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Exhibition Room Workshop Agenda

Workshop 1: (10 Minutes)
Creating stylized, interesting and distinctively unique designs without the need for expert knowledge

Workshop 2: (10 Minutes)
Virtual prototyping with structural, thermal and flow simulation solutions

Workshop 3: (10 Minutes)
3D scanning and 3D printing for Reverse Engineering and Rapid Prototyping (Shining 3D)

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Creating Stylized, Interesting and Unique Designs

Jon Sutcliffe
Global Technical Enablement
24th February 2021
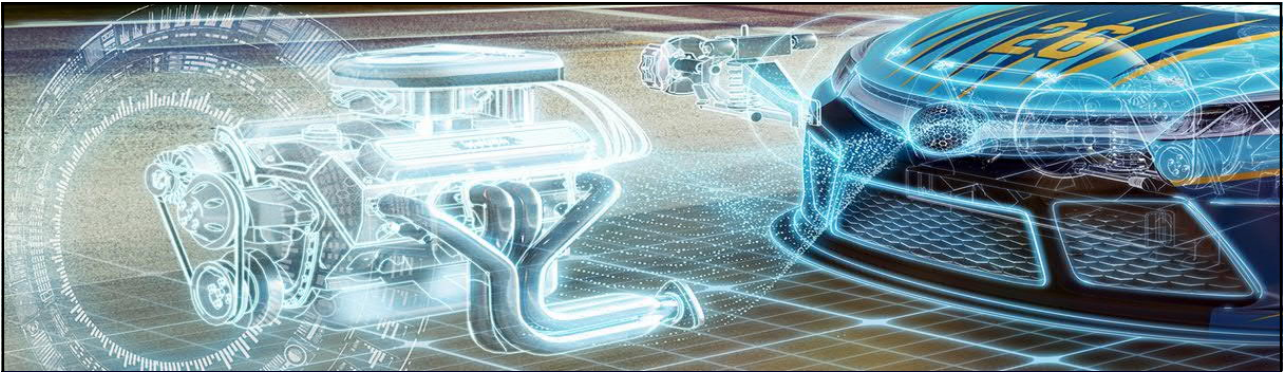
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Examples of Consumer Products

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| Agenda

Traditional Surface Modelling
Subdivision Modelling
Photo Realistic Rendering

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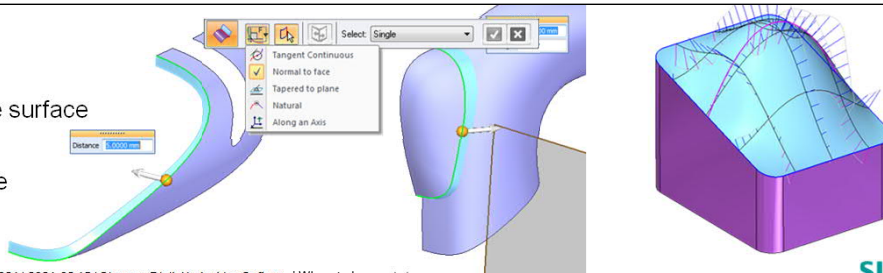## Traditional Surface Modelling

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Surface Modelling Tools

Traditional surface modelling involves creation of 2D & 3D curves that form the character lines of the shape you're looking to create.
Then constructing surfaces between them

Full suite of curve/surface creation/modification tools

- Splines

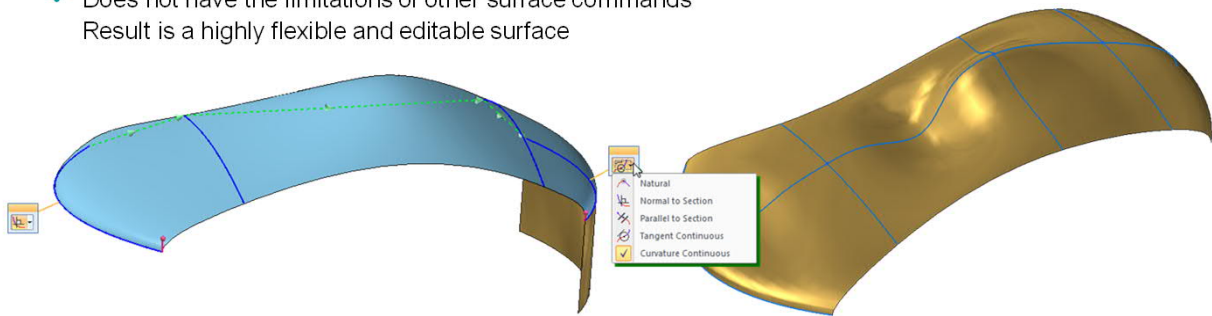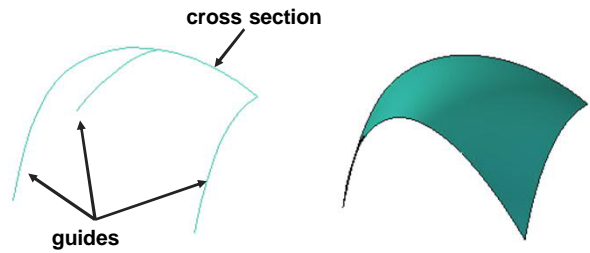- Extrude/Revolve surface

- Bounded surface

- Ruled surface

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Surface Modelling Tools

Surface creation tools continued....

- Swept surface

- BlueSurf
  - Does not have the limitations of other surface commands
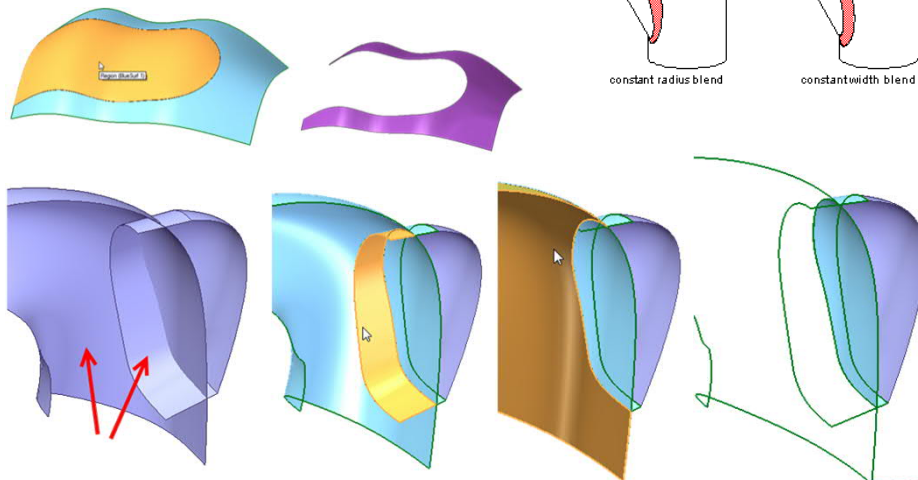   Result is a highly flexible and editable surface

cross section

guides

Natural
Normal to Section
Parallel to Section
Tangent Continuous
Curvature Continuous

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Surface Modelling Tools

Surface editing tools

- Extend
- Offset
- Trim
- Intersect
- Stitch
- Blend

constant radius blend

constant width blend

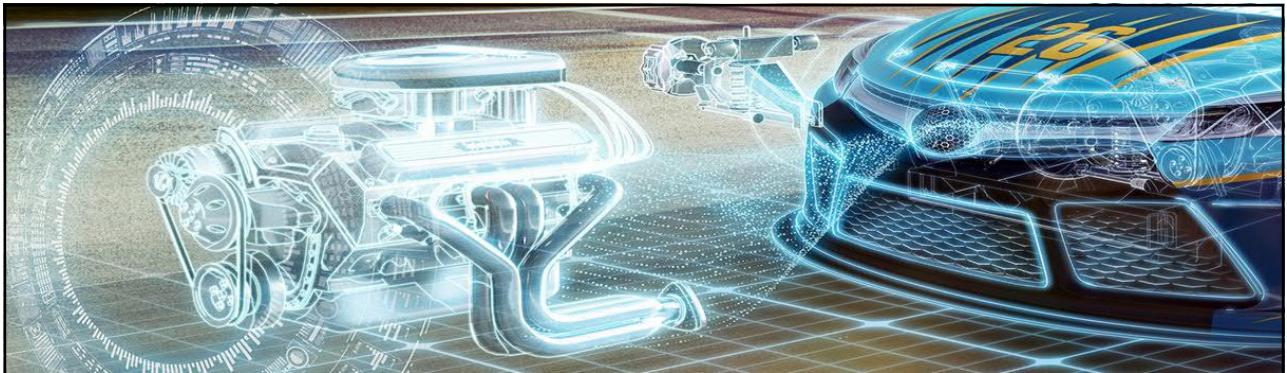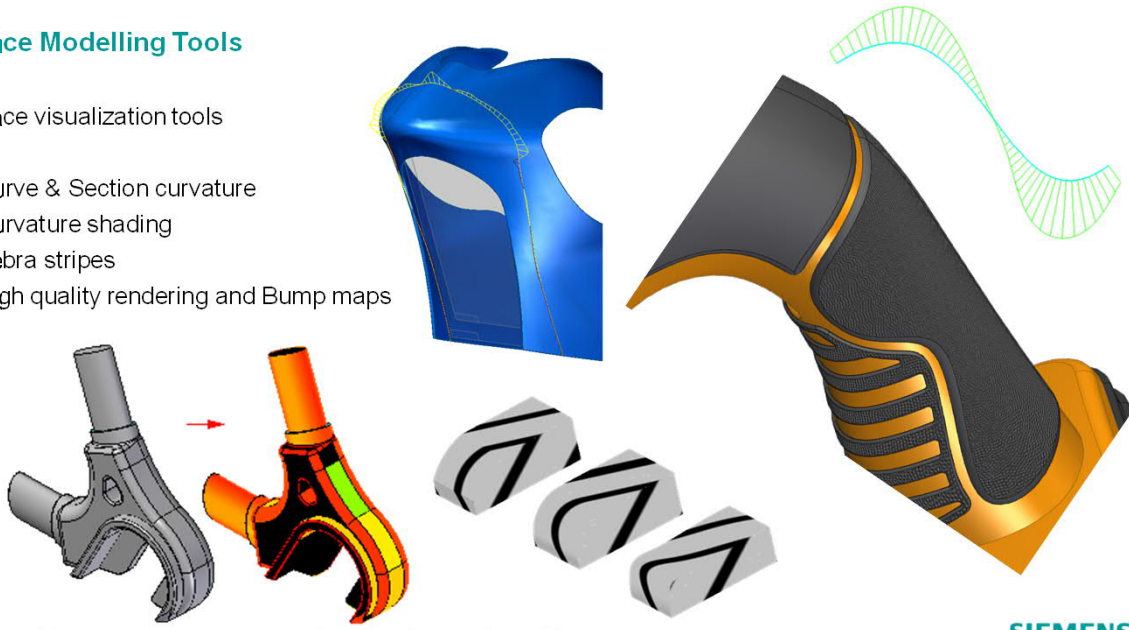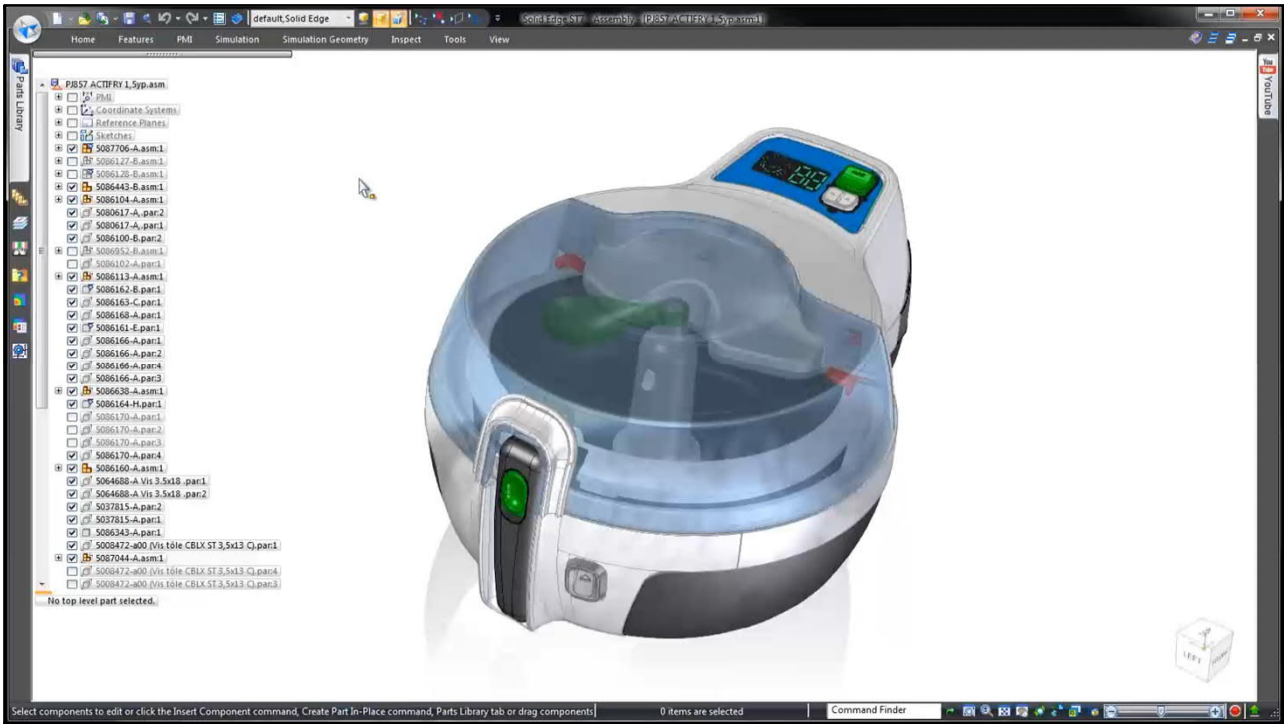**SIEMENS**

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Hand out 4

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Surface Modelling Tools

Surface visualization tools

- Curve & Section curvature
- Curvature shading
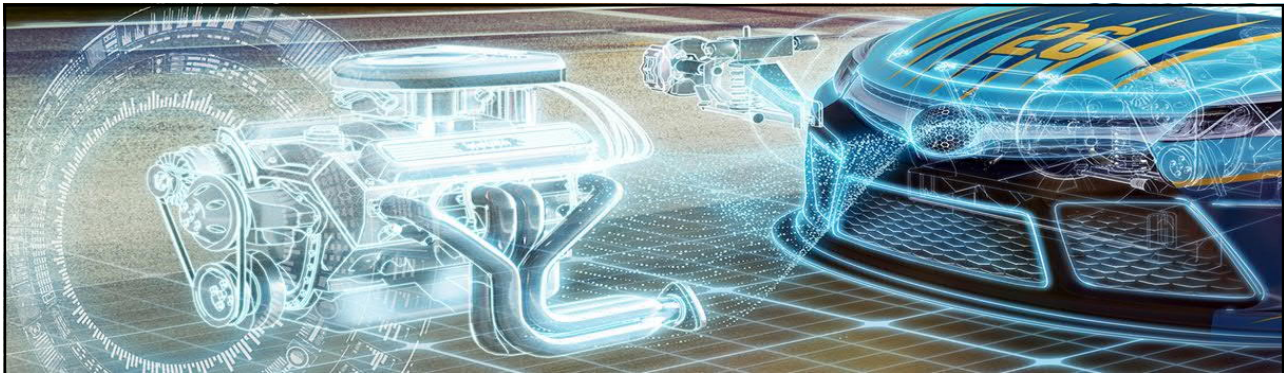- Zebra stripes
- High quality rendering and Bump maps

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| Surface Modelling Demo

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Subdivision Modelling

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Subdivision Modelling

A modeling technique that generates a stylized body using a polygonal cage to control its shape

The solid body is generated through a set of rules that is repeatedly applied to each face/edge/vertex in the cage

Key aspect of Subdivision modelling is that it does not require any specialist traditional surface modelling skills to use
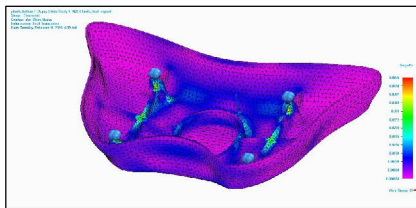
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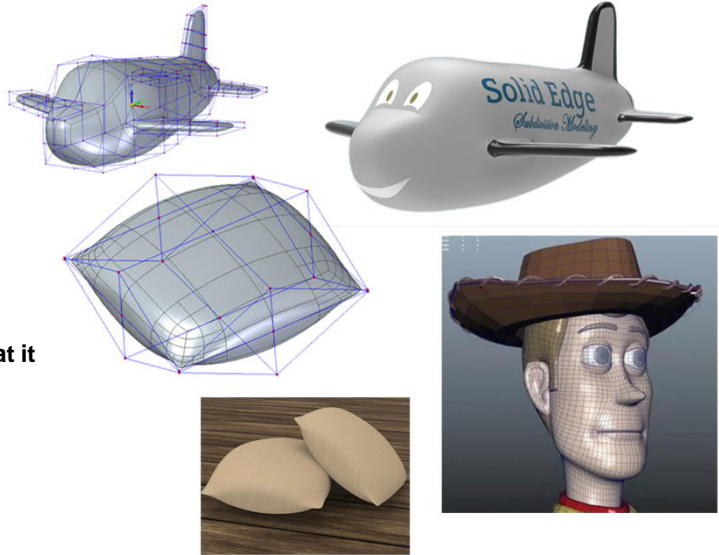
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Subdivision Modelling Tools

Subdivision has its own environment

Subdivision bodies are made up of spline surface patches which are available for other downstream operations
- Additional surface modelling
- Drawing creation
- Simulation

SECTION A-A
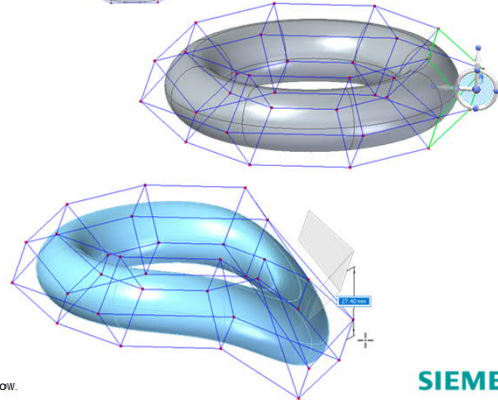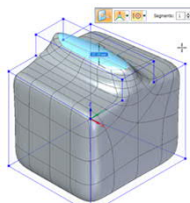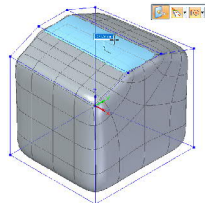
Solid Edge

Control Box bottom

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Subdivision Modelling

Cage creation is done using primitives.

The individual faces of the primitive cage are then moved/rotated via the steering wheel to push and pull the resulting solid model into shape
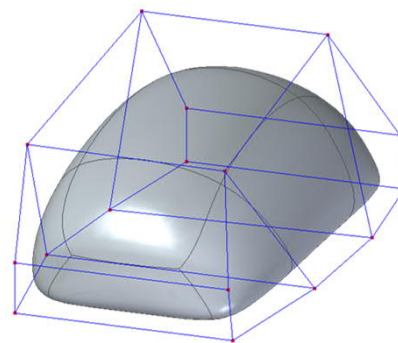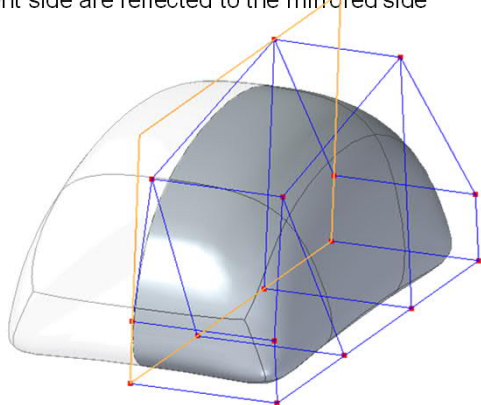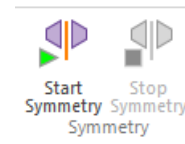
The cage faces can also be split to provide more detail and subsequent control to the over shape.
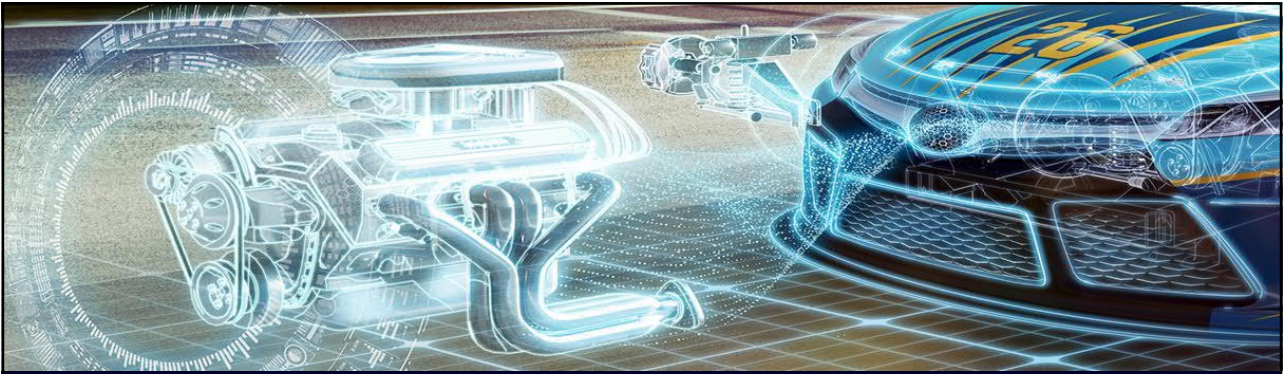
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Subdivision Modelling

Symmetry Mode allows the definition of a mirror plane for cage symmetry

Cages are mirrored about the symmetry plane and any edits done on the parent side are reflected to the mirrored side
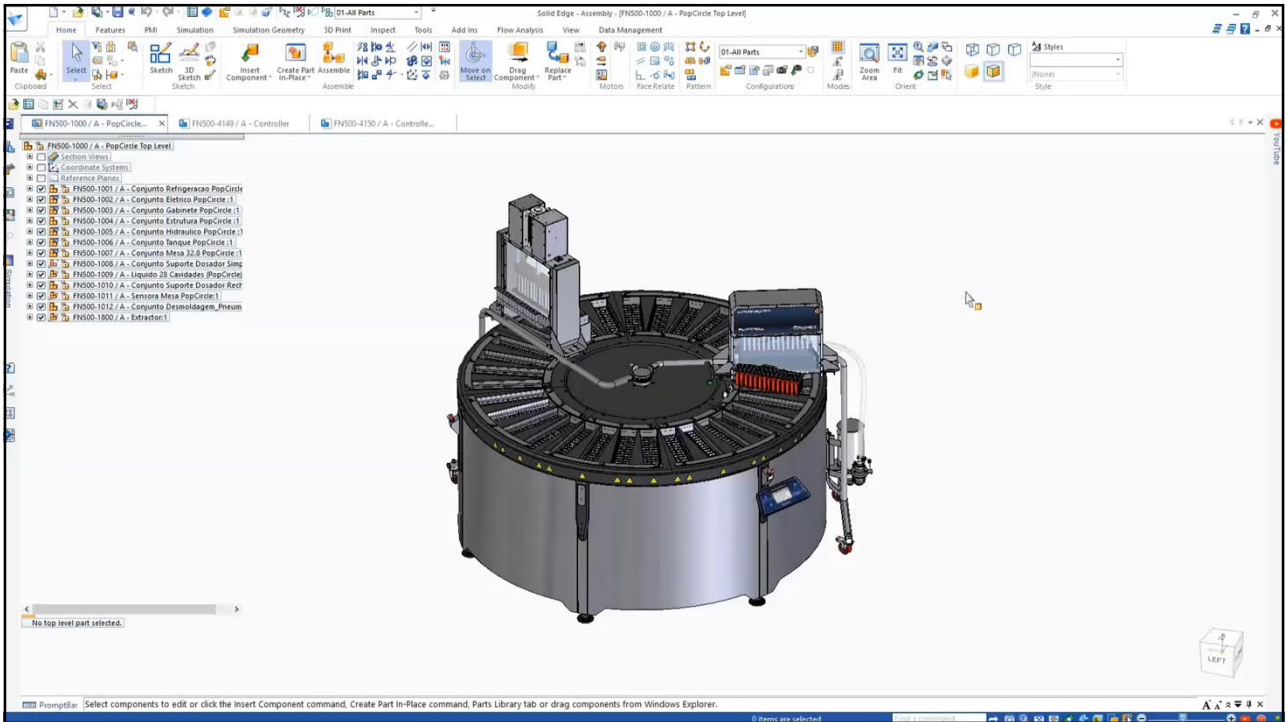
Start Symmetry   Stop Symmetry

Symmetry

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Subdivision Demo

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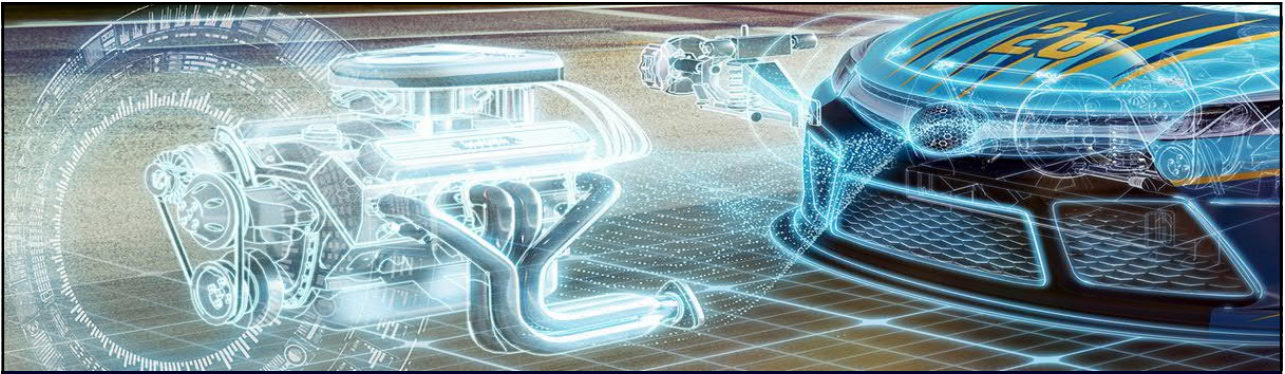
Photo Realistic Rendering

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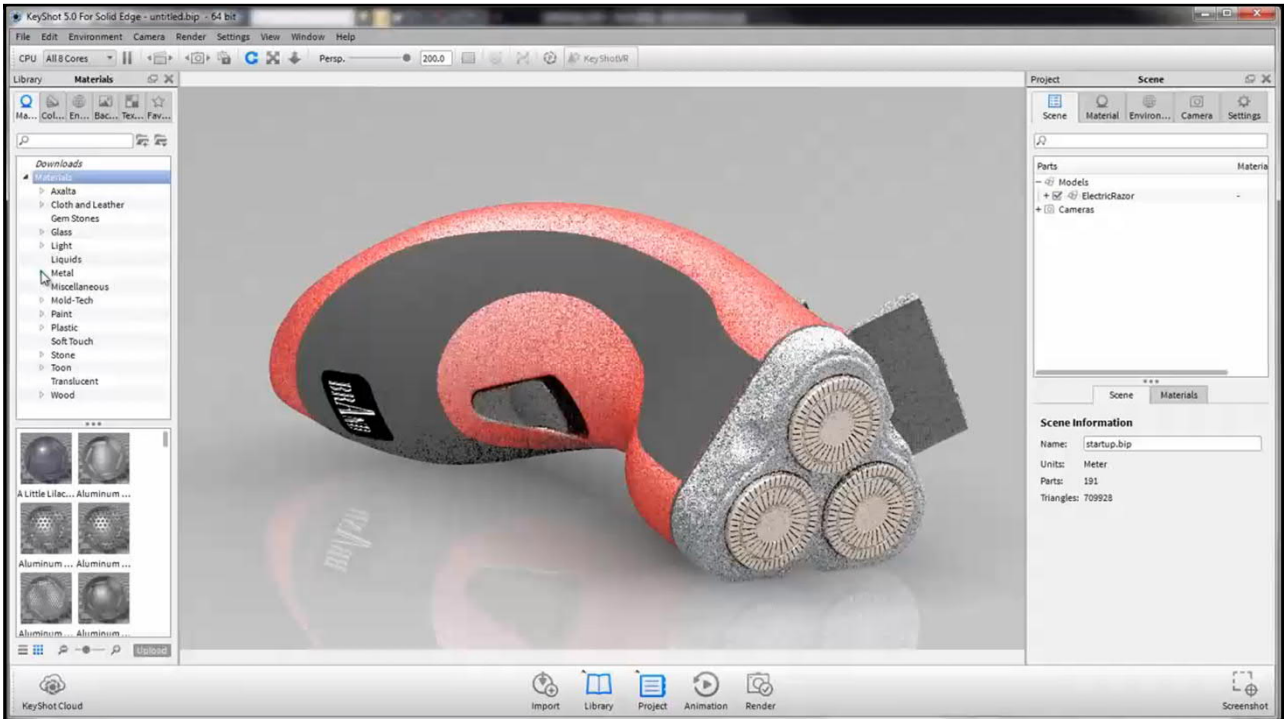
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Solid Edge
Stylish Interesting Designs

Develop distinctively stylized, interesting and unique designs.

Subdivision technology creates organic shapes, without the need for expert knowledge.

KeyShot provides best in class rendering and visualization for beautiful photo quality images

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Ingenuity for life

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| Thank You

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