SHORTCUTS (OG and REMAPS):

- CTRL+ . → Edit pivot mode (2.81+)
- CTRL+ A → Freeze transforms
- CTRL+Right click → Lasso select
- CTRL+(Numpad +/-) → Select More / Less → remap to CTRL+MouseWheelUp & Down
- CTRL+J → Join (attach)
- CTRL+B → Bevel
- CTRL+B,V → Bevel vertices
- CTRL+X → Dissolve selection
- CTRL+0,1,2,3… → Subdivision levels
- /,ç → Local mode (isolate) → *Remap to ALT+Q for left-hand convenience*
- M → Merge menu (weld)
- ALT+N (face selection) → Flip normals
- ALT+D → Instance (linked) duplicate object
- ALT+E → Extrude menu
- ALT+J → Convert tris to quads
- ALT+Middle click → Center view on mouse cursor
- ALT+S → Push/pull along normal
- ALT+Z → Enable x-ray mode
- SHIFT+A → Add mesh
- SHIFT+D → Duplicate object
- SHIFT+G → Select Similar
- SHIFT+S → Snap menu
- SHIFT+R → Repeat last action
- SHIFT+Z → Wireframe mode
- SHIFT+RMB → Move 3D cursor. *In keymap preferences, change orientation from "view" to "object".*
- NUMPAD . → Frame selected (works in outliner too!)
- INICIO → Frame all objects
- A → Select all
- ALT+A or AA → Deselect all
- D → DECALmachine
- G → Move
- GG → Slide
- GG, C → Slide outwards (clamp)
- E → Extrude
- I → Inset
- F → Fill, create face
- L → Select Linked (double click in Maya, element selection in Max)
- K → Knife (cut)
- P → Separate (Detach)
- J → Connect vertices
- X → Delete
- Y → MESHmachine (remap)

- Y → Split (detach inside object)
- Z → Render type (pie menu)
- . → Pivot point (pie menu)
- Remap Select linked to LMB double click (in Mesh and UV categories), as well as leaving the default "L" key.
- 2 → Remap to "Display As", in the object properties tab. Useful for booleans.
- F1 → Remap to Search Menu
- F3 → Remap to Wireframe toggle
- F4 → Remap to Wireframe on shaded toggle
- F5 → Remap to Face Orientation.
- W → Select tool → Remove "Cycle" option so it stays in the same toggle.
- F → Select and move island (UV Editor)
- ALT+Mousewheel Up or Down → Frame offset (REMOVE)

+----cursor parking lot----+
```
|                           |
|                           |
+---------------------------+
```


MY BLENDER VIDEO TUTORIAL:
[Weapon development in Blender](#)

PLUG-INS

Extensions (just hit install from menu)
[Orient and origin to selected](#)
[BoolTool](#)
Extra Mesh Objects
Extra Curve Objects
[LoopTools](#)
[UV Toolkit](#)
Inset straight skeleton
HDR Rotation
F2
Scatter Objects

Older:
[NodeWrangler](#)
[Edit Mesh Tools](#)

Free
Maxivz's Interactive Tools
https://github.com/maxivz/interactivetoolsblender
EdgeFlow
https://github.com/BenjaminSauder/EdgeFlow
TexTools
https://github.com/SavMartin/TexTools-Blender
Simple Lattice
https://github.com/BenjaminSauder/SimpleLattice
YAVNE (Custom Normals Tool) - DEPRECATED
https://github.com/fedackb/yavne
Texel Density Checker
https://gumroad.com/l/CEIOR
Bevel after boolean
https://blenderartists.org/t/wip-bevel-after-boolean/693072
Embark tools (batch exporter)
https://github.com/EmbarkStudios/blender-tools/releases
UV Squares (align shells)
https://github.com/Radivarig/UvSquares
Script to Button
https://github.com/RivinHD/ScriptToButton
Screencast Keys
https://github.com/nutti/Screencast-Keys/releases/
UV Highlight *(location: UV viewer → N panel → View → Display → UV Highlight)*
https://github.com/BenjaminSauder/uv_highlight
Visibility handler https://3dbystedt.gumroad.com/l/visibility_handler

Premium
UV Packmaster
https://gumroad.com/l/uvpackmaster2
UV Toolkit 2.0 (Alexander Belyakov) - OFFLINE DUE TO SANCTIONS, GET EXTENSION INSTEAD
https://gumroad.com/l/tslqD
PME (Pie Menu Editor)
https://blendermarket.com/products/pie-menu-editor
MESHmachine
https://machin3.io/MESHmachine/
DECALmachine
https://machin3.io/DECALmachine/

RizomUV Bridge
https://github.com/MattAshpole/BlenderRizomUVBridge/releases
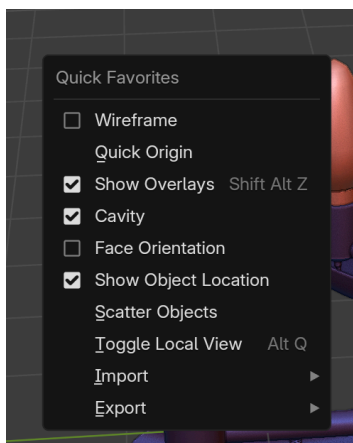https://gumroad.com/l/DTJiP

QUICK FAVORITES

Commonly used tools to keep on the quick favorites tab (Q).
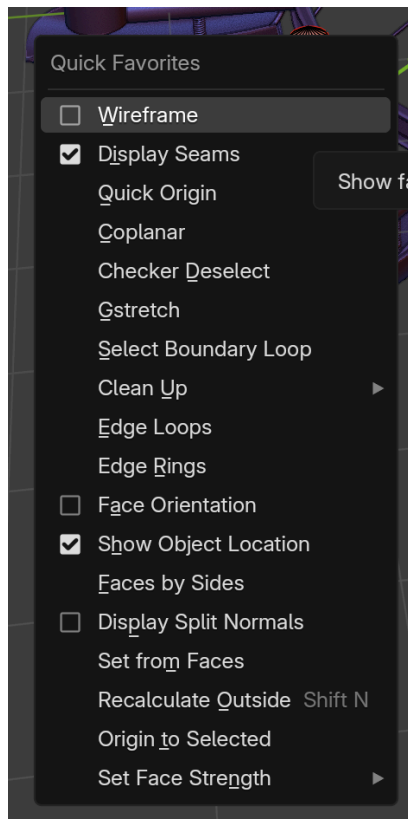
Object Mode
- Wireframe
- Quick Origin (Maxivz plugin)
- Show Overlays
- Cavity
- Face Orientation
- Show Object Location (toggle gizmo)
- Toggle Local View (Isolate Object)
- Import
- Export

Edit Mode
- Wireframe
- Display Seams
- Quick Origin (Maxivz plugin)
- Coplanar (from Select Similar)
- Checker Deselect
- GStretch (from LoopTools addon)
- Select Boundary Loop
- Clean Up
- Edge Loops
- Edge Rings
- Face Orientation
- Show Object Location (togle gizmo)

- Faces by sides (select ngons)
- Display Split Normals
- Set from Faces (reset normals)
- Recalculate Outside (reset flipped faces)
- Origin to selected (quick origin alternative)2
- Display Sharp
- Display Seams
- Auto Merge Vertices

HOW-TO
Useful tips and tricks

Select all the N-gons
(Edit Mode) Select → Select All By Trait → Faces by sides

Create locator in object's pivot
SHIFT+S: Set 3D Cursor to Active (3) → SHIFT+A: Create empty

Collapse windows
Click RIGHT CORNER (or the closest corner to the next window) and drag to the next window. A small arrow will appear if the windows are going to merge.

Open new window in different screen

Window → New main window

Fix camera clipping
N panel → View → Clip start → reduce value

Copy and paste modifiers
You cannot use the modifier panel to apply a modifier to multiple objects, it only applies it to the one selected last. However, you can use Ctrl + L (link) to **copy the modifier** on one mesh to all the other selected ones. You select the object(s) to apply the modifier to then the one that has the modifier (active object).
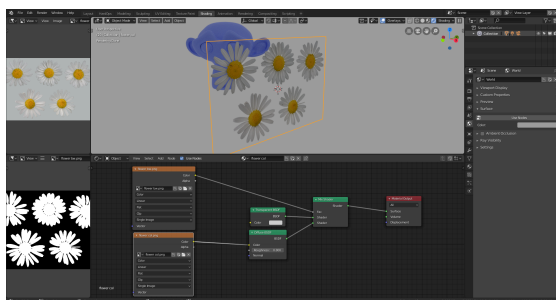
(Shader editor) Add a normal map
Create NormalMap node and plug into shader. Set the image color space to non color.
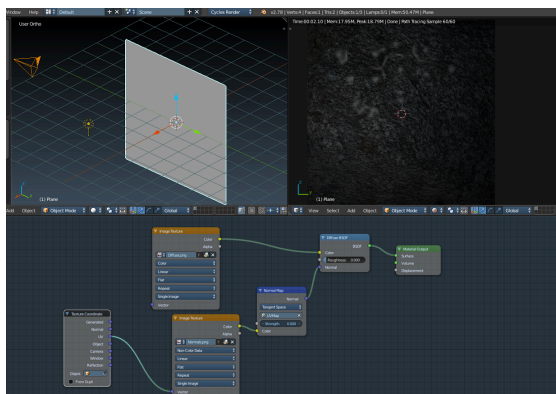
(Shader editor) Add an opacity map
Plug map into "alpha" node in Principled BDSF output. Then, go to Material page → Settings → Blend mode → Alpha clip

Navigate 3D space more comfortably
In Preferences → Navigation check Auto Depth & Zoom to Mouse Position

"Select every other" is called "Checker deselect" and it works in reverse.

Alternative: Select every other element (pattern select)
Just click on the 2 first elements to establish the pattern and then hold CTRL+SHIFT+ "+" to add and "-" to remove elements.

Select every other, or every X others (Select Next Active):

Select the 2 first elements (they have to be inside a loop or it won't work) and then press "CTRL + SHIFT + NUMPAD+"

Use the keyboard to transform/rotate/scale in 2 axis at the same time
Use SHIFT + the axis normal to the 2 ones you wanna transform in. To transform in the XY axis, press SHIFT+Z.

Easily create splines
Duplicate an edge from a mesh, go to (object mode): Object→ convert to → spline from mesh and now we can assign a shape for the spline.We can also create it from scratch by extuding vertices. Careful with mirror modifiers on splines, they might crash.

Better splines
Splines are missing many modeling tools, so I usually just stick to regular mesh edges. To give them "volume" I apply a Skin modifier, then select all verts and adjust the thickness with the X and Y values on the N panel. Then, to make it round, I apply a subdiv modifier.

Slice a straight plane
Don't use the bisect tool. The knife tool also does it, and with angle constraints: K (knife), C (angle constraint toggle), Z (cut through mesh).

Join meshes without losing UVs
Just make sure they share the same UV Map name!

Duplicate a material
You can copy and paste material settings from the material tab. Note that you need to add a new material ID before you paste copied settings into.
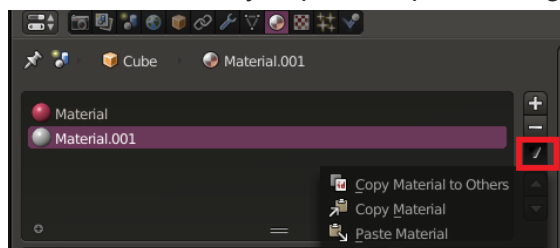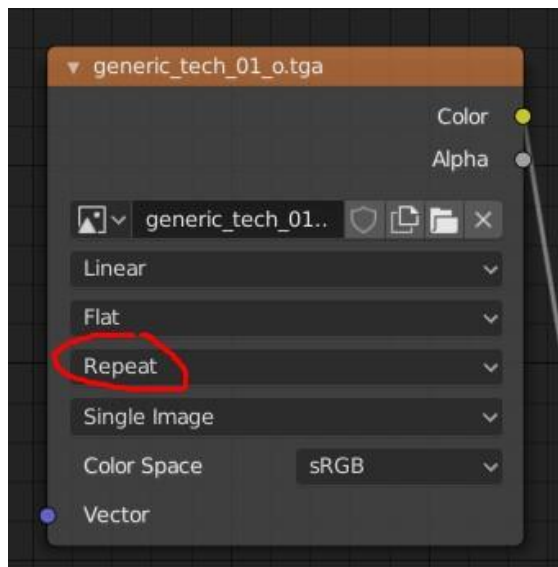

(Shader editor) Cut material nodes
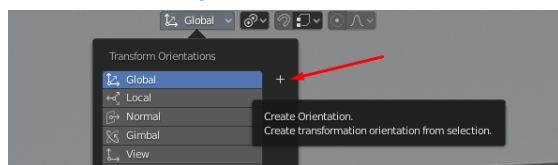Drag RMB + CTRL and cut the node links.

(Shader editor) Make a texture tile
Inside the image node, select "repeat" instead of "clip".

Transform subobjects in a different, custom orientation
Use the command "create orientation" or this button in the axis menu while selecting a face with
the orientation you want.

Swap interface windows
Same procedure as collapsing windows (drag from the corner) but holding CTRL.

Add items to Shading Pie Menu (Z)
There's a checkbox for this in Preferences → Keymap.

(Shader editor) Add custom HDRIs
(Activate the NodeWrangler default addon first). Select the "World" option above the shading
menu. Select the "Background" node, hit CTRL+T and then click "Open" inside the Environment
Texture node and open an HDRI. You can use a mix shader with another background node as a
solid color below, the main one on top and, as "fac", use "light path" node and "is camera ray"
option. Good place to get them is:
https://hdrihaven.com/hdris/

Export preferences and scripts to another computer
Preference files are located on *User/appdata/roaming/blender foundation*
A quick way to open this folder is writing *%appdata%* on the windows start menu.

Applying any change to all selected objects instead of only the active one
Just press ALT and accept, depending on the selection mode (ALT+Click for toggles, ALT+Enter
for numerical values, etc)

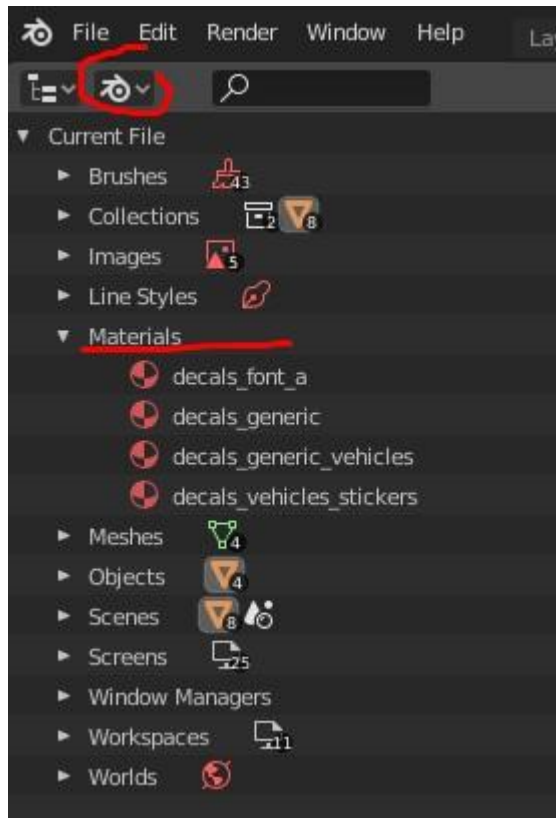**Isolate selected faces**
Select faces and:
SHIFT + H → Hide everything not selected
ALT + H → Unhide everything

Alternative: select faces, CTRL+I to select inverse, then H to hide.

Delete unused materials from scene
On the top of the outliner there's a dropdown list. Choose "blender file" instead of "view layer" and then go to materials and delete them.

Load materials into another scene
Go to File → Append and load another scene with the original materials, then choose exactly what you want to import.

**Display scene polycounts**
Overlays button → Statistics.
It does not take modifiers into account so to know the real polycount you might have to collapse, view and and then CTRL+Z.

Target Weld (AutoMerge)
This isn't a tool but a toggle called Auto Merge. When active, moving a vertex very close (within a threshold) or on top of another one, they will merge. Put on Quick Favorites. Set the value very very small or you will merge random small stuff.

Simulate physics
Go to Physics tab and add "Rigid Body" to objects. Set receptacle or floor to "Passive", the rest to "Active". Set weight. shape and Margin. TIP: If the objects are too small, try scaling them up so units work correctly.
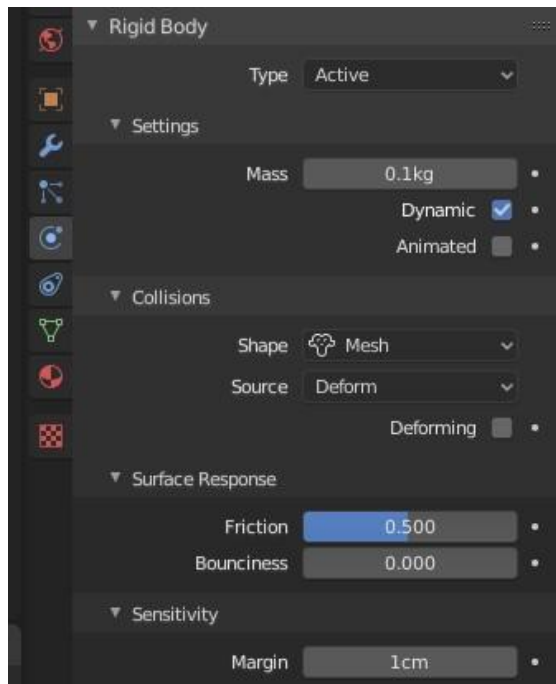
Get simulated meshes from animation
Search bar → Convert to → Mesh

Preserve UVs for 3D shapes
Blender preserves UVs when sliding: G, G, ALT. Now (in 2.9+) there's a new method: N panel → Tool → Options and toggle "Correct Face Attributes". Don't forget to also check "Keep connected". If you DO want to stretch the UV islands sometimes, turn off "Correct Face Attributes".

Hide parent object and children at the same time
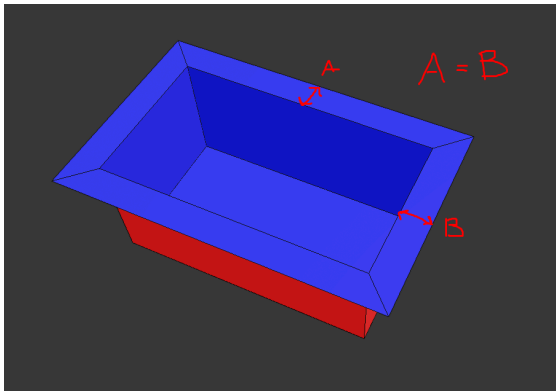Hold SHIFT while clicking on the eye icon

Make quad spheres completely spherical
Use the cast modifier on sphere mode, on top of the quad sphere
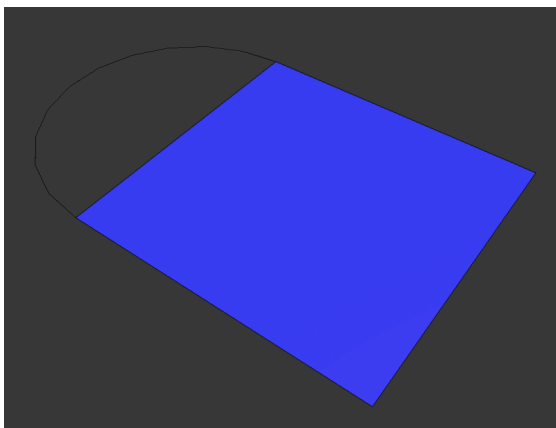Alternative: collapse subdiv and then search and apply command "To Sphere"

Extrude a border with same offset (ideal for floaters)
(Edit Mesh Tools Plugin) Select edges → CTRL+E (edge edit tab) → Offset edges → Extrude
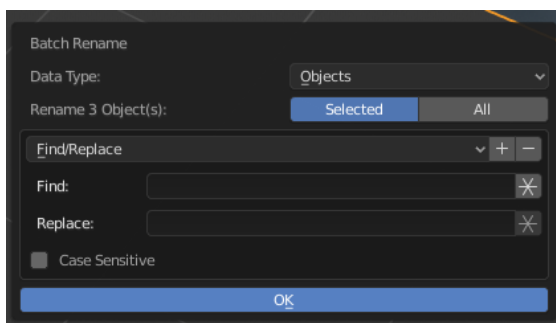
Create semicircle from edge
(Edit Mesh Tools Plugin) Select edges → CTRL+E (edge edit tab) → Roundify edge

Alternative: just bevel the sides until they touch and then weld the middle point.

## Batch rename tool
CTRL+F2

Link (instance) modifier parameters
Select the desired parameter to instance on the main modifier → RMB → Add Driver → Copy as New Driver → Paste driver on itself. Then, on the new objects, Link Modifiers and Link Animation Data. Downside: this can only link 1 parameter at a time, and the driver can only be modified from the original object, which will be used as a controller.
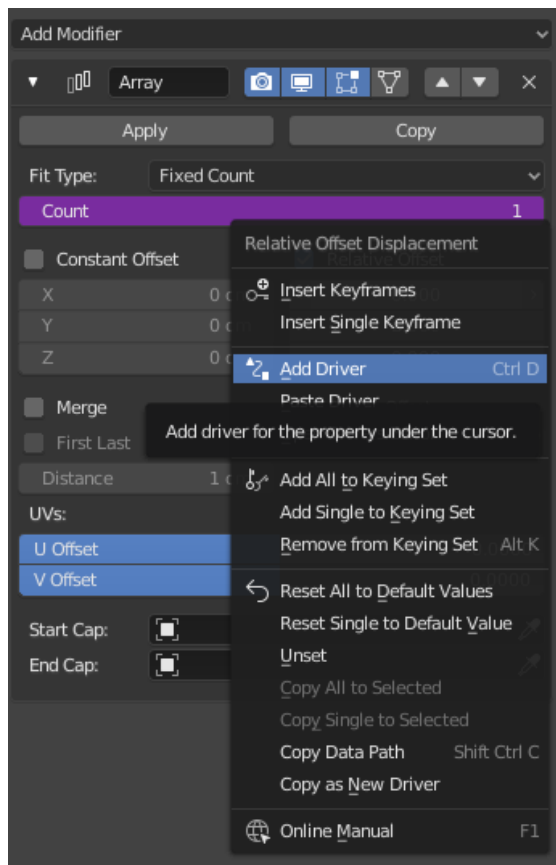
Break instances
Object → Relations → Make Single User → Object & Data.
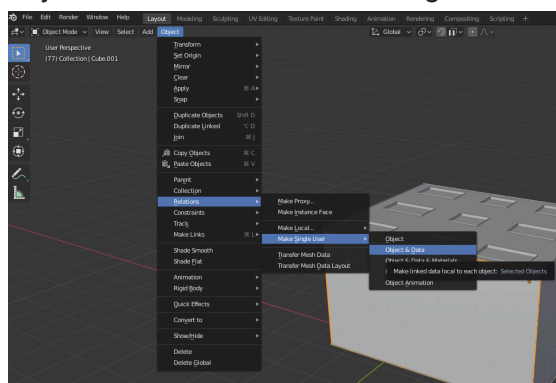
Alternative: click on number displayed in the mesh tab, next to the object name.

Toggle wireframe like in 3Ds Max
Go to Preferences → Keymap → 3D View → Global → Add new, and add:
"wm.context_toggle" in the main text and
"space_data.overlay.show_wireframes" in the Context Attributes box. Map it to F4 like in Max.
The same applies to the F3 wireframe key: Add new and write "view3d.toggle_shading" with
type "Wireframe". Remap Search Menu (wm.search_menu inside Window category) to F1, and
disable the online manual key.
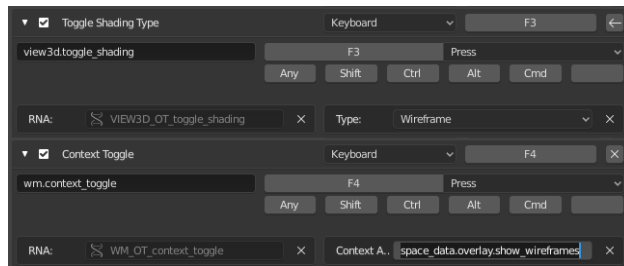
To enable Face Orientation in F5, write "wm.context_toggle" and "space_data.overlay.show_face_orientation" in the Window category.
Alternatively, there are toggles for these options in the Maxivz tools plugin.
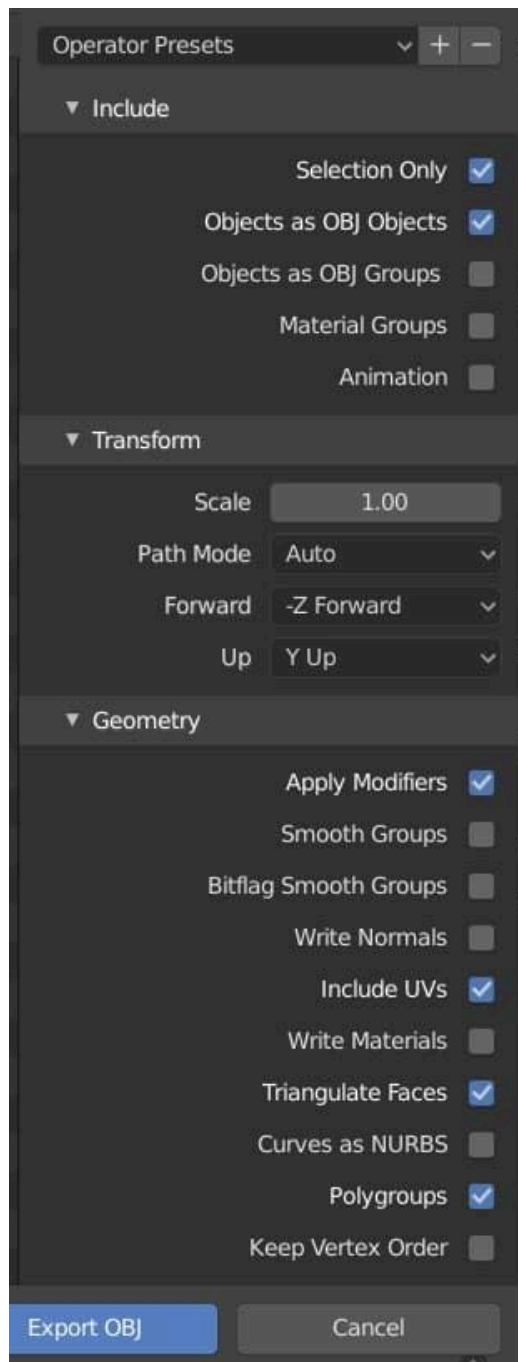
Isolate a subobject selection
Blender doesnt allow to isolate subobjects but there's a nice workaround: Select Inverse with CTRL+I and then H to hide the rest. Recover the hidden parts with ALT+H.

Alternatively we can just use SHIFT H.

Export OBJ to Zbrush for polish
The correct configuration is

Slide an edge with the same slope as the next edges
GG to slide, E to slide uniformly and F to choose the side it will follow

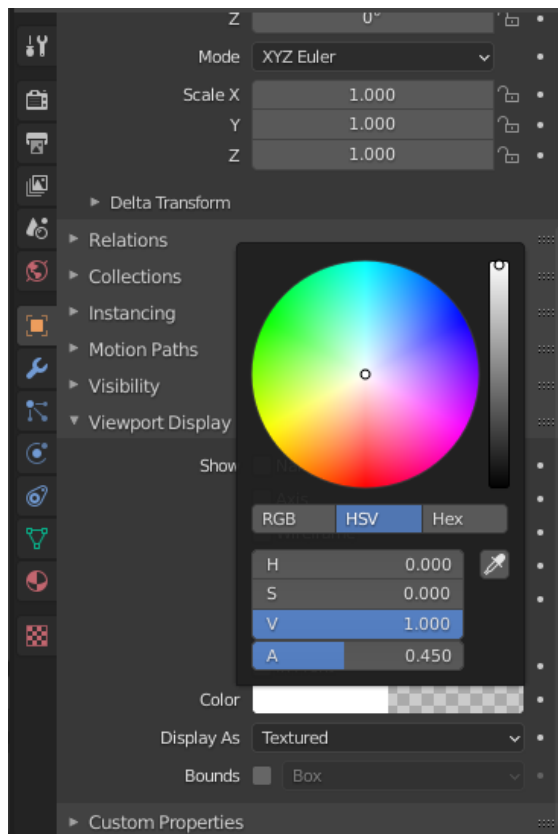**Select faces by angle (3Ds Max)**
Select → Coplanar
Alternative: Select → Linked flat faces

Make diamond pattern from quad mesh
Just use the decimate modifier in "Un-subdivide" mode

Make an object translucent in viewport

Modify the alpha value in the color settings inside Object → Viewport Display → Color → Modify alpha value (Set the render mode to Object instead of Random!)

Instancing objects or groups while keeping modifiers - Collection Instance
We just have to create a collection instance. Select the desired object or group of objects and press CTRL+G to create a "group collection", and set a name. Then, simply SHIFT+A to add a Collection Instance.

Viewing backfaces easily while modelling
-Preferences → Themes → 3D Viewport → Face orientation front → drag down the alpha value so it doesn't show blue at all
-Keep "face orientation" turned on in the Overlays panel, now the blue is transparent but the red is still there to check flipped faces

Duplicated addons and matcaps when using Blender for Steam
Blender's configuration files can be found in two paths, appdata and the Steam folder:

C:\Users\USERNAME\AppData\Roaming\Blender Foundation\Blender

C:\Program Files (x86)\Steam\steamapps\common\Blender

This can cause duplication issues. The solution is to leave the appdata folder as it is, and remove or rename these folders from the Steam files:

scripts/addons

datafiles/studiolights/matcap

Fix object orientation after applying rotation
In edit mode, select a face you want to align it to.
-Create Orientation ("+" button in Transform Orientations menu in top center of screen, can be added to Quick Favs)
-Go back to Object Mode
-Options → Affect only Origins
-"Align to transform orientation": now Origin is properly oriented and can be zeroed
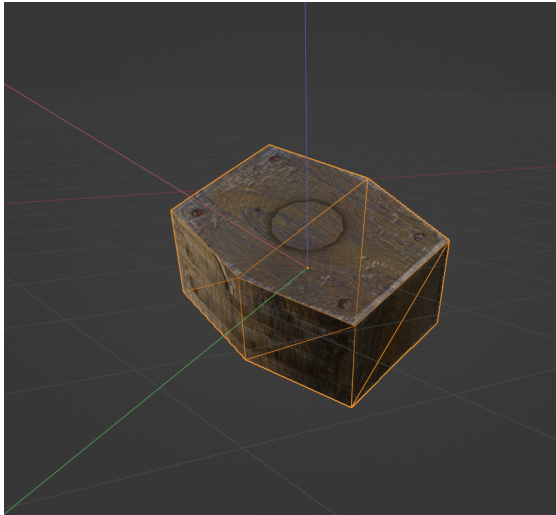
Alternative: with the "Orient to Selected" addon, just go to local axis mode, select the face we want and hit the "Orient to Selected" button.

Find mesh errors
Select → Select All by Trait → Non-manifold
We can uncheck "boundaries" since those are usually correct.

Control bevel width precisely
Use "Width Type: Percent" and then use edge loops on the sides to control how the bevel is wider towards the back and narrower towards the front.

Save a new startup file
Simply click on the **File** dropdown, hover over "Defaults" and click Save **Startup File**, or use the hotkey Ctrl+U. This will save the entire scene as the **default startup file** – every mesh, object, texture, setting, UI layout, everything.

See flipped UVs at a glace
Activate the vanilla plugin "Magic UV" and then in the plugin options, check "UV Inspection" and "Flipped".

Fix UVToolkit Checkers not appearing on some meshes
It's the Viewport Display option. Solid and Textured are 2 different things, so sometimes while working with booleans it becomes solid. Just set it back to textured.

Flip a normal map's green channel (Y)
We could use a combination of Separate RGB, Invert and Combine RGB, but it's much easier to just add a RGB Curves node after the normal map and invert the colors there!

Change default meshes size
They depend on the file grid size. Modify the grid scale, and default mesh size will vary too!
Example: with grid set to 1m squares, a default cube will be 1x1x1m.

Modifier List Addon
-We can add default modifier values: it saves a TON of time
-Favorite modifiers on buttons
-When updating the modifier, do not uninstall the previous version, this way you will keep the favorites configuration

Materials order getting jumbled in LODs
-Sometimes exported meshes have wrong material order in the LODs because of the vertex number discrepancy. To fix this:
-Just select all faces from all LODs at the same time and go Mesh → Sort Elements → Materials

WORKFLOWS

Ron Frölich's smoothing method (similar to dynamesh+polish)
-Create object and booleans
-Freeze modifiers (or duplicate base object and apply modifiers)
-Set proper sharp edges (they will drive face sets)
-Sculpt mode
-Face sets → initialize face sets → from sharp edges
-Remesh (top right menu)
-Now we could use the "mesh filter" brush in "smooth" mode (equivalent to zbrush's polish), but it presents problems:
    -shading is wrong: noisy artifacts in borders
    -it only allows for a single bevel width in the whole piece
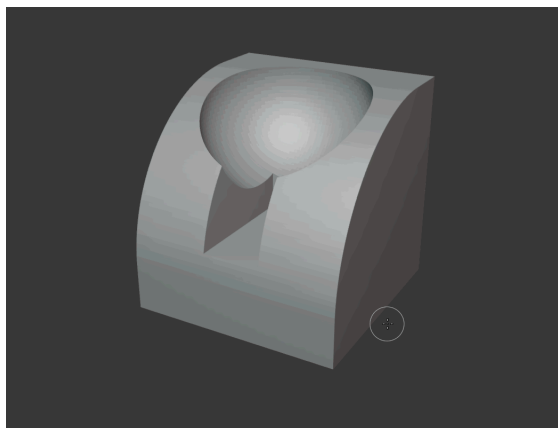
-Solution: mask brush → turn on face sets boundary → paint over everything. It will mask everything but the borders between face sets
-Invert mask (CTRL+I)
-Face sets → face set from masked → will group every border in one face set
-Clear mask
-To be able to set different bevel weights in different places: Initialize face sets → by face set boundaries
-"Edit face set tool" brush → grow face set mode
-Optional step: face sets → relax face sets (in theory it fixes the stepping created by voxels, but breaks corners, be careful)
-"Edit face set tool" brush → fair tangency mode → Click on the border set → bevels are created
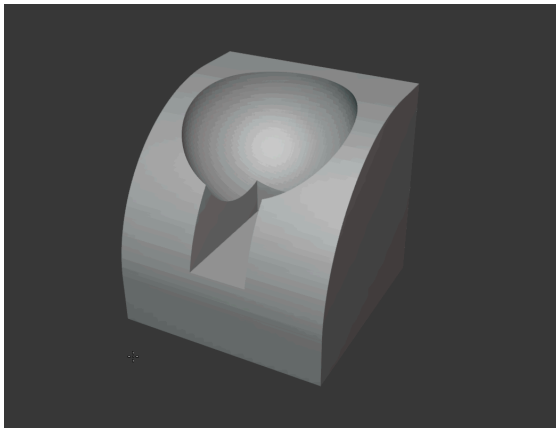
NOTES:
Problem*: there are very detailed/small bevels connected to a larger bevel & the fair tangency mode CANNOT be masked*
Solution*: cut the borders of the smaller face sets using new face sets and then initialize face sets by loose parts to make them independent. Now they can be grown and shrunk independently. They should be joined back into 1 single set before applying the fair tangency (SHIFT+W, select a set and hold CTRL and hover over the other set to combine them).*

*This method, like zbrush, **requires curved surfaces to have many divisions**. One way to control every bevel modifier in the scene is creating a custom driver:*
-Scene: custom properties → DRIVERS → Create our own
-RMB → copy as new driver. now you have it for the duration of your session. Do this every time we start the scene.
-Then in the bevel modifiers for each boolean piece, just "paste driver"
-We can edit the driver's expression to add a x2 or x4 in a specific modifier that we want bigger or smaller

Ron's smoothing method 2 (faster)
-Make base mesh and booleans
-Save a backup of the original mesh with the live booleans
-Remesh modifier in Sharp mode (crisp edges)
-Apply modifier stack

-Initialize face sets by normals (threshold is locked to 0.5, only changeable if you change shortcut, it's a bug!)
-Set a shortcut for the Grow Mask command and disable auto iteration count! it makes masks grow in smaller steps
-Mask brush without face set borders to mask everything, then unmask the small bevels where we won't do fair tangency
-Invert Mask → Face Set from Mask → Fair Tangency
-Do a new Remesh modifier in Sharp mode (with more iterations), this one for the smaller bevels
-Mesh filter Brush in Smooth mode - using this for the smaller bevels gives fewer artifacts
-Decimate modifier to take care of most of the remaining inaccuracies from the remesh (double vertices), and also make it manageable for Blender to work (less geometry)
-Collapse the stack to bring back performance

Ron's method 3 (less artifacts!)
-Make mesh and booleans
-Sharp remesh modifier (octree depth 8)
-RMB → Apply visual geometry to mesh
-Sculpt mode
-Init face sets from mesh normals
-Mask brush - Toggle face sets boundary
-Paint whole mesh
-Invert mask
-Face set from masked
-Initialize face sets by face set boundaries
-Fair tangency only on big bevels
-Sharp remesh with bigger octree depth (for the small bevels)
-Init face sets - from mesh normals (it will ignore the big bevels now)
-Mask again
-Hide overlays to conserve face sets while seeing the shading better
-Use smooth brush instead of smooth mesh filter! just turn off "front faces only" and use the "anchored" brush mode (drag from center, works radially) instead of the normal one, with a huge size to cover the whole mesh. Apparently the result from this is way fewer artifacts than using the smooth filter.

Fixing the Init Face Sets Normals Threshold
-Go to preferences → Keymap → 3D View → Sculpt → Sculpt (Global) → Add New
-Make a new entry with "sculpt.face_sets_init"
-In "mode" select "Face Sets from Mesh Normals"
-Make copies of these with different thresholds and bind them to the final numbers in the keyboard (5,6,7…)
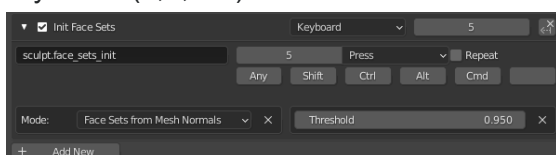
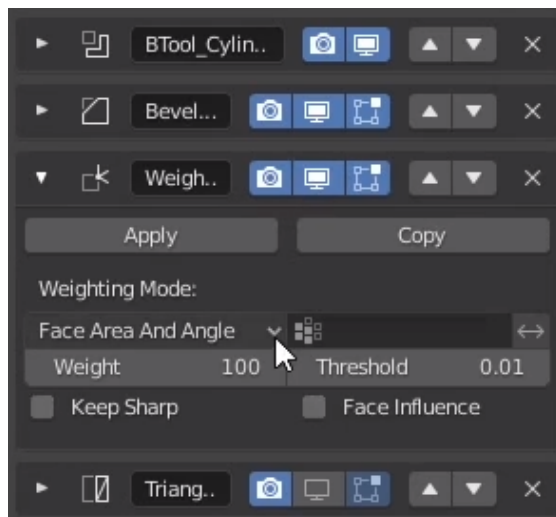
-This way we can effectively modify the threshold property

Boolean Workflows (from the Michael Kinsey artstation tutorial):
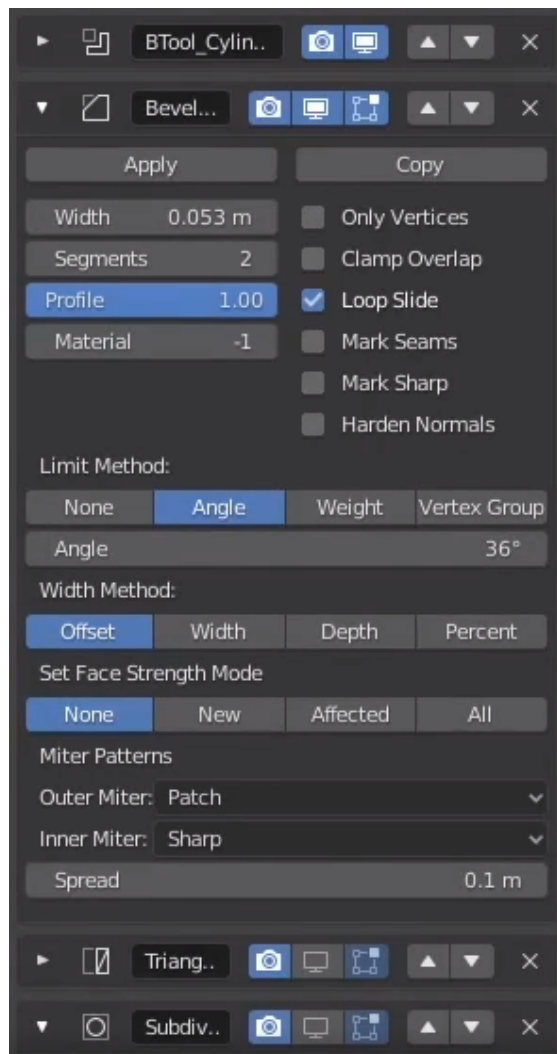
Remesh
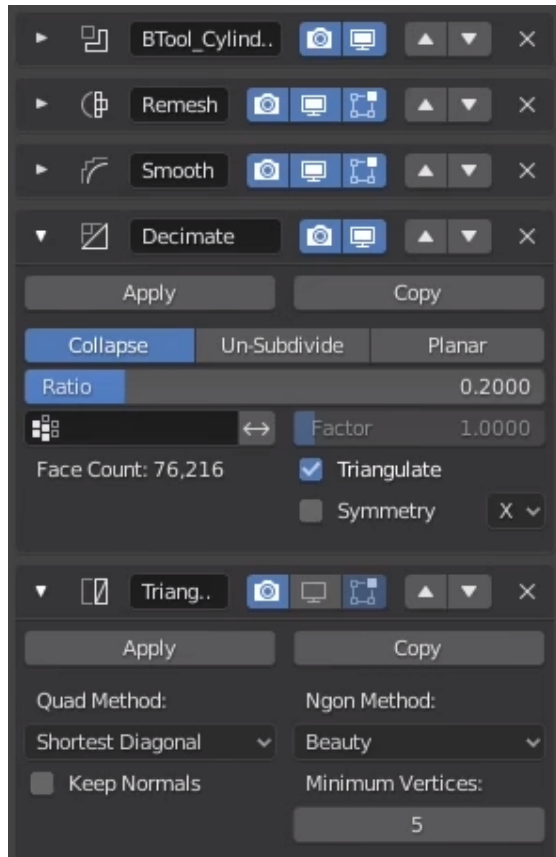
Booleans → Remesh modifier (dynamesh) with octree depth (8) → Smooth modifier (polish) factor of 2, very high repeats (20) → Decimate → Triangulate, rid of ngons

Bevels + Weighted Normals

Subdivision (with auto support loops)

Booleans → Bevel with 2 segments and profile of 1 to create automatic support loops → Triangulate the ngons and then subd

The Matthias' Way (more control)
Since the remesh modifier kills the vertex groups, we can duplicate the base object and then transfer them back using the Data Transfer modifier.

FUTURE FEATURES
Stuff I would like

-(UV editor) See all UV shells in edit mode without needing to select all faces.
-(UV editor) Double click in face select for island select in, instead of L key to select linked. →
This can be remapped maybe?
-(UV editor) Render inside of inverted UV islands in red. Change color when islands are stacked to more easily identify them.
-(UV editor) Texel density picker and setter (integrated in blender).
-(UV editor) Missing features: Cut, unfold, optimize/relax. We need more ways to edit existing UV shells without re-unwrapping, because usually textures are already done and we just need some small changes.

-(UV editor) Align features
-(UV editor) A way to edit UV vertices without them being synced with actual vertices (which usually correspond to 2 or more UV vertices and cause mistakes). Right now we have to choose between seeing the whole mesh and editing UV vertices.

-Double click in face select for linked select in, instead of L key → **Can be remapped, but only works with the first object of the selection**

-Display split normals in object mode.

-When exporting FBX, export selected objects by default when there are any currently selected.