Artistic CAD and CAM for Architectural and Themed Applications

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Helping manufacturers to make great products
Imagine what you can create…

…Create what you can imagine
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What is ArtCAM?
Artistic CAD/CAM Software
Integrated Solution
Be Unique
Applications

Create Unique Designs using ArtCAM
Architectural
Artistic Paneling
Furniture
Appliques
Interiors
Theming
Artistic applications for the architectural industry

Model Making
Complex Part Creation
Part Reconstruction
Mold Creation
Cladding
Architectural
Artistic Paneling

Create Complex Pieces
Design Unique Reusable Appliques
Modern Textured Paneling
Artistic Paneling
Furniture Production and Reproduction

Design Unique Pieces
Create a Range of Products
Mass Produce Designs
Create Custom Interior Design Pieces
Lighting Fixtures
Newel Posts
Ceiling Roses
Wall Art
Interior Design Features
Theming
Reproduce Pieces of Art to Any Scale
Create Theme Park Signage
Make Movie Props
How can we help you
Make Great Products?

Thank You

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A selection of Delcam users for Artistic Applications

Special Effects and Creative Solutions
London and Glasgow, UK

Where Technology And Fine Art Meet
Wilsonville, Oregon, USA

Limestone for architects, landscapers, designers and gardeners
Bulgaria

composites fabrication facility
American Canyon, California, USA
Typical Process

- Import a 3D model from Turbosquid and other online 3D model libraries
  - Pose the model using Maya
  - Customer approval? (Renders, 3D printed models and Video animations)

- 3D Sculpting
  - Add additional detail. Checkout Autodesk Mudbox
  - Customer approval?

- Scale the model

- Manufacture
  - Small models: 3D Printing
  - Large models: Kuka Robot + PowerMILL + Robot Interface
2013 PruHealth World Triathlon Grand Final

- Artem was commissioned by Icon World to build a giant floating sculpture of a swimmer to launch the 2013 PruHealth World Triathlon Grand Final.
- The sculpture, weighed 300kg (661 pounds), is 3m high and 7m long.
- Machined from giant blocks of polystyrene in several sections which fitted together perfectly before being surfaced and painted.
Special Effects and Creative Solutions

2013 PruHealth World Triathlon Grand Final
Project leader Simon Tayler commented:

“The terrific advantage of this process is that it guarantees 100% fidelity to the original information, so what you see in the pre-visualisation is what you get.”
Advantages of this Process

- Customer Approval prior to manufacture
- Accuracy and fit
- Repeatability (Multiple Models)
- Enlargements and Reductions
- Reduced lead time
Additive Workshop – Specialising in fine art enlargements and reductions
Typical Process

- Scan an existing sculpture using a structured light scanner
- Scale the STL file output
- Large models: Cut a resized foam replica using a 7 Axis Robot driven by Delcam’s PowerMILL
  - They previously used a router which could not machine undercut details so were finished by hand
- Extra detail added in clay by artists
- Make a cast from the clay for bronze reproductions
Advantages of this Process

- Very accurate reproductions produced quickly
- Time gained allows the artists to spend more time adding additional fine detail often not included in the original sculpture
- Compared to a router, the flexibility of a robot allows large, complex parts to be made with a minimal amount of foam blocks reducing manufacturing and fitting time

- Customer Approval prior to manufacture
- Accuracy and fit
- Repeatability (Multiple parts produced by lost foam or lost wax casting methods)
- Enlargements and Reductions
- Reduced lead time
Established over 15 years ago in Bulgaria

Supply natural limestone all over Europe

Work in variety of projects
- Architecture
- Landscaping and Garden design
- Interior decoration
Ornate stone pillar cut with a 6 axis robot driven by PowerMILL
Restoration of the Park Hotel Vitznau, Switzerland

Produced the staircases, the indoor fountain and the paving

“Our stone brightens this beautiful place and makes it luxurious”
Engineering Challenge:

Construct a two-story residence using materials that makes its unique, curved shape configuration practically possible yet compliant with building codes and local fire ordinances.
Designed by/for furniture designer Miranda Leonard who created a 12-inch plaster model

Leonard and Walker & Moody Architects (San Francisco) spent more than a year in search of an engineering firm willing to build the unusual structure.
Kreysler and Structural Engineer Juri Komendant agreed to create a composite monocoque construction without any internal framework.
- 12 Inch model was scanned using a Cyberware laser digitizer
- 3D Model was exported into AutoCAD software to enable Kreysler engineers to create shop drawings
PowerMILL was used to create CNC code for the 9 polystyrene molds which were machined on a huge CNC gantry mill

- 65ft x 25ft x 10ft
- “It’s so big, we don’t want things to go wrong. I don’t know if we’d want to run that with any software other than PowerMILL”
• The 9 segments were assembled outside the company’s facility

• A makeshift oven was devised by draping a huge canvas tarp over the structure

• Large portable heaters maintained a temperature of 190°F/88°C for three days to completely crosslink the resin
Final assembly on site complete with fire retardant rendering
Why do these companies choose PowerMILL to generate their CNC code?

- The ability to cope with huge datasets
  - Scanned parts typically produce huge triangulated STL files.
    - PowerMILL’s has been developing and enhancing its core machining algorithms for over 25 years
    - 64bit compliant allows maximum memory usage
    - Multithreaded code maximises the potential of multicore computers
- Speed of programming and speed on the machinetool
  - Localised modifications to toolpaths do not typically require full recalculation. Small segments can be instantly removed and individual entry/exit moves can be recalculated in isolation
- Trust
  - Automatic checks against tool/holder/machinetool and robot collisions
Session Feedback

- Via the Survey Stations, email or mobile device
- AU 2014 passes given out each day!
- Best to do it right after the session
- Instructors see results in real-time
How can we help you
Make Great Products?