3D Painting

**Tools:**

Blender - (Free)

Pros - Free(Open source), Python extendable, Powerful animation, Wide import and export formats

Cons - Difficult learning curve, tools not geared specifically for 3d painting

Substance painter - (150-590$)

Pros - Allows painting in full 3D, painting and procedural editing of textures

Cons - Very expensive and requires expensive graphics card

Photoshop - (9.99$/month)

Pros - Mobile app available, lots of tutorials, industry standard and has lots of plugins

Cons - No free updates, expensive, learning takes time, **batch editing is not intuitive**

Mari - (599$/year)

Pros - Great at handling large textures

Cons - **Not object oriented**, very expensive

SelfCAD - (9.99$)

Pros - Free for students and teachers, good sculpting tools

Cons - Not a good texturing software

ZBrush - (799$)

Pros - Can easily simplify **mesh topology**, best for **hi-poly modelling**, best support, always evolving and innovating, industry standard

Cons - Very expensive, **odd perspective view**, Non-user friendly UI

Sculptris - (Free)

Pros - Free, allows **bump map painting**

Cons - Lack of tools, importing 3D models is complicated, Maximum of 2048x2048 texture size

Armory Paint - (€19.00)

Pros - Allows painting on multiple maps at once, **Node-based brushes**, Entirely GPU-Run

Cons - No texture brushes, No projection on normals, Still in BETA

3D Coat - (99-599$)

Pros - **Use of PBR materials**, allows **Voxel sculpting**, great for **retopology**, used for **hand painted textures**, linkable to other apps

Cons - Affordable version allows only 7 layers, requires more computer power

Paint Cube - (7$/month)

Pros - Accessible on web, supports layers

Cons - Still in BETA

Mudbox - (15-100$)

Pros - Easy to use, Unlimited 8k layers, Artist friendly tools, True 3D and **projective painting**, **Supports UV-less PTEX painting**

Cons - Requires more computing power

Reference - <https://www.slant.co/topics/8643/~3d-texture-painting-softwares>

**Batch editing** - editing large no. of images at once by doing the same action on all of them

**Object oriented drawing** - Drawing using objects

Mesh topology - It is the geometric surface and its characteristics of a 3d model

**Hi-poly modelling** - models with high no. of polygons - used in animated movies and special effects

**Low-poly modelling** - models with low no. of polygons - used in real time games

**Perspective view** - how the object is viewed in 3D

**Texture mapping** - it is equivalent to applying wallpaper on a wall instead for a 3d shape

It can be done for 3 types of maps - Diffuse Map - gives color properties

**Bump Map** - gives a method to simulate bumps and wrinkles on surface

**Opacity Map** - another map

**Node Brushes** - variety of brushes can be generated using nodes (like in Unreal engine)

**PBR materials** - Physically Based Rendering (**PBR**) is a method of shading and rendering that provides a more accurate representation of how light interacts with surfaces. It can be referred to as Physically Based Rendering (**PBR**) or Physically Based Shading (PBS).

**Voxels** - 3D equivalents of pixels in 2D

**Retopology** - It is the act of recreating an existing surface with more optimal geometry.

**UV texture** - UV texturing permits polygons that make up a 3D object to be paintedwith color (and other surface attributes) from an ordinary image.

**PTEX painting-** With PTEX painting, you apply paint to each base face of the mesh, creating high resolution detail without needing explicit UV coordinates.