

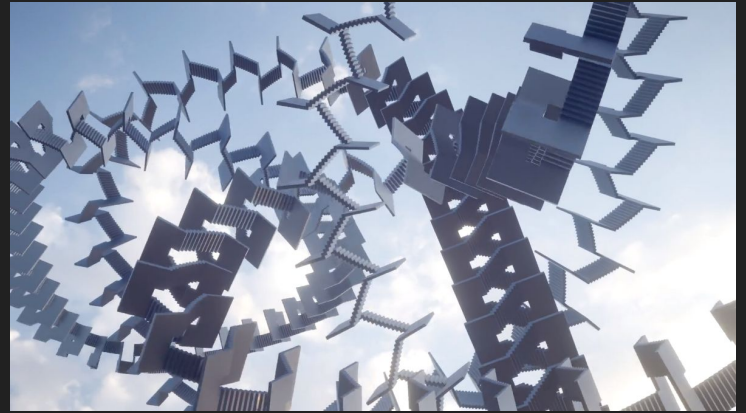
# Advanced Blender Techniques

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Computer Graphics Seminar  
Fall 2021

# Who am I

- Indie game developer
- (mostly) Self-taught 3D artist and modeller
- Long-time Blender user



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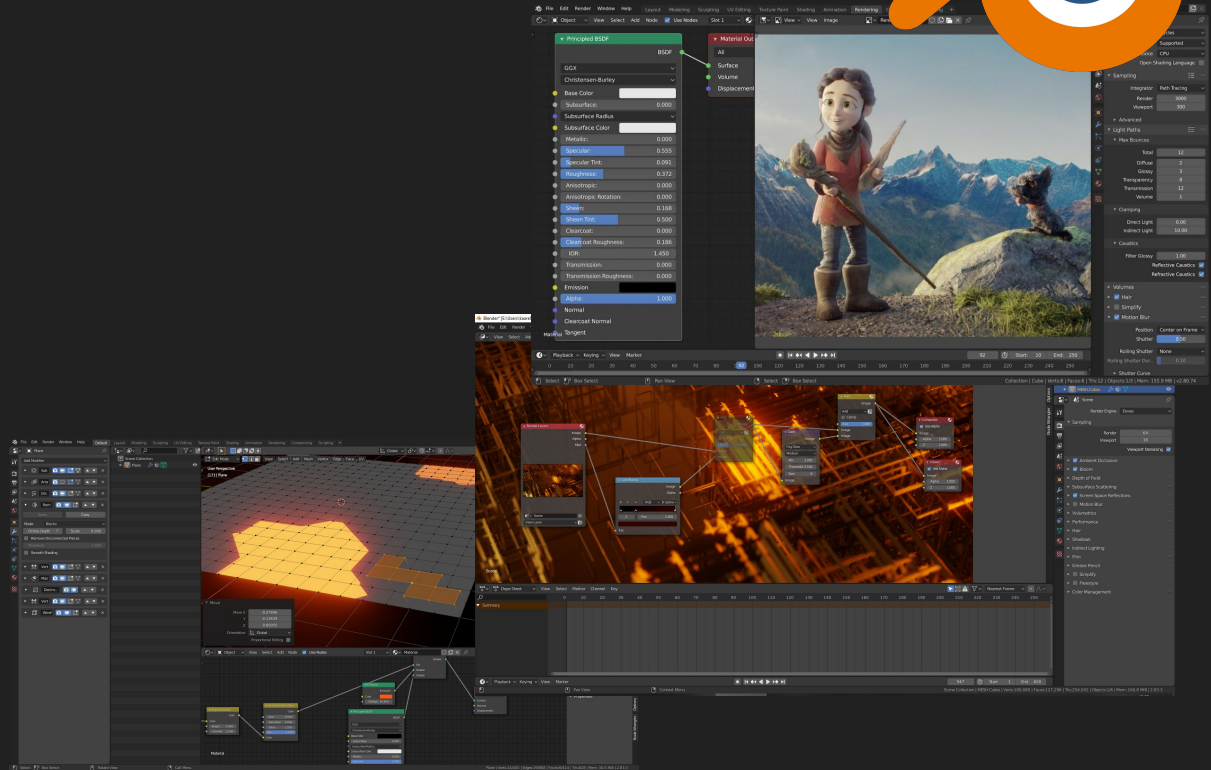


# Seminar Goals

- Describe Blender's current state
- Find uncommon ways to use the software
- Demonstrate some useful hidden features

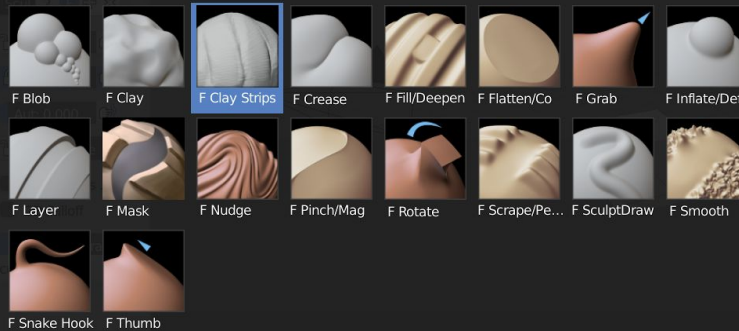
# What is Blender

- Free
- Open-source
- 3D graphics
  - Modelling
  - Rigging/Animation
  - Rendering
  - Texturing
  - Compositing



# Sculpting

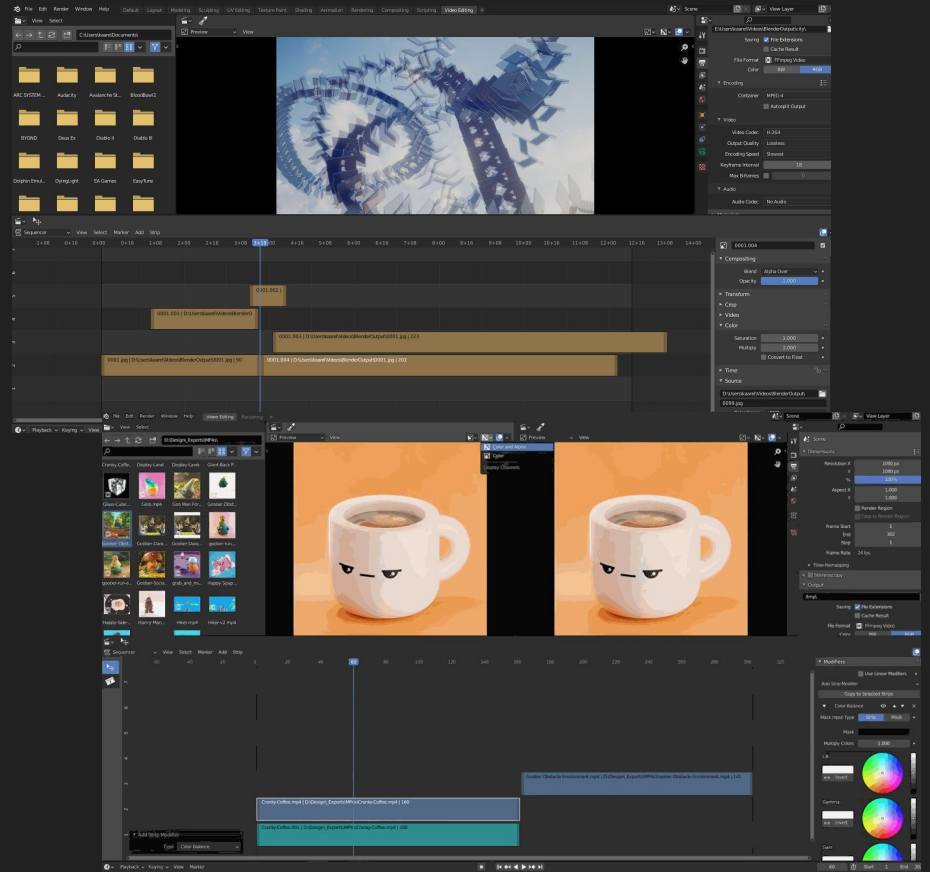
- Shape meshes
- Dynamically change LOD
- Competitor to Zbrush



<https://www.youtube.com/watch?v=Lso8KitmchY>

# Video editing

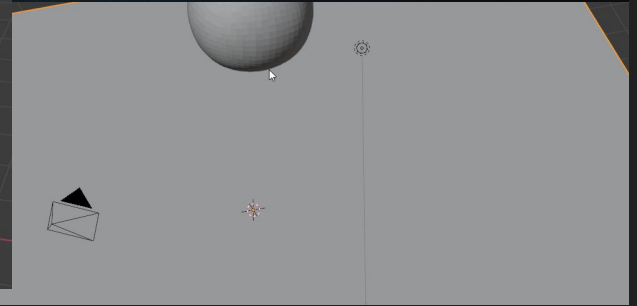
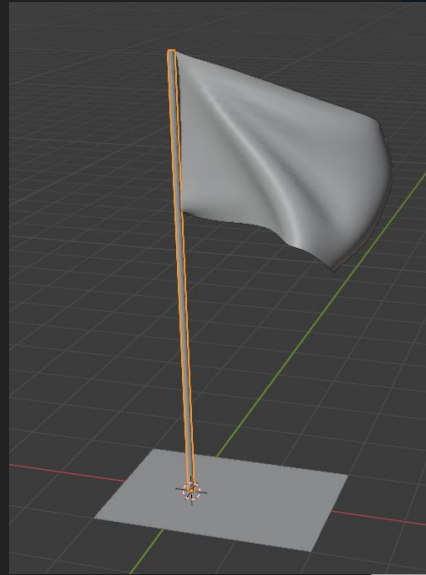
- Combine video clips
- Create transitions
- Basic effects



<https://www.youtube.com/watch?v=Zoselojp3KQ>

# Simulations

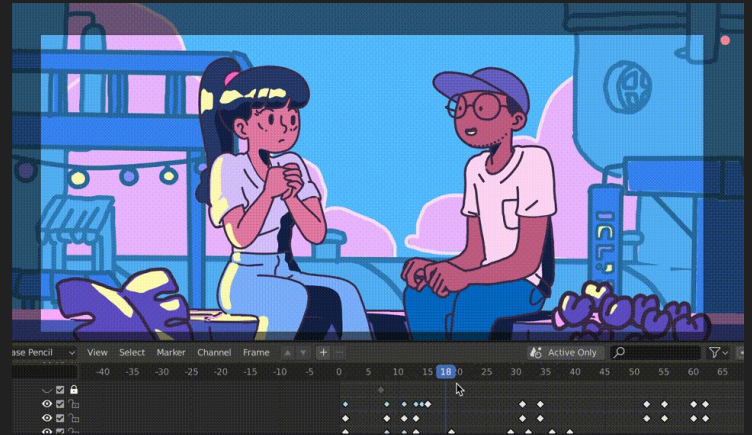
- Rigidbodies
- Cloth
- Fluid
- Fire/Smoke
- And more





# 2D painting?

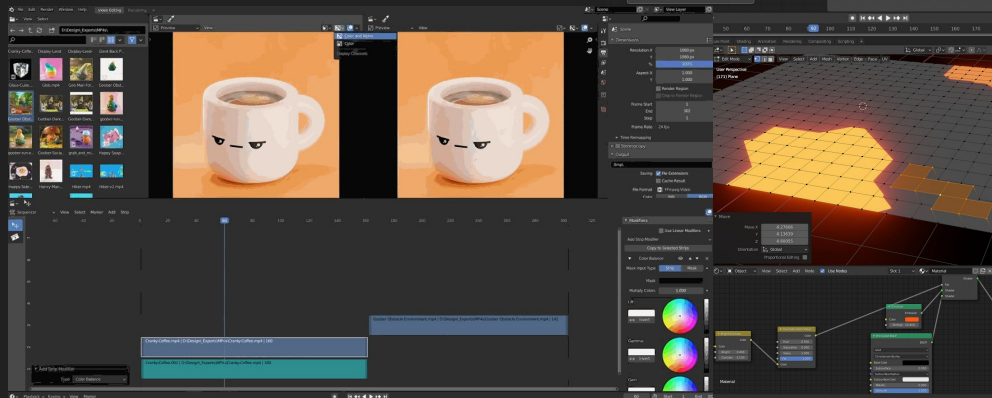
- 3D vector lines
- 2D art/animation techniques
  - Supports onion skinning
- Easy parallax and 3D effects



<https://80.lv/articles/mixing-2d-3d-animation-in-blender/>

# Blender is weird

- Features everywhere
- Unusual interface
- Where is the focus?



# Why is Blender like this?

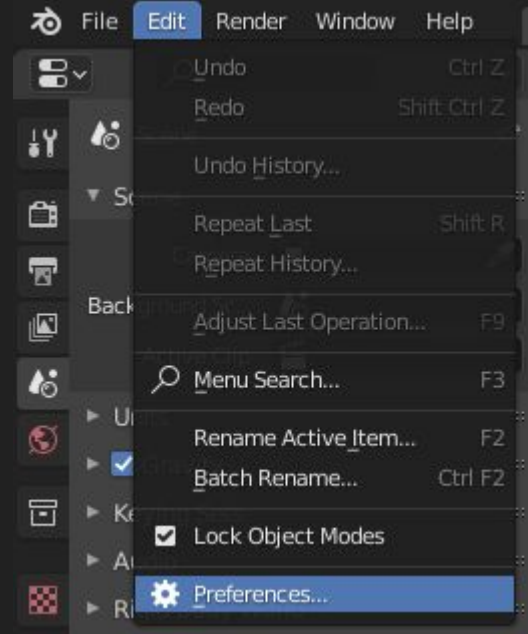
- Open-source
- Small in-house team
- Community-driven
  - Anyone can add features



# Tools and Techniques

# Settings and Preferences

- Window management
- Auto Depth
  - Rotate around mouse
- Zoom to Mouse Position
- Replace default scene





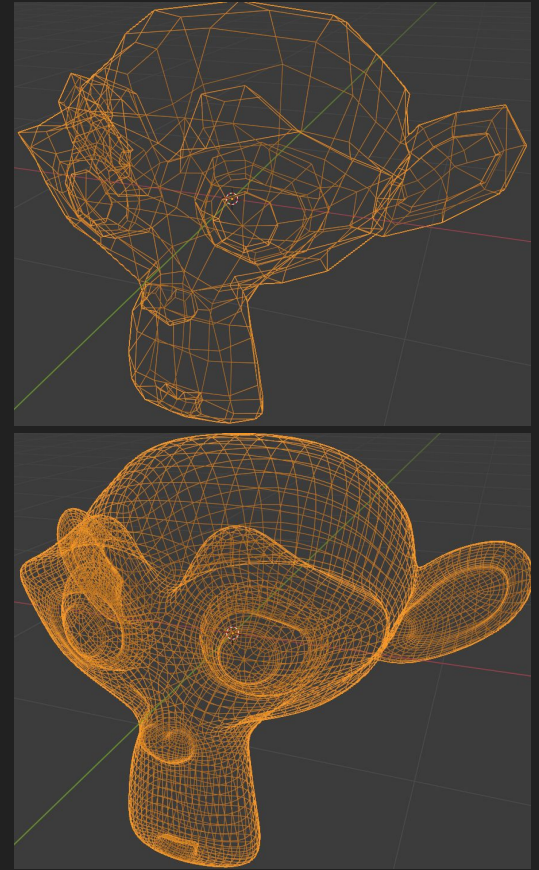
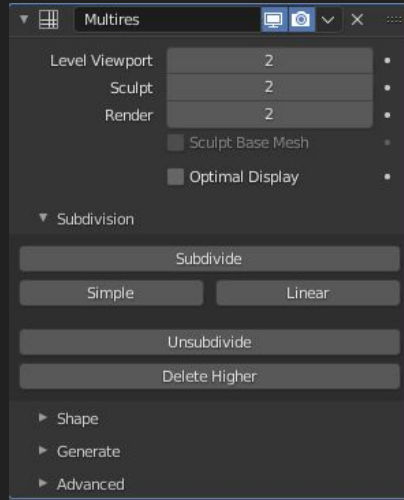
# Rendering Engines

- Cycles
  - High render times
  - Realistic lighting
  - Many features
- Eevee
  - Real-time rendering
  - Approximated lighting
  - Limited, but growing



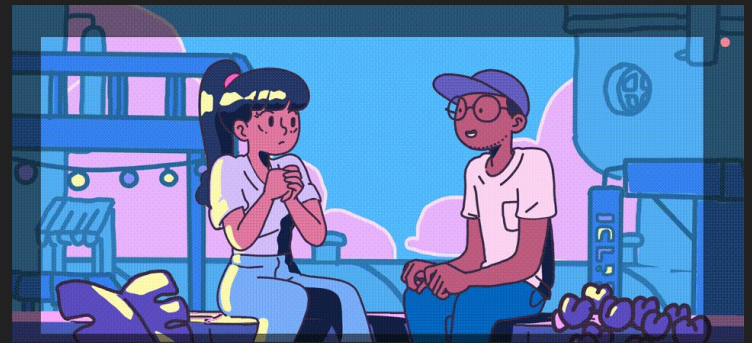
# Multires sculpting

- Subdivide and keep other levels
- Auto-generate lower subdivisions



# Grease Pencil

- Paint like a 2D application
- Models can be guides
- 3D deformations or effects
- 2D animation techniques
  - Supports onion skinning

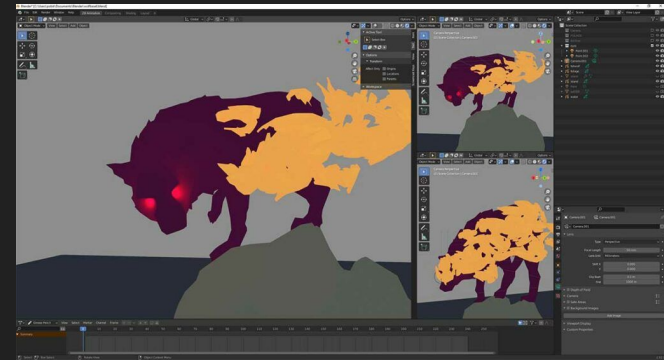
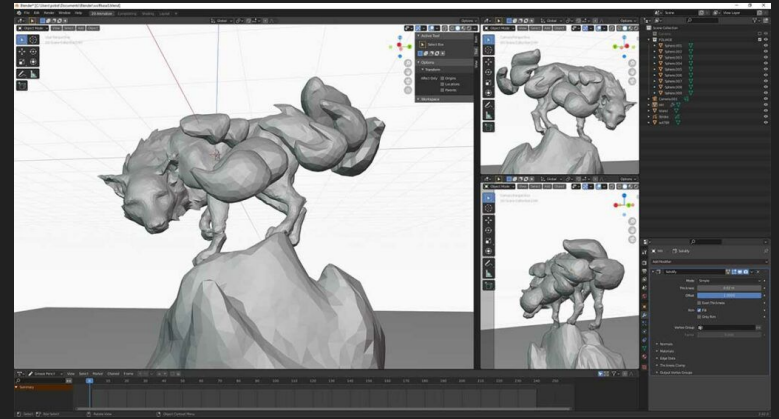
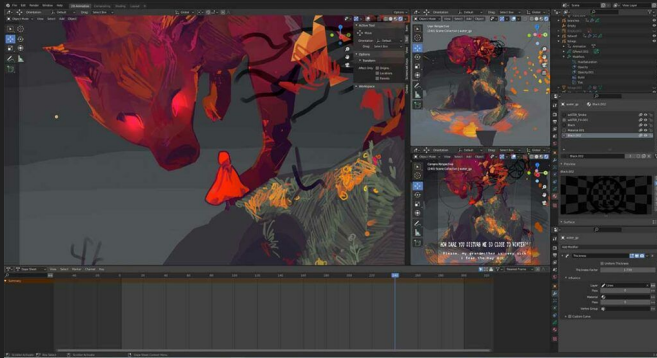


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# Grease Pencil demo

- Sculpt general shapes
  - Avoid detail
- Convert to grease pencil
  - Keep original
- Paint over the original mesh



<https://www.3dblended.com/blender-tutorials/3d-grease-pencil-painting-process-in-blender/>

# Useful Add-ons

- Extra Objects
- Node wrangler
- F2
- Bsurfaces
- Collection Manager

## Extra tips

- Batch rename: ctrl + F2
- Random wireframe shading
- Split viewer node
- Drivers in object properties (#frame)
- Weight maps for texture deformations
- The world material can be a principled volume

# Where to go from here?

## Beginner-level resources

- Basic tips - Blender Guru: <https://www.youtube.com/user/AndrewPPrice>
- Fun tutorials - Default Cube: <https://www.youtube.com/c/DefaultCube/videos>
- Sculpting - Grant Abbitt: <https://www.youtube.com/watch?v=IFan6PHo8Ls>
- Grease Pencil - Dedouze: <https://www.youtube.com/c/Dedouze>

## Advanced resources

- Quick modeling/effects - Ian Hubert: <https://www.youtube.com/c/mrdodobird>
- Fun tutorials *FAST* - CGMatter: <https://www.youtube.com/c/CGMatter/videos>
- Blender Splash Screen files: <https://www.blender.org/download/demo-files/>

Thanks for listening,  
Now go make cool stuff!

# Sources

- <https://www.blender.org/features/>
- <https://www.blender.org/get-involved/>
- <https://www.creativebloq.com/features/blender-tools>
- <https://www.informit.com/articles/article.aspx?p=3113590&seqNum=8>
- <https://80.lv/articles/mixing-2d-3d-animation-in-blender/>
- <https://www.3dblendered.com/blender-tutorials/3d-grease-pencil-painting-process-in-blender/>
- <https://www.youtube.com/watch?v=hgKxD19jsAI>
- <https://blendermarket.com/products/rtmq>