Less Grind, More Art

Practical tools for game artists, and how to make your own

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Sandbox VR

Hello!

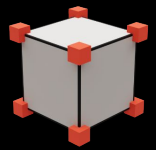
- Principal Technical Artist at Sandbox VR
- 18+ years working with real-time rendering engines
- Small and big teams; PC, console, mobile, and VR games
- Wrote a lot of tools and scripts

All the tools in this talk

- Free and open source
- For Windows and Mac
- Tested in production projects
- MIT Licensed
- psmyles.com/igdc26

Fire

Bite


3D Review

Launcher

Where do we lose time?

- Not just on the art - also on everything around it
- Waiting for an application / file to open, just to look at it
- Opening a big tool to answer a small question
- Making the same edit, again and again
- Asking the one person who knows how

It's worse than that

- Every pause costs you the thought you were holding

Why nobody fixes this

- Too small to complain about
- Too boring to fix
- So we get used to it
- Artist tools are nobody’s job
- So I started fixing them, one at a time

Fire – Fast Image Review

"Image viewers are slow, and none of them cover what we need"

- Opens most files in under 0.5 s
- Channels, backgrounds, HDR
- Auto flipbook detection, Photoshop layers
- A viewer, not an editor - on purpose

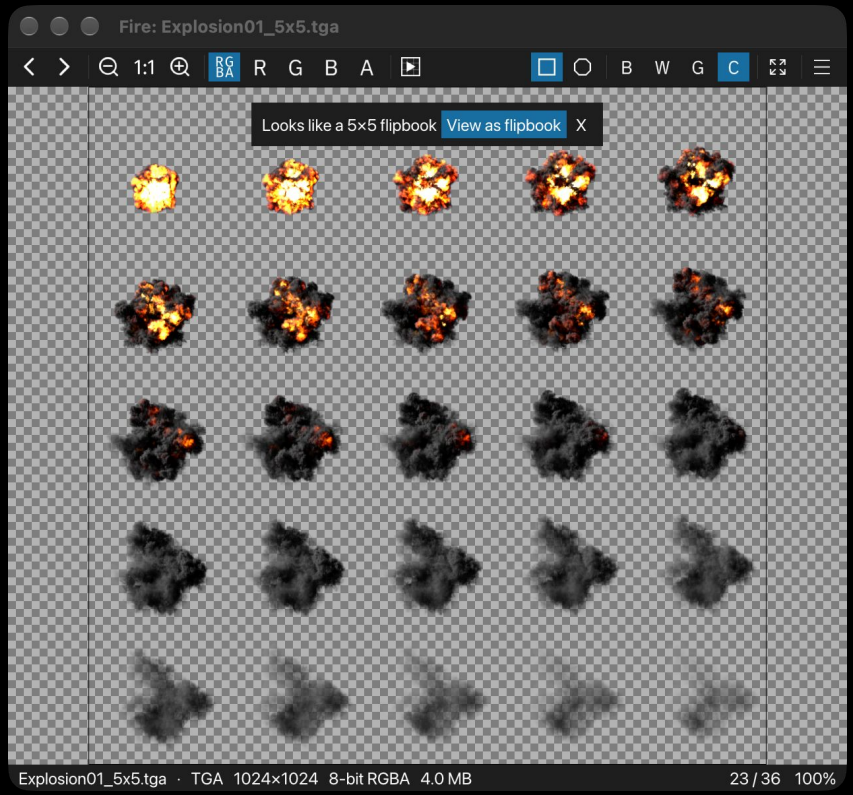
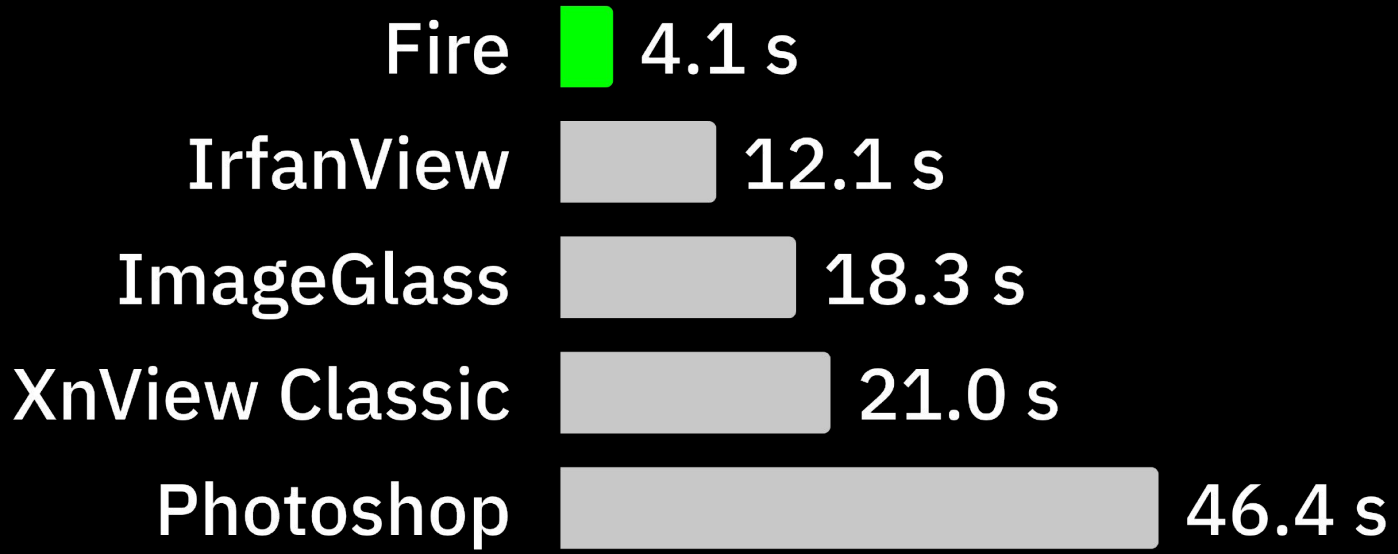
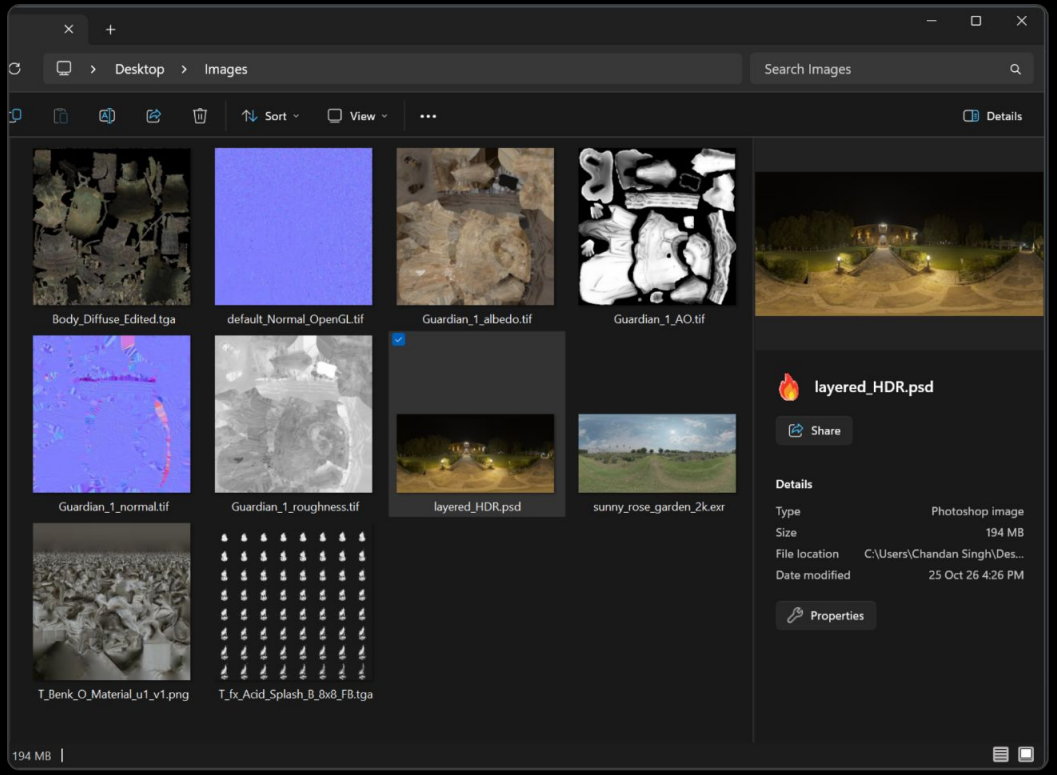


Image opening benchmark

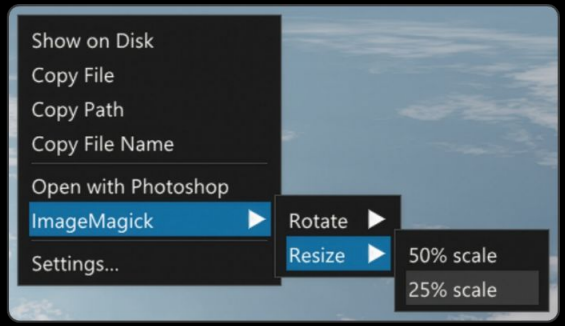


Total time to open each of the six test files once (57 MB to 1.4 GB) from a cold launch, each the median of 5 runs. PSD, TGA, PNG & EXR formats. File cache cleared before each launch. Tested on Windows 11, Ryzen 9 7900, 64 GB RAM, NVMe SSD, 4K display.

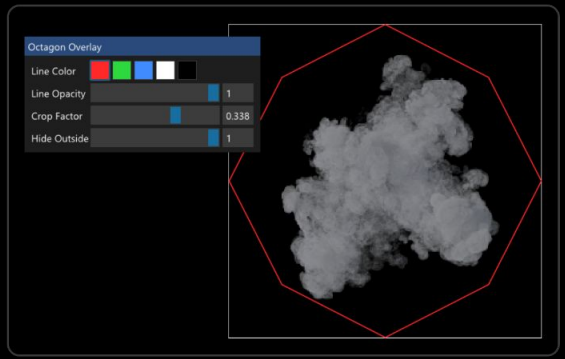
Fire - More



Thumbnails in Windows Explorer



Quick actions, and send to other apps

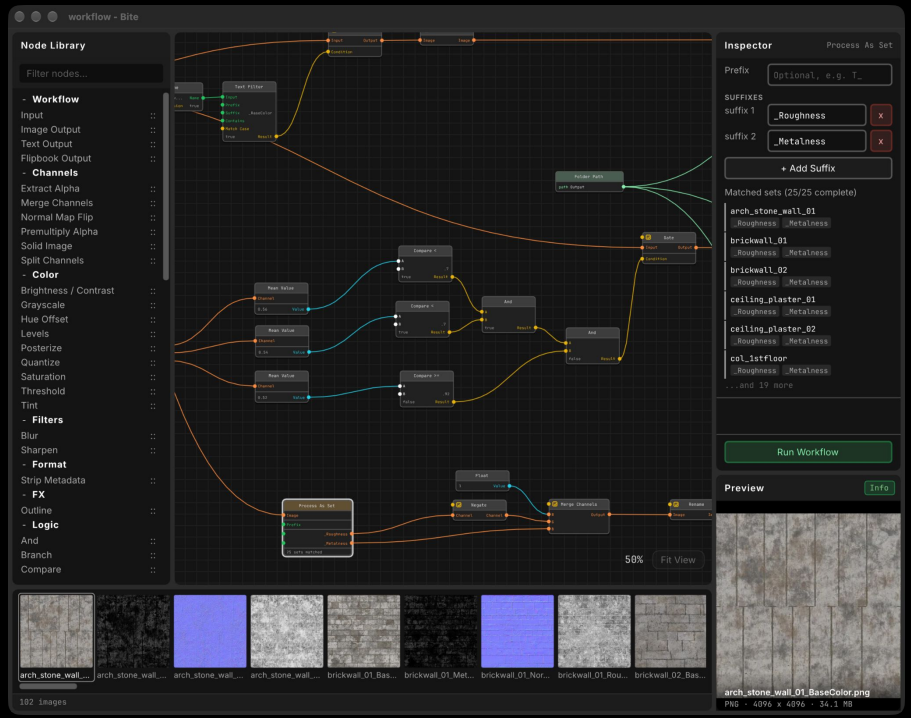


Octagon overlay for VFX cards

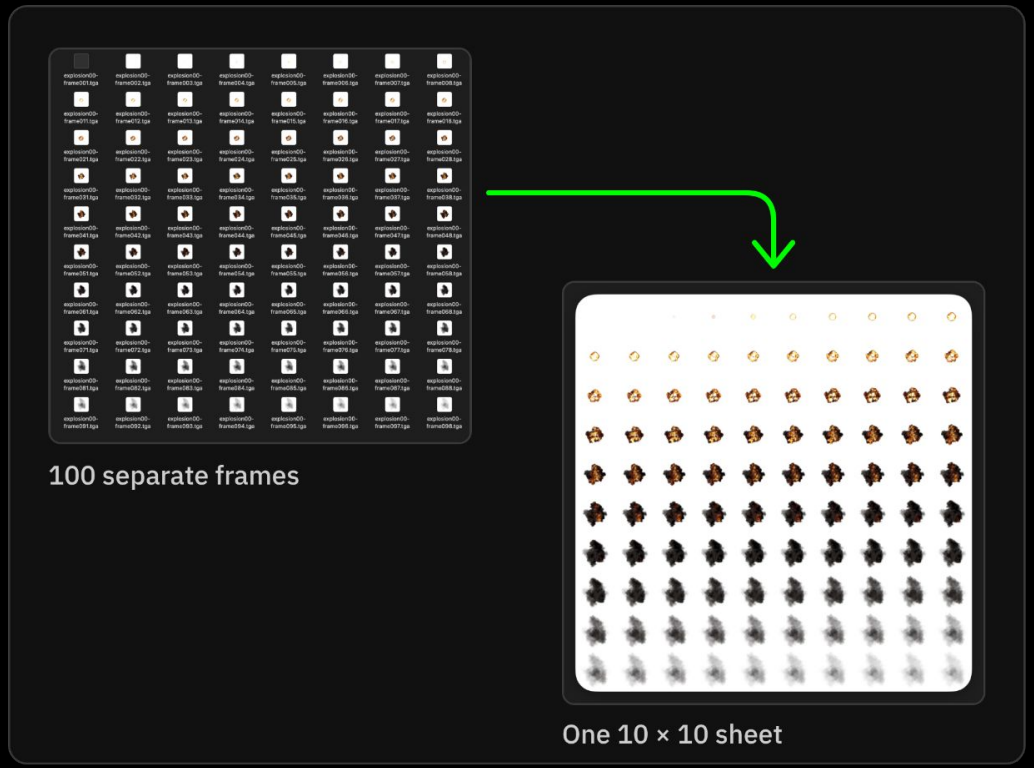
Bite - Batch Image Transformation Editor

"There's no visual way to build an image processing workflow"

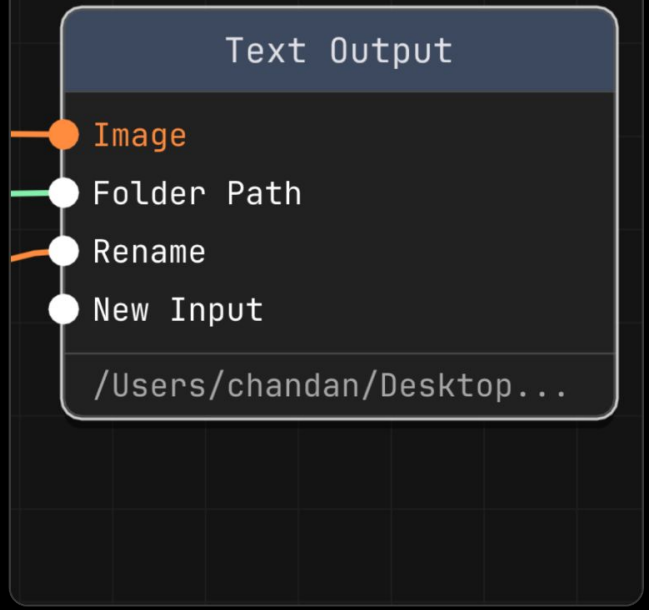
- ImageMagick's power, without the command line
- A node graph with a live preview on the selected image
- Add your own nodes with a text file
- Can run without its window, so other tools can use it



Bite - More



Flipbook Output node

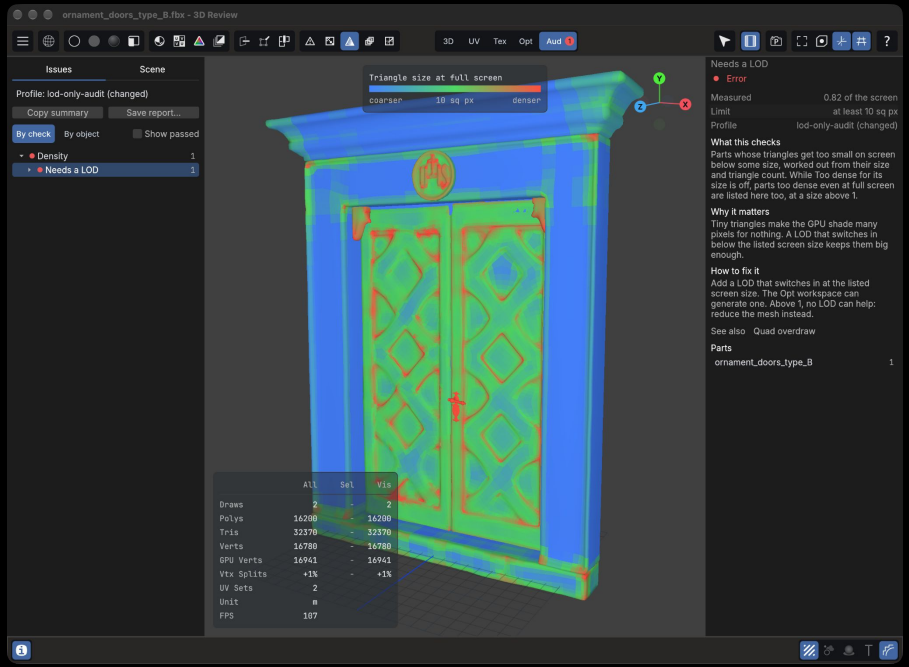


Text Output node

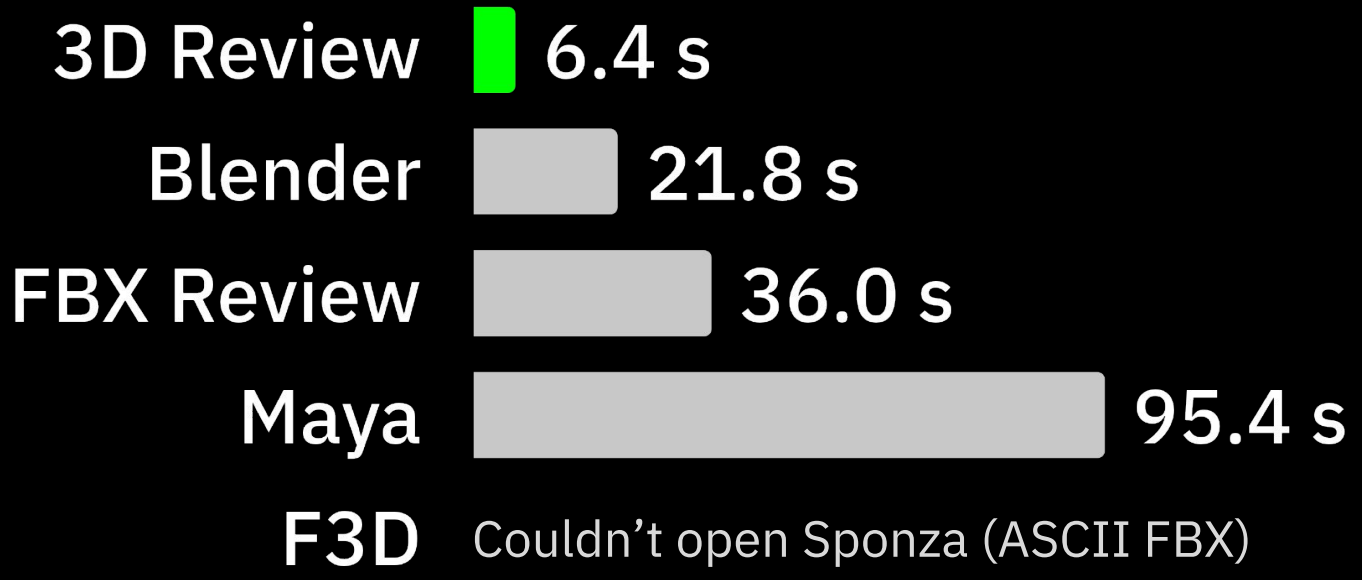
3D Review

“Every question about a mesh means opening Maya, and waiting.”

- Really fast 3D model viewer
- Tons of debug views
- Audit models to find issues
- Reduce tris and make LODs

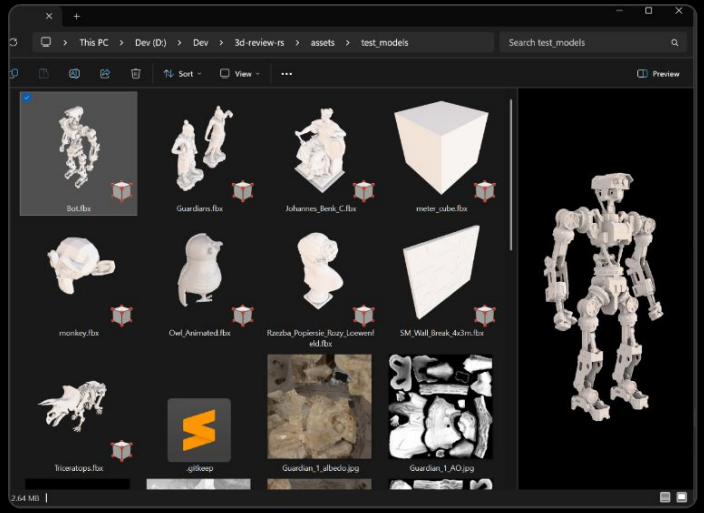


Model opening benchmark

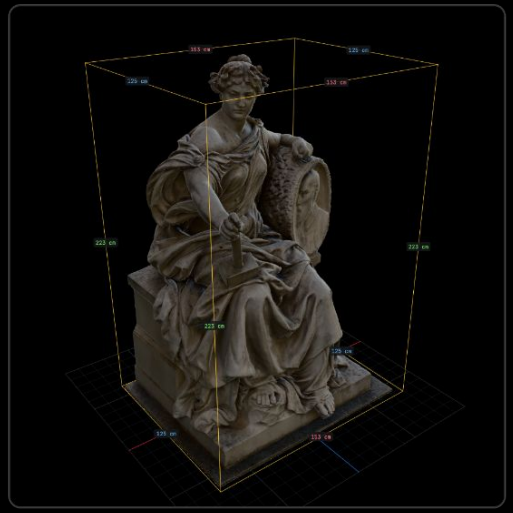


Total time to open each of the four test models once (37 MB to 886 MB) from a cold launch, each the median of 5 runs. FBX, geometry only. File cache cleared before each launch. Tested on Windows 11, Ryzen 9 7900, 64 GB RAM, NVMe SSD, 4K display.

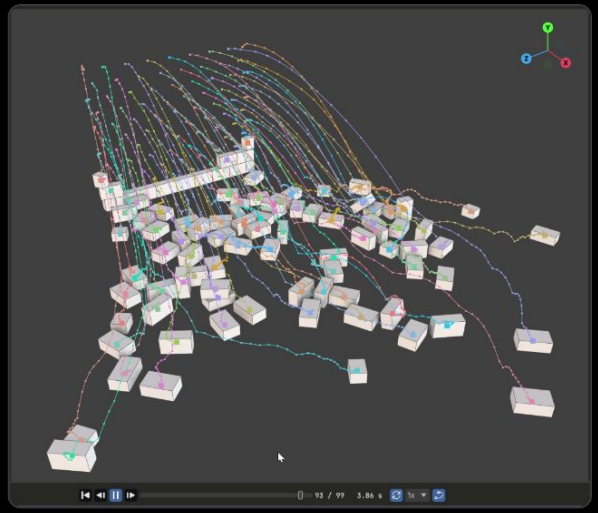
3D Review – More



Model thumbnails in Explorer and Finder



Bounds measurement

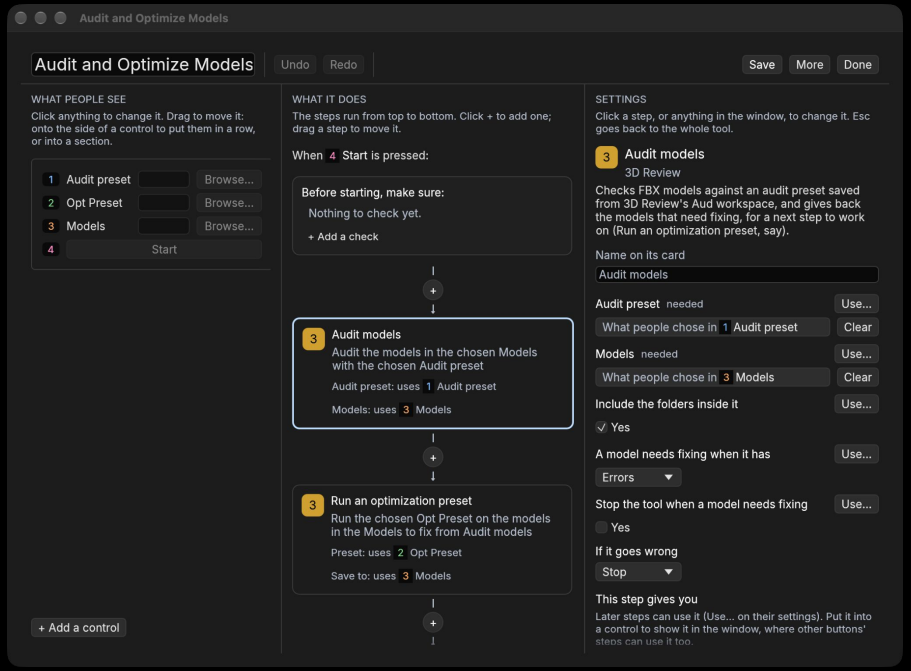


Animation curves

Launcher

"Only that person in my team can build scripts or automations"

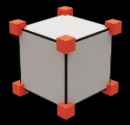
- Let anyone build their own tools for repeated workflows
- Call ***any*** tool that runs from the command line
- Build it in the editor, it saves as one text file



Launcher - Add-ons

Available now

Git


3D Review

Bite

Scripts

File Operations

Can be added

Unity

Unreal

Godot

Perforce

Unity VCS

Blender

Houdini

Maya

Substance

Tracy

Your tool

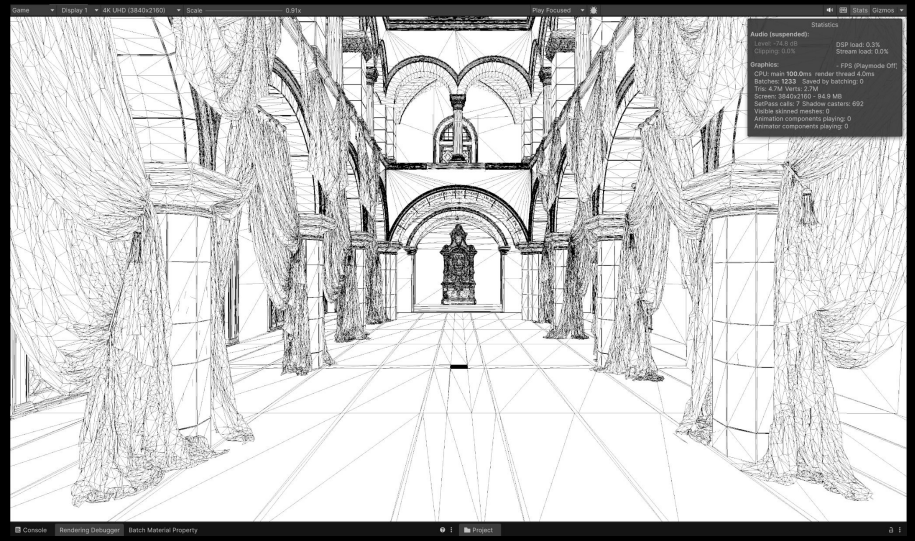
Demo

- Sponza scene from Intel GPU Research Samples
- Individual textures, DirectX normals - Bite
- High poly count meshes with no LODs:
  3D Review, Launcher

15.2 M tris, 102 individual textures

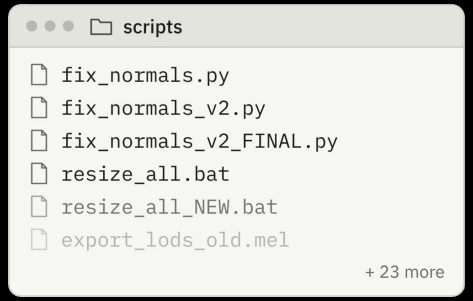
Demo - Results

- All heavy meshes get LODs
- All textures named and packed correctly as the shader needs
- Need to do each task just once, the tools do the rest
- Tool runtime: < 1 minute

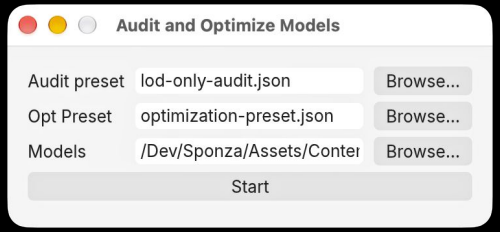


15.2 M to 3.8 M tris,
102 individual to 75 packed textures

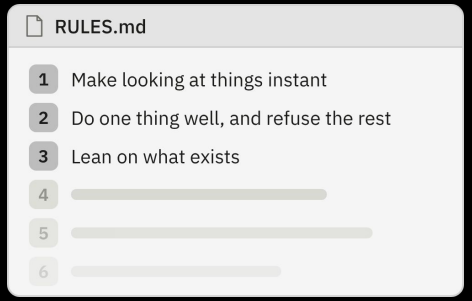
Tools, not scripts



Scripts pile up, tools last



A UI someone else can use



Have rules to guide tool development

The Rules

- Make looking at things instant
- Do one thing well, and refuse the rest
- Lean on what exists, don’t build a new one
- Let people extend it without touching the code
- Test on real assets, measure before you switch
- A tool is only good if someone uses it
- Nobody reads documentation, but keep documentation

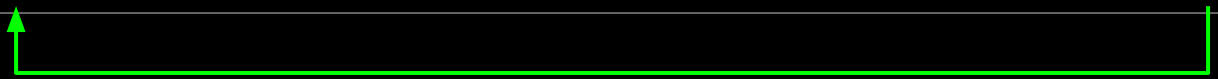
How to make your own

First

1. **Find pain points**
   Watch your own work, and your team's
2. **Talk to people**
   Understand the problem, ask for suggestions
3. **Find what exists**
   Tools to reuse, libraries to build upon

Then, on repeat

4. **Build with AI**
   You describe and decide, AI writes most of the code
5. **Use it for real**
   Your team, real assets, real deadlines
6. **Get feedback**
   What's slow, confusing, or missing?



No tool is this good on day one
Fire, Bite, and 3D Review: 545 commits and 28 versions since March

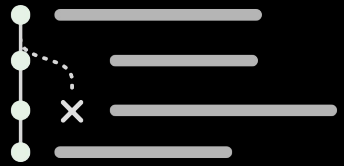
Takeaways

Small waits add up

They cost focus, not just seconds

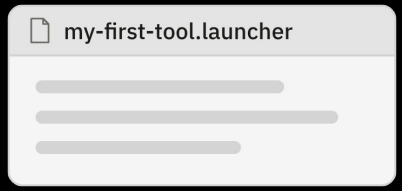
Use what's here

Fire, Bite, 3D Review and Launcher, free for Windows and Mac



Skip our mistakes

The git history and docs record what worked, what didn't, and the mistakes



Make your own

Start with one Launcher file or a small AI build, then keep improving it

Pick one pause you hit every day, and fix it.

Talk Credits

Sponza Base Scene + Curtains	intel.com - GPU Research Samples	Creative Commons Attribution
Amazon Lumberyard Bistro (interior and exterior)	developer.nvidia.com/orca/amazon-lumberyard-bistro	CC BY 4.0, Amazon Lumberyard Bistro, Open Research Content Archive
HDRI Textures	polyhaven.com	CC0 license
Flipbook Textures	Unity blog - Free VFX image sequences	CC0 license
Product logos, splash screens	Respective brands	© and ™ their respective owners
“Focus” comic, MonkeyUser	monkeyuser.com/2018/focus	© MonkeyUser
3D models - Sketchfab	sketchfab.com	CC0 license

Thanks!

Questions?

psmyles.com/igdc26

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Extras

Image opening benchmark

Image Type	Fire	IrfanView	XnView Classic	ImageGlass	Windows Photos	Photoshop
8k x 4k 8-bit PNG RGBA 57 MB	0.39 s	0.67 s	1.08 s	0.88 s	1.11 s	8.07 s
8k x 8k 8-bit TGA Grey 64 MB	0.33 s	0.34 s	0.75 s	0.38 s	Can’t open	7.07 s
4k x 4k 8-bit PSD RGBA 104 MB	0.32 s	0.33 s	0.89 s	1.95 s	Can’t open	8.05 s
8k x 8k 8-bit TGA RGB 192 MB	0.37 s	0.36 s	1.06 s	0.38 s	Can’t open	7.91 s
16k x 8k 16-bit PSD RGB 768 MB	0.70 s	0.73 s	1.98 s	4.34 s	Can’t open	6.40 s
16k x 8k 32-bit EXR HDRI 1.4 GB	1.99 s	9.65 s	15.2 s	10.4 s	Can’t open	8.91 s

Time from cold launch until the image is fully on screen, median of 5 runs, with the Windows file cache cleared before each launch. Tested on Windows 11, Ryzen 9 7900, 64 GB RAM, NVMe SSD, 4K display.

Model opening benchmark

3D Model	3D Review	F3D	FBX Review	Blender	Maya
HiRes Sculpt 1.94 M tris, 37 MB	0.96 s	1.01 s	1.89 s	2.03 s	17.7 s
Bistro Interior 1.32 M tris, 46 MB	1.01 s	3.10 s	5.81 s	3.24 s	21.3 s
Bistro Exterior 2.83 M tris, 114 MB	1.98 s	3.42 s	9.09 s	4.36 s	25.2 s
Intel Sponza 3.75 M tris, 886 MB ASCII	2.40 s	Can’t open	19.2 s	12.2 s	31.2 s

Time from cold launch until the model is on screen, median of 5 runs, with the Windows file cache cleared before each launch. FBX, geometry only. Tested on Windows 11, Ryzen 9 7900, 64 GB RAM, NVMe SSD, 4K display.

Built using existing libraries

Fire	Bite	3D Review	Launcher
Sokol	Sokol	Sokol	Sokol
Dear ImGui	ImageMagick	egui	egui
zune-image	Dear ImGui	ufbx	Luau
psd_sdk	winit	meshoptimizer	alacritty_terminal
exrs	serde + schemars	sokol-shdc	KDL
Little-CMS	rfd	glam	mlua
bcdec	ureq	egui_commonmark	selene
Full lists: docs/CREDITS.md in each repo			