

3D Modeling with the Best, AutoCAD® - AS500048

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About the speaker

Vince has been using Autodesk products since 1992. He has been working in the GIS, Civil Engineering and Surveying field since 1995. He currently serves as Sr. Designer for a civil engineering consulting firm located in Richmond, Virginia. He is also a Design Specialist and Blogger on the site Poly In 3D where he writes tutorials and how to tips for Autodesk products. Vince has also been 3D modeling and rendering for over 15 years using a verity of Autodesk® products and other non -Autodesk® products. Autodesk University 2012 lab speaker on Civil 3D 2013, Civil View 2013 and 3ds Max Design 2013. Autodesk University 2015 lab speaker on Vehicle Tracking 2016, Autodesk University 2017 on Autodesk Stingray and Autodesk University 2019 & 2020 on 3D modeling with AutoCAD.

Class Summery

In this Instructional Demo, you'll learn how to create 3D geometry using AutoCAD's Solid, Surface and Mesh tools. Create 3D assets for 3D Studio Max, Revit families, Civil 3D/ InfraWorks models, Inventor and game engines. Edit the 3D objects using various editing tools. Export the 3D objects to various formats. This class is designed to expand your AutoCAD 3D modeling knowledge.

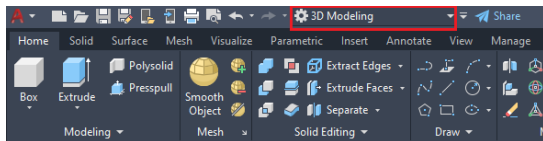


Learning Objectives

- AutoCAD 3D Workspace and Ribbon Menus.
- AutoCAD Drawing and System Variables.
- Create 3D Solid, Surface and Mesh objects using various tools.
- Edit the objects using tools such as Union, Slice, Extrude Face, Fillet and so on .
- Apply texturing/materials to the 3D objects.

3D Workspace and Ribbon Menus

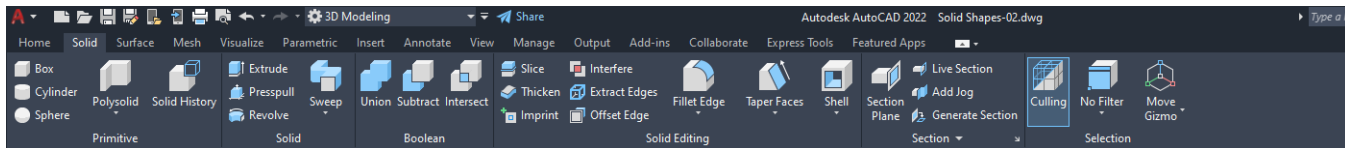
3D Modeling Workspace



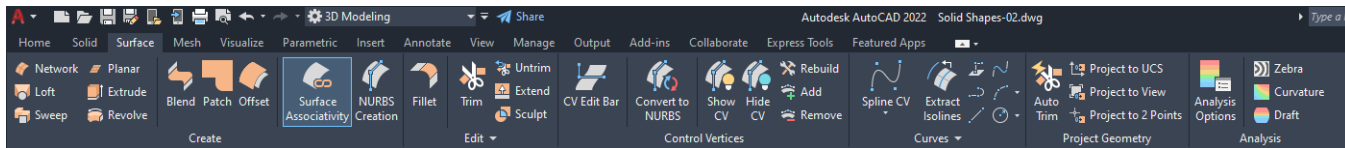
Home Tab



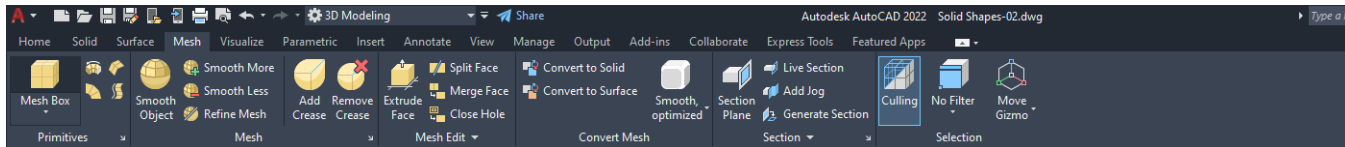
Solid Tab



Surface Tab



Mesh Tab



Commands and Variables

Adjusting the UCS:

Click the Home Tab, Coordinates panel.

Default UCS is World coordinates. Adjust the Z -Axis by click the Z button. Select and object face or object intersection the dra

g the mouse in the direction to establish the Z -Axis.



Dynamic UCS:

Located in the Status bar. When creating an object, Dynamic UCS temporarily aligns the XY plane of the UCS to a planar face o

n objects such as 3D solids and planar mesh elements.



Views:

Click the Home tab, View panel or click View Controls on the upper left of the workspace.

[-][SW Isometric][2D Wireframe]

(The command to turn on the Viewport Controls is VPCONTROL.)

Visual Styles:

Click the View tab, Palettes panel or click Visual Style Controls on the upper left of the workspace.

[-][SW Isometric][2D Wireframe]

3D Osnap:

Snaps the cursor to 3D solids, surfaces, and point cloud segments.



Facetres (System Variable):

Facetres adjust the smoothness of rendered objects and shadows.

Initial value: 0.5000

Valid values are from 0.01 to 10.0.

Viewres (Command):

Controls the sharpness of circles, arcs, splines, and arced polylines using short vectors.

Surftab1 & 2 (System Variables):

Sets the mesh density in the M and N direction for the REVSURF and EDGESURF commands.

3D Orbit:

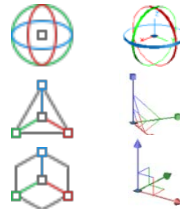
Rotate/Orbit the view in the current viewport. Drag the cursor horizontally, the camera moves parallel to the XY plane. Drag

the cursor vertically, the camera moves along the Z axis.



3D Rotate:

Rotate an object along the X, Y, Z axis using the Rotate Gizmo.



3D Scale:

Scale an object as a whole or along the X, Y, Z axis using the Scale Gizmo.

3D Move:

Move an object along the X, Y, Z axis using the Move Gizmo.

Create Primitive Objects

Primitive objects are basic 3D shapes made of solid or mesh objects.

1. Solid Primitive Objects. Solid tab, Primitive panel.

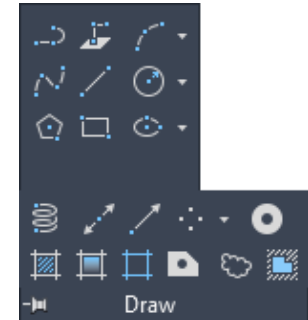
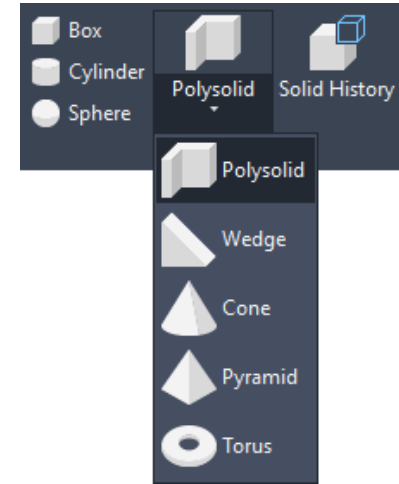
- Box
- Cylinder
- Sphere
- Polysolid
- Wedge
- Cone
- Pyramid
- Torus
- Show History (Records the history of the solid objects).

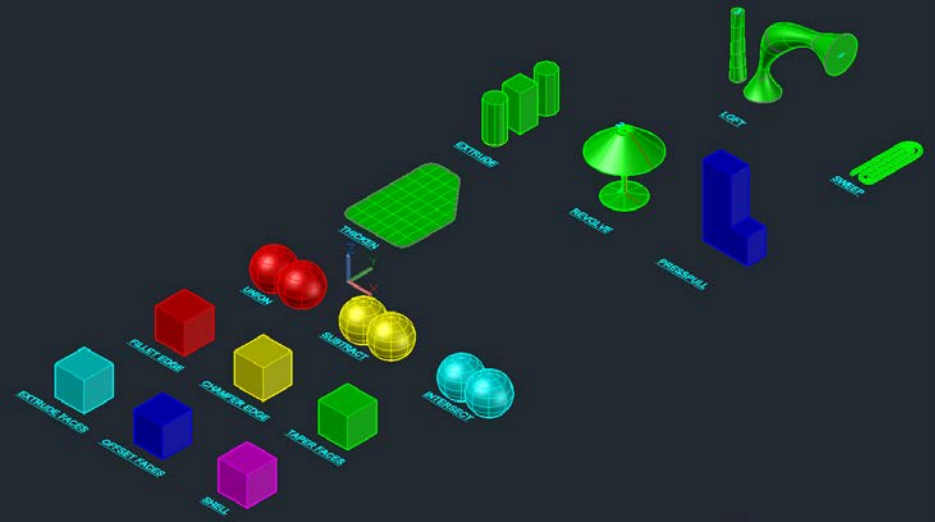
2. Mesh Primitive Objects. Mesh tab, Primitive panel.

- Mesh Box
- Mesh Cone
- Mesh Cylinder
- Mesh Pyramid
- Mesh Sphere
- Mesh Wedge
- Mesh Torus
- REVSURF (Revolve Surface)
- EDGESURF (Edge Surface)
- RULESURF (Ruled Surface)
- TABSURF (Tabulated Surface)

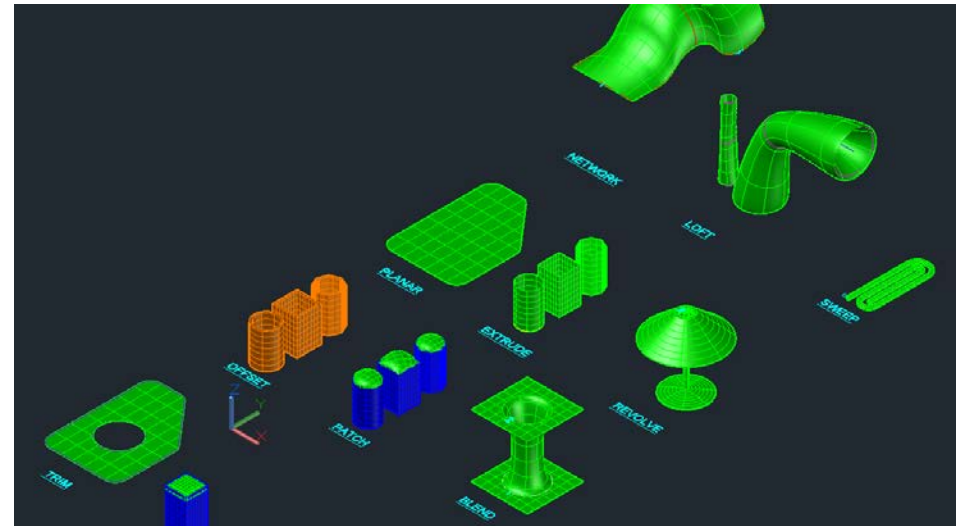
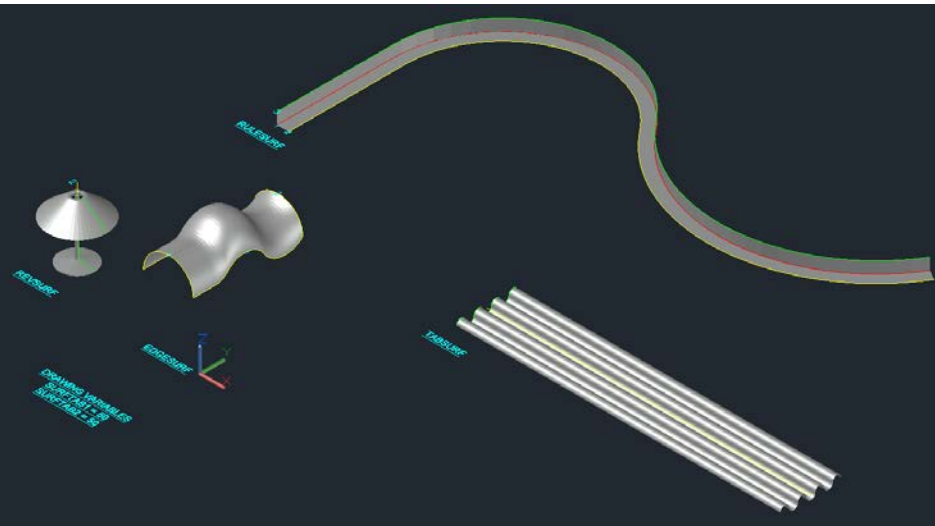
3. Drawing Objects. Home tab, Draw panel.

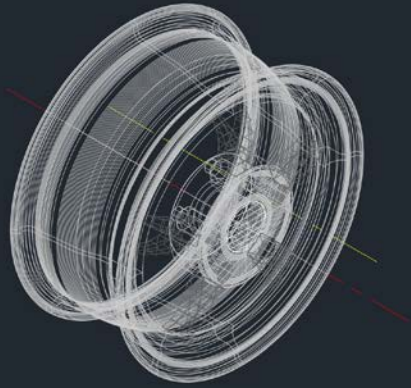
- Line
- Polyline
- 3D Polyline
- Spline
- Helix
- Circle
- Polygon
- Rectabgle
- Ellipse
- Region
- 3DFace



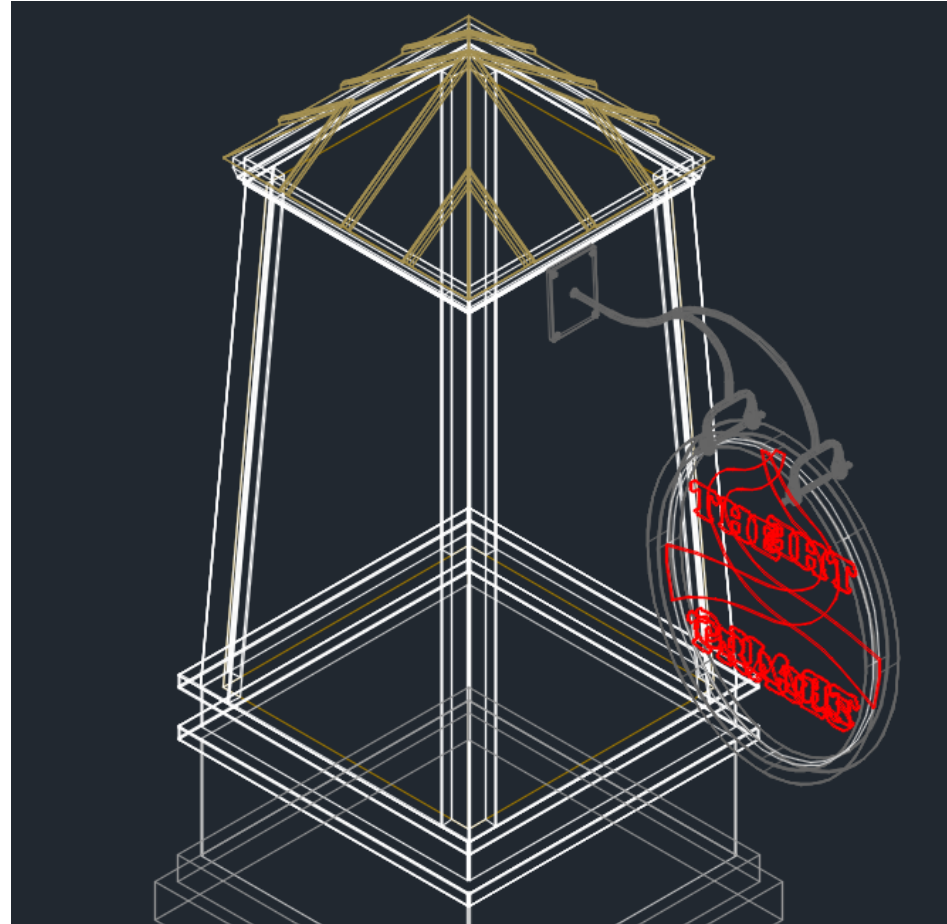
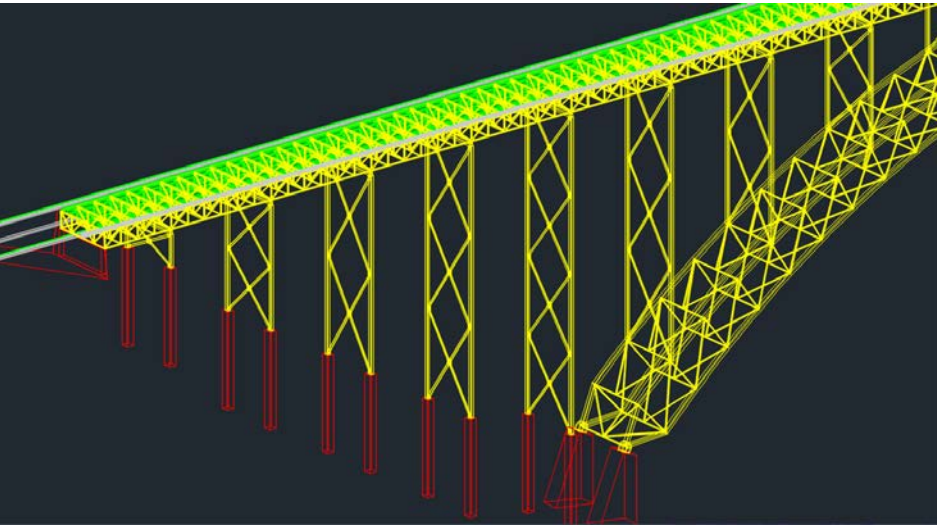


- Create Primitive 3D Solid, Surface and Mesh objects .
- Create 3D Solid, Surface and Mesh objects based on lines, polylines, splines, 3D polylines and so on.



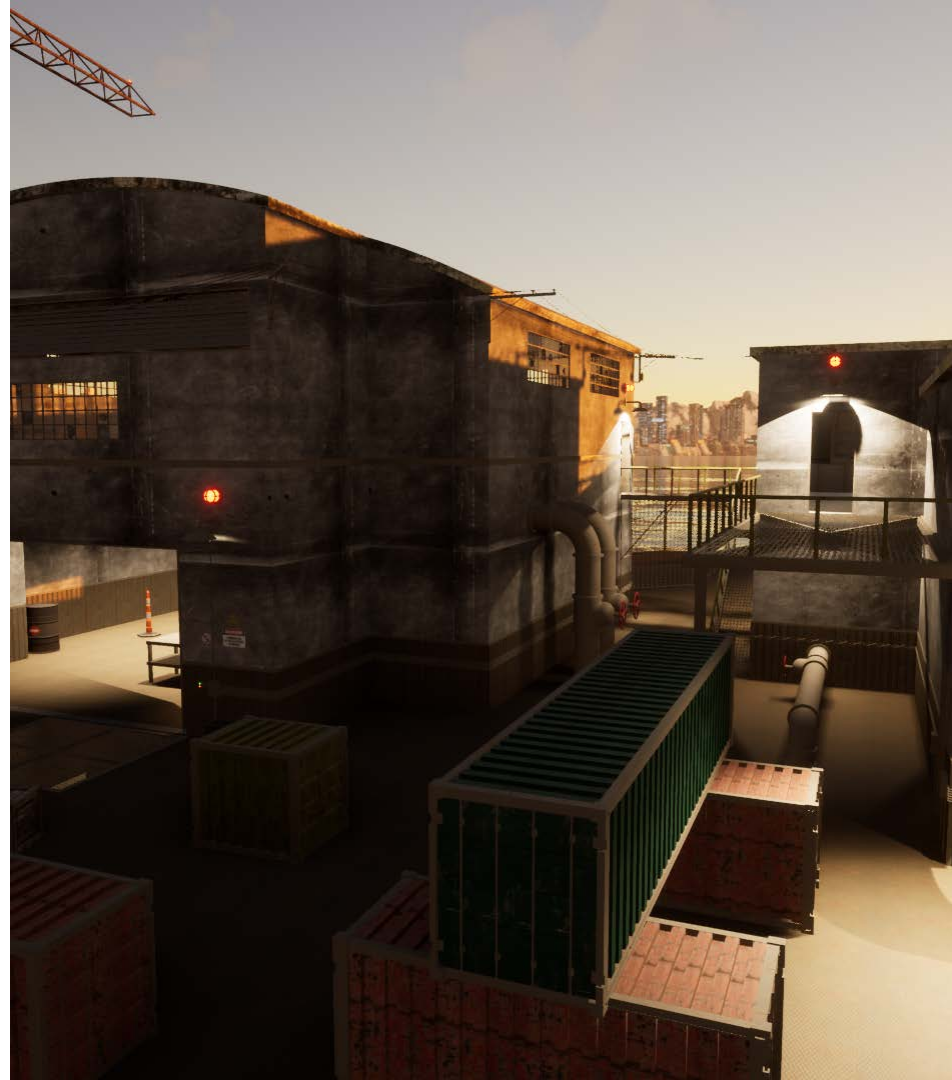
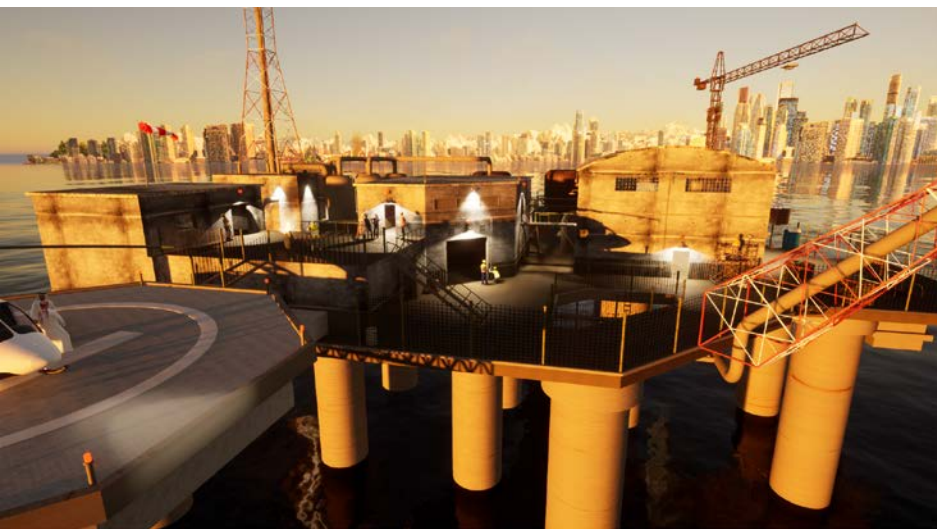


- Create 3D Solid, Surface and Mesh objects using tools such as Extrude, Revolve, Union, Subtract and so on.

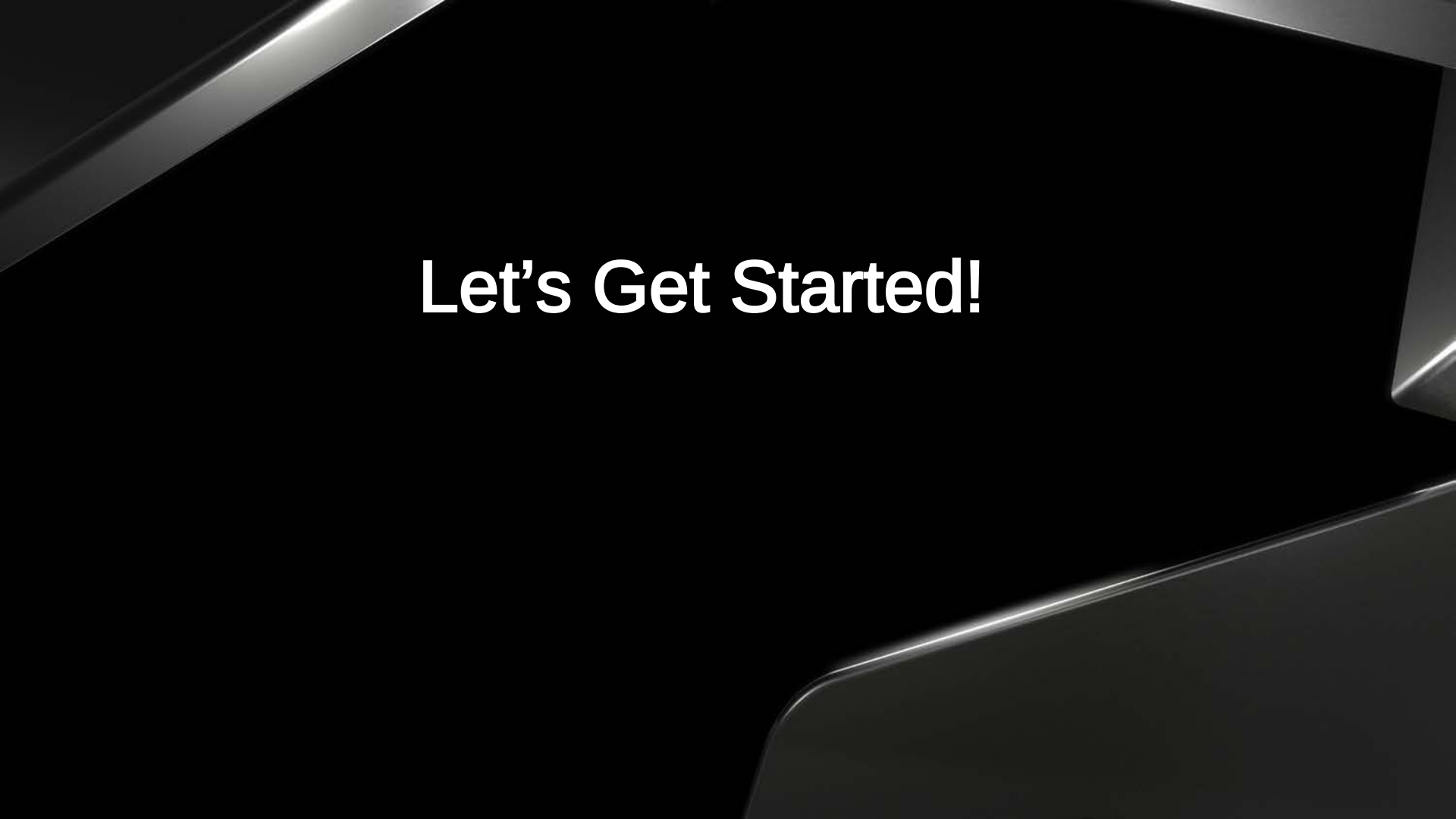












Let's Get Started!

The background of the slide features four abstract, dark, metallic-looking geometric shapes in the corners. These shapes are composed of sharp, angular planes that reflect light, creating a sense of depth and modernity. They are positioned in the top-left, top-right, bottom-left, and bottom-right corners, framing the central text.

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