- or process-related intellectual property. Ensuring end-users remain productive in the face of poor-quality 3D models is always a challenge in CAM, but even worse in AM due to the proliferation of very poor STL models; any application needs to offer effective healing solutions if it is to succeed in the market.

CHALLENGE

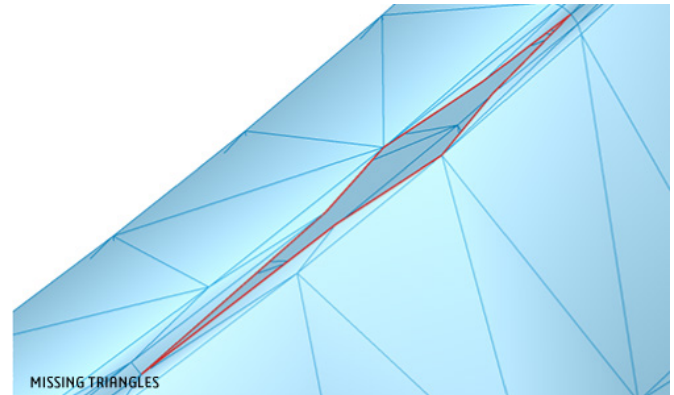
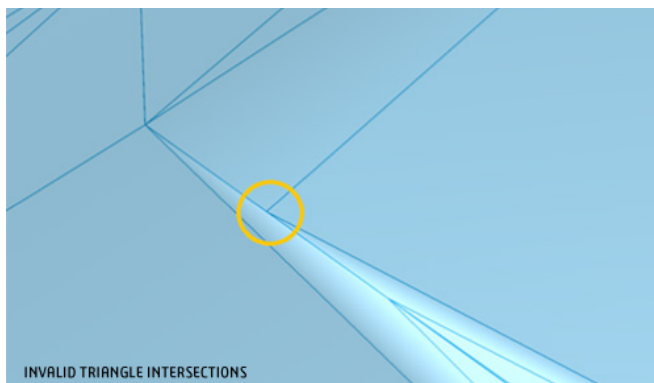
The files received are poor-quality STL files, and your user has no access to precise CAD files

SOLUTION

CGM Polyhedra healing

While STL is the standard for feeding 3D printers, many applications write STL files of very poor quality that cannot be sliced and printed - leaving the end user unable to proceed with manufacturing. CGM Polyhedra includes powerful tools for repairing STL models intended for 3D printing, correcting problems including:

- Filling holes created by missing triangles
- Correcting flipped triangles
- Closing cracks and gaps
- Correcting non-manifold arrangements
- Cleaning overlapping triangles
- Cleaning triangles with improper intersections



These simple-to-use repair tools will produce the best possible polyhedral model that is ready for the usual print pre-processing.

CHALLENGE

You need to have your own application to protect your IP and increase margin

SOLUTION

Spatial additive manufacturing platform

The Spatial application development platform enables you to produce a production-ready Computer-Aided Manufacturing/Computer-Aided Additive Manufacturing application in just a few months. With best-in-class capabilities for CAD import, precise modeling, polyhedral modeling, tool path generation, and 3D visualization, your application will be quickly positioned to uniquely leverage your machine IP and build your competitive differentiation.

CHALLENGE

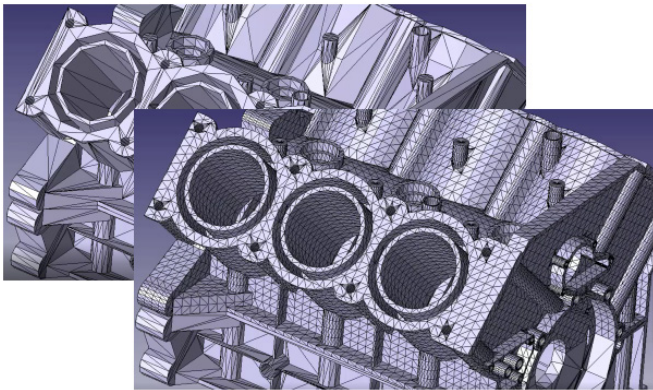
The models received for 3D printing are poor quality

SOLUTION

Precise CAD import

Combining 3D InterOp with CGM Core Modeler enables your application to keep all the detail and precision of the original CAD model. Spatial provides powerful tools to manipulate the model and optimize it for your manufacturing process - like adding material to specific features for finish machining, removing unwanted features, and changing shapes to reduce material usage.

Spatial's solutions enable you to then slice the precise model directly for ultimate manufacturing precision, or tessellate to your desired level of detail for triangle-based slicing.



SPATIAL'S 3D SOFTWARE DEVELOPMENT TOOLKITS

Spatial provides additive manufacturing companies a full breadth of 3D software development toolkits for enabling 3D modeling, data translation, and visualization within your additive manufacturing applications.

3D INTEROP

Spatial's 3D InterOp supports the most popular CAD formats – 3DEXPERIENCE, CATIA V5, SolidWorks, Siemens NX and others. The suite of 3D InterOp translators supports the exchange of product structure, graphical data, geometry and semantic PMI. 3D InterOp provides visual fidelity for graphical data exchange, along with high quality geometry translation for downstream engineering use. Regular format updates ensure accurate 3D data interoperability for the latest versions.

3D MODELING

Spatial sets the standard for providing software developers and manufacturers with the 3D modeling functionality necessary for creating innovative, high-performance applications. At the core of Spatial's modeling technology is a high-precision boundary representation and a tightly integrated suite of curve, surface, solid modeling, as well as hybrid modeling capabilities, providing application developers a comprehensive set of functionality to solve today's complex modeling needs. Spatial delivers robust, flexible, industry-proven capabilities that enable quality-control, manufacturing, engineering and design application providers to bring 3D applications to market

in less time, at lower development costs, and with less risk.

3D VISUALIZATION

Delivering a powerful, portable and complete graphics development SDK for 3D applications, HOOPS Visualize accelerates development of your high-performance applications. HOOPS Visualize helps you efficiently deliver a competitive application with unparalleled graphics power, ability to interact with large models, flexibility to deploy on multiple platforms, and advanced functionality tailored to match your 3D requirements.

SHARED PARTNER SUCCESS

Spatial is committed to ensuring you, our development partner, are successful. We work with you sharing our expertise as well as our 3D SDKs to assist your development efforts and accelerate success.

LEARN MORE ABOUT SPATIAL'S ADDITIVE MANUFACTURING SOLUTIONS:

<https://www.spatial.com/industries/additive-manufacturing>

READ ADDITIVE MANUFACTURING CASE STUDIES:

<https://www.spatial.com/resources/case-studies-additive-manufacturing>

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