CS148 Final Project Discussions

11/14/2025

Section: Geometry / Modeling

cs148.stanford.edu

Shortcuts

Switch between Edit/Object Mode: Tab

Focus View on Selected Object: Numpad . or view -> frame selected

Duplicate: Shift D

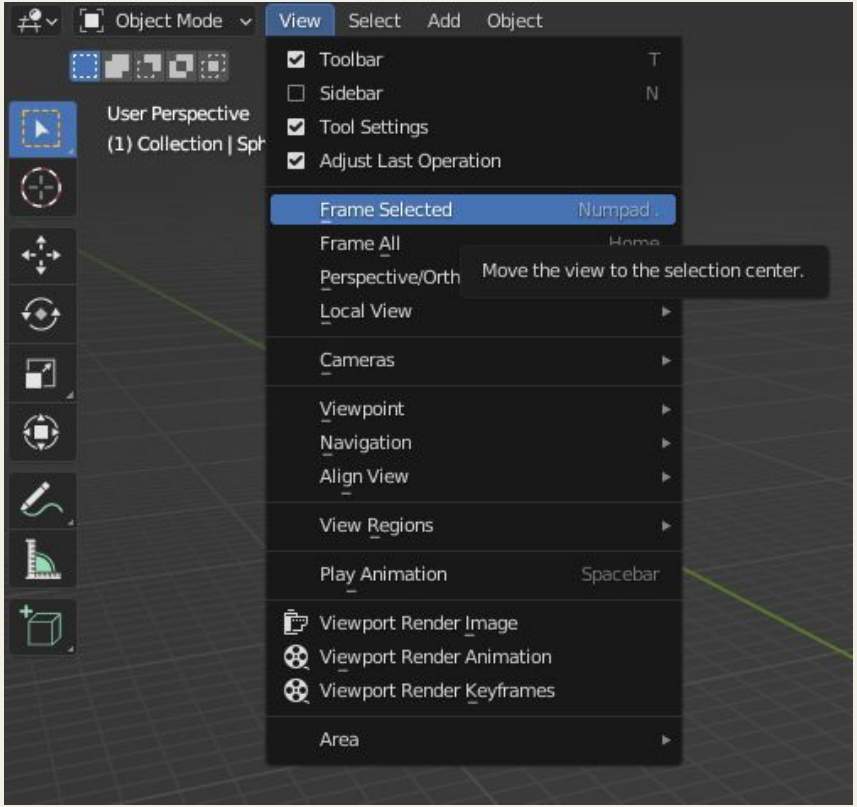
Repeat last action: Shift R

Select All: A

Delete (with options): X

Select Edge Loop: Alt+Mouse click

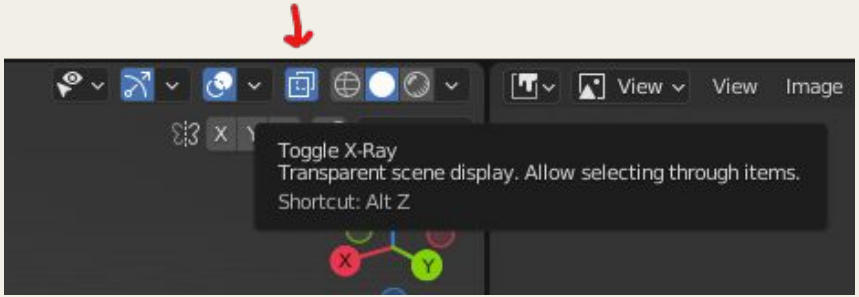
Join Selected Objects: Ctrl J

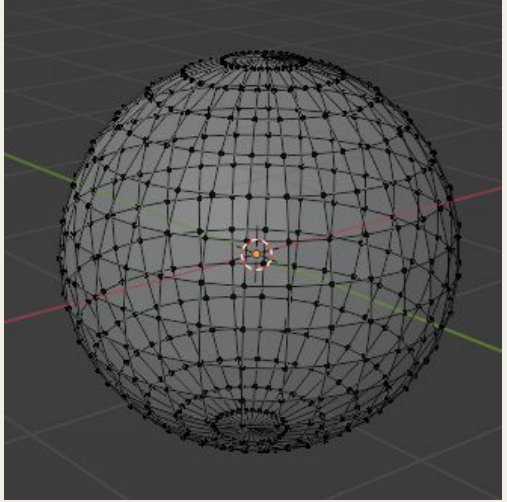


Editing Tools

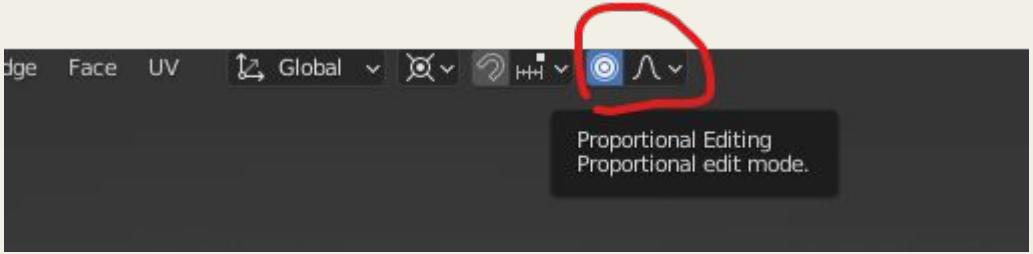
- Extrude (E): Duplicates and moves selected vertices, edges, or faces.
- Bevel (Ctrl B): Rounds off sharp edges or vertices.
- Bridge Edge Loops: Creates bridge of faces between 1 or more selected edge loops
- Loop Cut (Ctrl R) and Slide: Adds new edge loops to a mesh, which can then be repositioned.
- Inset (I): Creates a new face within a selected face.
- Spin: Extrudes a face while rotating it around a pivot point.
- New Edge/Face (F): Makes a new edge/face from selected vertices
- Grid Fill: Creates a grid of faces to fill a selected edge loop.
- Knife Tool (K): Allows you to make custom cuts on a mesh surface.
- Merge (M): Combines selected vertices or edges.

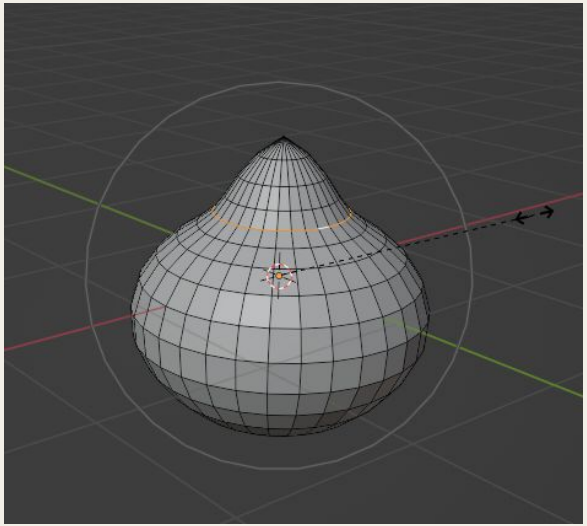
- X-ray toggle





- Proportional Editing Toggle





Modifiers

Subdivision Surface: Increases mesh resolution for a smoother surface

Mirror: Creates a symmetrical object by mirroring it across an axis

Solidify: Adds thickness to a flat mesh

Bevel: Rounds edges and vertices

Boolean: Performs union, difference, or intersection operations between objects to cut or combine them

Array: Creates duplicates of an object in a pattern

Curve: Deforms an object along a curve, useful for things like cables or ribbons

Simple Deform: Allows for twisting, bending, tapering, or stretching an object

Screw: Creates a shape by rotating a profile around an axis, ideal for pottery or spirals

Geometry Nodes: A highly versatile modifier that allows you to create complex, custom procedural setups by manipulating an object's data stream.

Shrink Wrap: Conforms one object's surface to another, useful for adding details to a base mesh.

Decimate: Reduces the polygon count of a mesh, which can improve performance or be used for baking details.

Physics

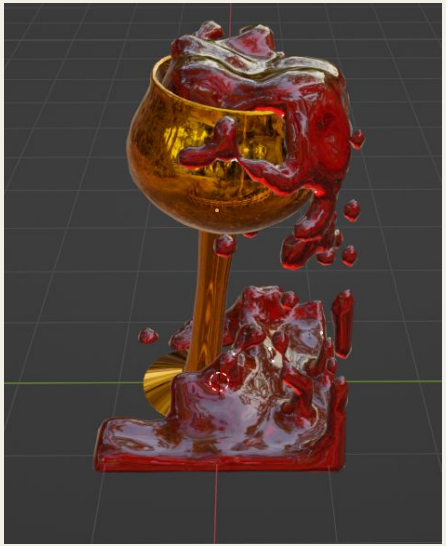
Rigid Body: Used for solid, non-deforming objects that interact

Cloth: Good for creating realistic-looking fabric, flags, pillows, etc

Soft Body: Simulates objects that can deform/compress but retain a general shape, like jello.

Fluid: Good for simulating liquids, smoke, and fire

Force Field: Can be used to influence other physics simulations, ex wind



Outside Assets/Resources

Poly Haven: Free HDRIs, Materials, and 3D models

Mixamo: Rigged & Animated humanoid characters

Sketchfab: Community for 3D Creators to showcase works & Asset Marketplace

- Dioramas

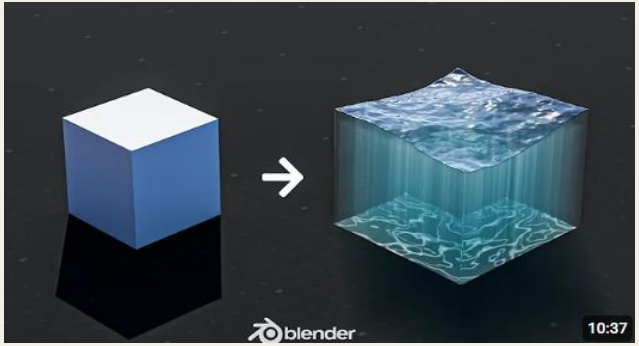
CGtrader: Marketplace for 3D Assets

TurboSquid: Marketplace for 3D Assets

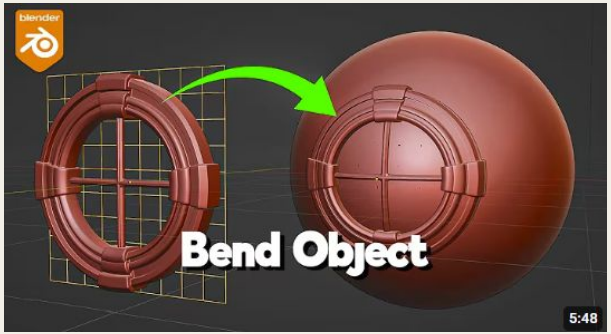
Tutorials

[Blender cell fracture Tutorial]

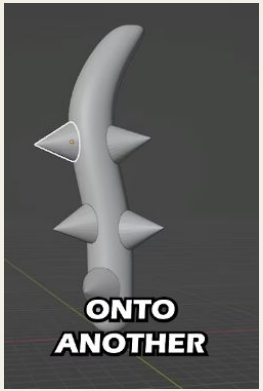
[Hyper Realistic Water]



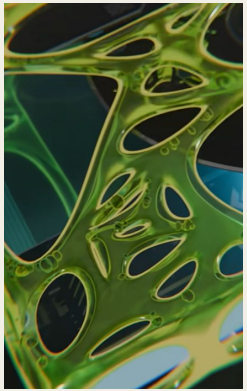
[Deform objects with LATTICE MODIFIER in Blender]



[Snap an Object to a mesh]



[Create easy Neurochrome asthetics]



[Convert 2D Design to 3D]

[Create Pipes in Blender in 1 Minute!]

Randomizing Objects Tutorials

Randomize Multiple Objects In Scene: Randomize Objects

Scatter Objects on a Surface with Particle System: How I Scatter Assets in Blender with ZERO Addons

Scatter Objects Built-in Addon: Scatter Objects in Blender in 40 Seconds!