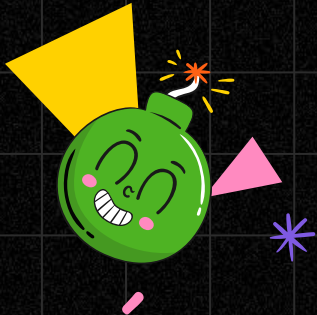


24.01.2022



Spark AR Workshop

Malte Hillebrand





Timetable

14:00 - 15:30

Introduction to Spark AR Studio & Hello World

15:30 - 16:00

Preparing Assets & Target Tracking

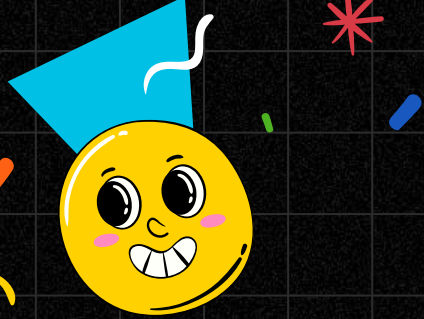
16:00 - 16:45

Hands-On: Create your first effect!

16:45 - 17:00

Publishing & Outro





What is **Spark AR**?

Software to create various augmented reality effect capable of accessing and sharing through Facebook and Instagram

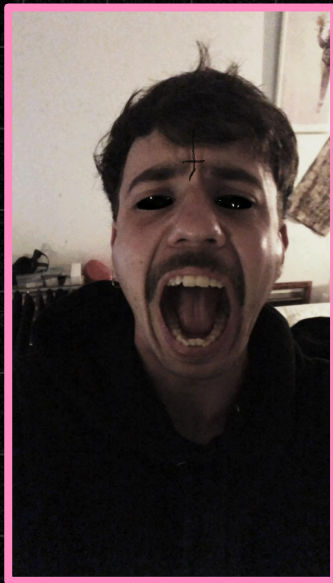
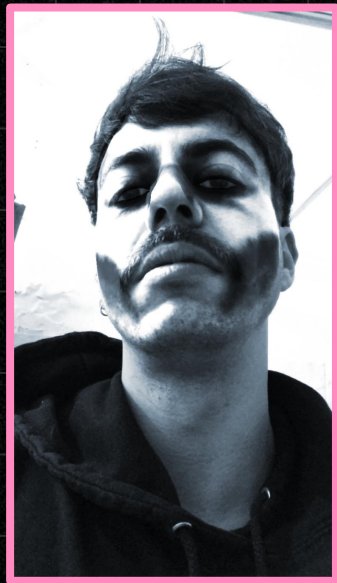


Why use Spark AR?

- Less heavy-lifting
- Track faces, hands, bodies and targets; segment people and hair; place objects in the real world and much more
- Completely free
- Facebook (or ✨Meta✨) sucks, but their products are the ones most used in the world

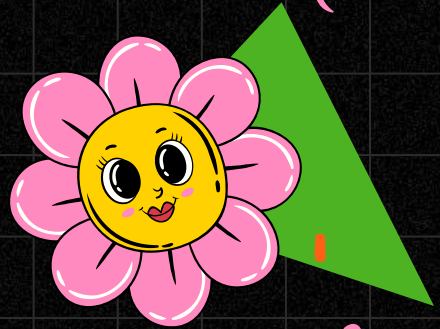


What's possible?

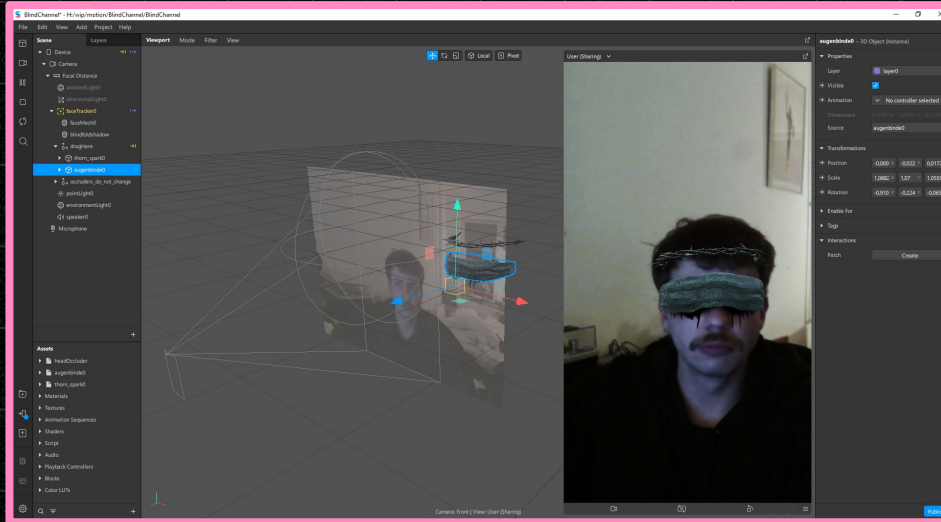


Setup

Spark AR Studio

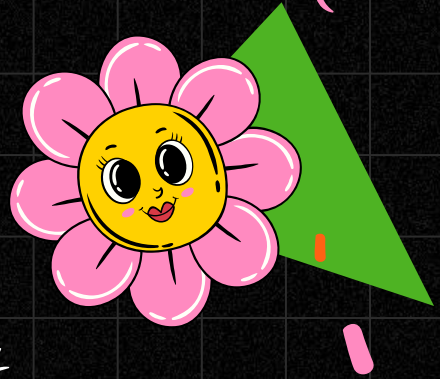


- Software to create AR effects
- Download under <https://sparkar.facebook.com/ar-studio/download/>



Setup

Spark AR Studio



- Software to create AR effects
- Download under <https://sparkar.facebook.com/ar-studio/download/>

Spark AR Player

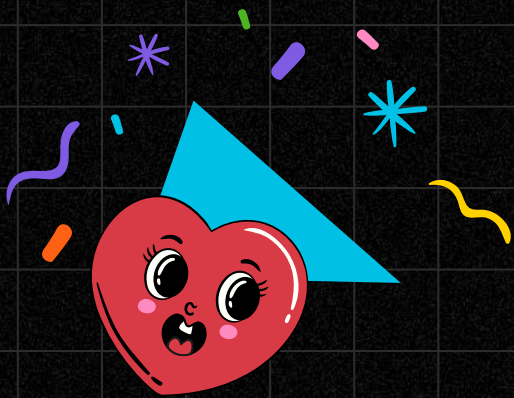
- App for devices to test AR effects and quickly access different transferred experiences
- Download in the respective app stores for Android and Apple devices
- Alternatively effects can also be tested directly on the target platform



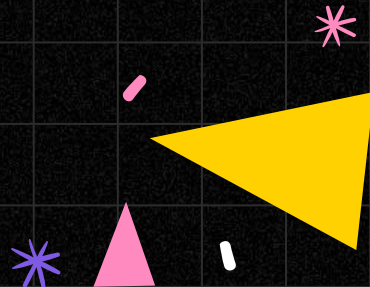
Limitations

- NOT made for asset creation, you will need other programs like Photoshop, Blender or VSCode for your custom assets
- Some features are only available for effects published on Facebook
- The .arexport file containing all the zipped original assets needs to be under 40 MB
- The .arfx file containing the effect with compressed assets needs to be ...
 - ... less than 10 MB for Facebook effects
 - ... less than 4 MB for Instagram effects



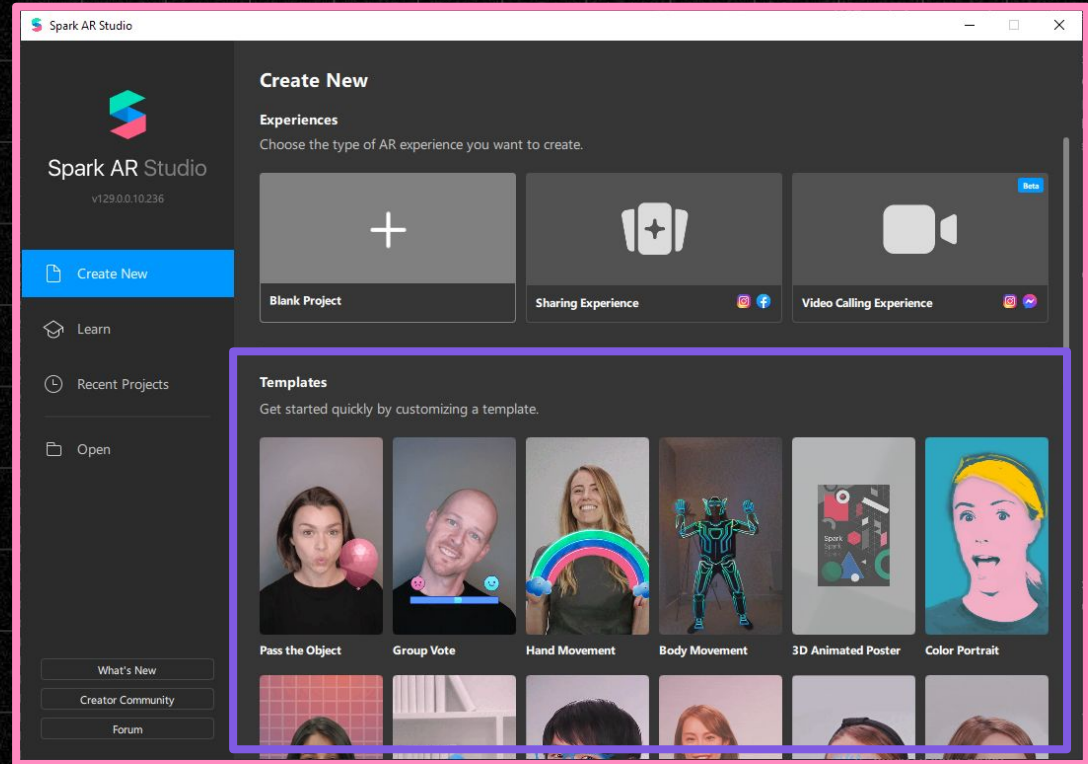


Using Spark AR



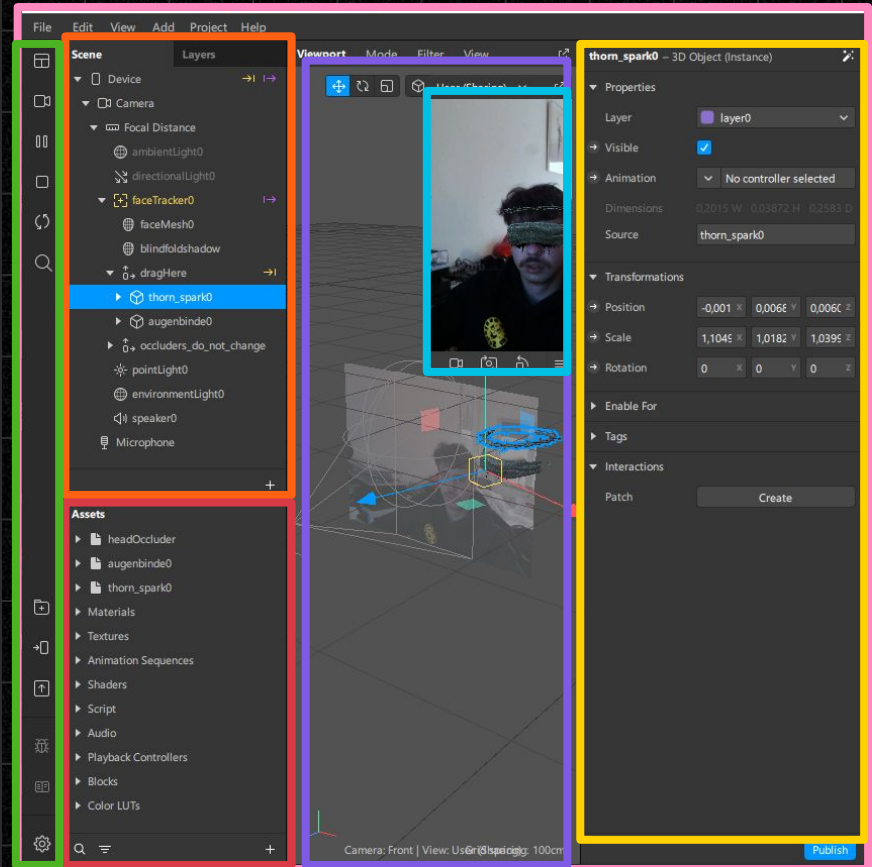
Startup Screen

- Different templates



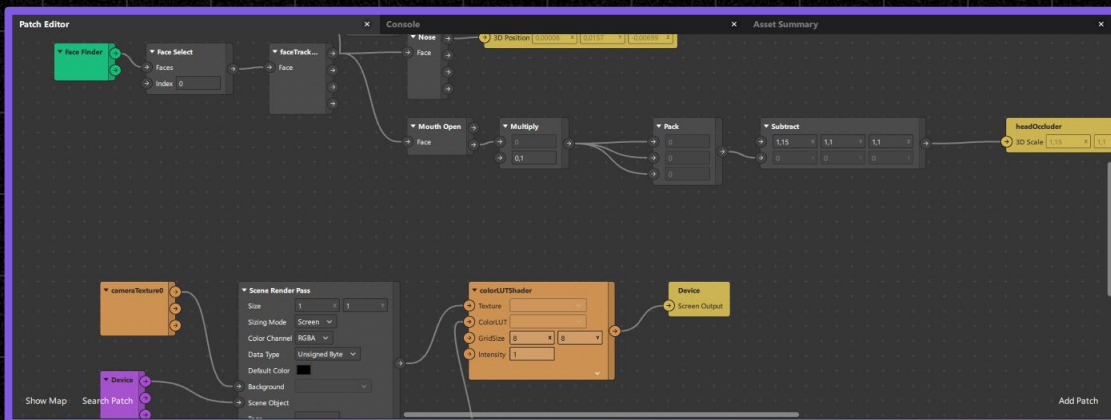
Interface

- 3D Viewport
- Preview Window
- Scene Manager
- Asset Manager
- Object Properties
- Toolbar

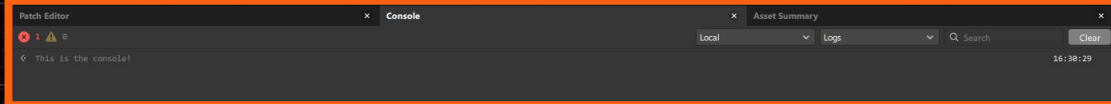


Interface

- Patch Editor
- Asset Summary
- Console



Type	Original Size	iOS	Android	Older Android	± iOS	± Android	± Older Android
Project Total	9,6 MB	31,3 MB	56,1 MB	5,4 MB	3,9 MB	5,6 MB	3,7 MB
▼ Textures	6,6 MB	28,2 MB	53,0 MB	2,3 MB	2,4 MB	2,1 MB	2,2 MB
D_Wood_Dark_Oak_01_DIFF	693,2 kB	15,3 kB	15,3 kB	1,1 kB	15,3 kB	15,3 kB	1,1 kB
D_Wood_Dark_Oak_01_ROUGH	401,7 kB	512,1 kB	512,1 kB	388,3 kB	301,2 kB	261,3 kB	388,4 kB
D_Wood_Dark_Oak_01_NORM_OGL	351,6 kB	512,1 kB	512,1 kB	290,3 kB	258,5 kB	106,2 kB	289,2 kB
D_Cloth_Heather_Gray_ROUGH	589,0 kB	512,1 kB	512,1 kB	264,5 kB	335,4 kB	174,9 kB	261,8 kB
D_Cloth_Heather_Gray_NORM_OGL	1,5 MB	512,1 kB	512,1 kB	411,3 kB	457,6 kB	474,7 kB	411,3 kB
blindfold	1,1 MB	512,1 kB	512,1 kB	100,6 kB	390,6 kB	216,6 kB	100,6 kB
blindfold_shadow(2)	399,0 kB	512,1 kB	256,1 kB	2,1 kB	52,8 kB	24,6 kB	2,1 kB
lut2	88,0 kB	88,0 kB	88,0 kB	88,0 kB	87,3 kB	87,3 kB	87,3 kB
▶ paintdrip	1,4 MB	25,0 MB	50,0 MB	727,7 kB	502,3 kB	718,8 kB	643,0 kB
7_gray_pier	104,9 kB	104,9 kB	104,9 kB	104,9 kB	104,9 kB	104,9 kB	104,9 kB
▶ 3D Objects	2,8 MB	2,8 MB	2,8 MB	2,8 MB	1,2 MB	1,2 MB	1,2 MB
▶ Audio	131,5 kB	131,5 kB	131,5 kB	131,5 kB	129,2 kB	129,2 kB	129,2 kB
▶ Scripts	1,1 kB	73,3 kB	73,3 kB	73,3 kB	21,8 kB	21,8 kB	21,8 kB
▶ Blocks	108,8 kB	108,8 kB	108,8 kB	108,8 kB	47,2 kB	47,2 kB	47,2 kB
System Data	0 Bytes	41,1 kB	41,1 kB	41,1 kB	11,0 kB	11,0 kB	11,0 kB



Building Blocks

- 3D / 2D Objects
- Lights
- Particle Systems
- Audio
- Scene Understanding
- Scene Extraction

◇ Plane
↑→ Null Object
◻ 3D Object
🌐 Face Mesh
T 3D Text
✂ Vector Object

☑ Canvas
□ Rectangle
≡ 2D Stack
T 2D Text

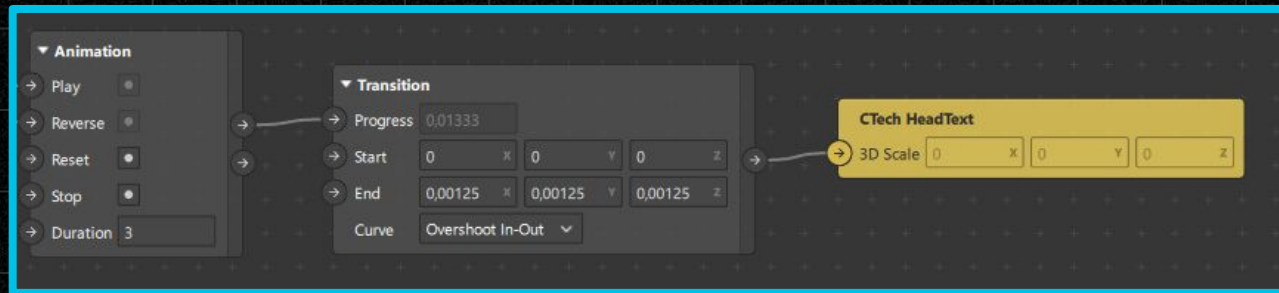
🌐 Ambient Light
↗ Directional Light
🌐 Environment Light
☀ Point Light
🔦 Spot Light

📐 Face Tracker
📐 Plane Tracker
📐 Target Tracker
📐 Hand Tracker

▼ Texture Extraction
Texture cameraTexture0 ×
▼ Segmentation +
Person segmentationMaskText... ×
Hair segmentationMaskText... ×
Skin segmentationMaskText... ×

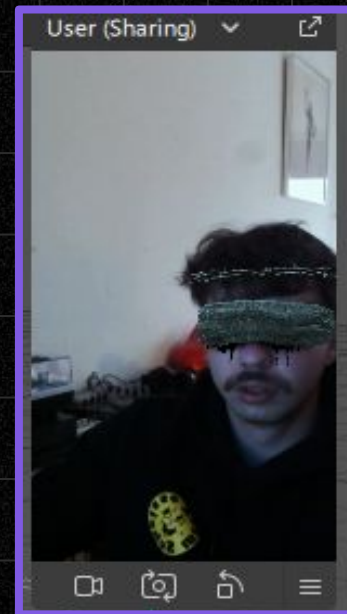
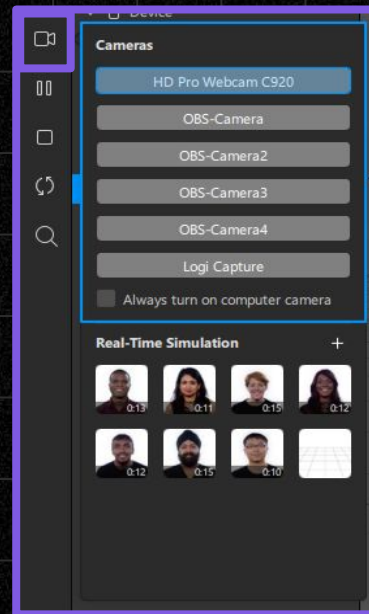
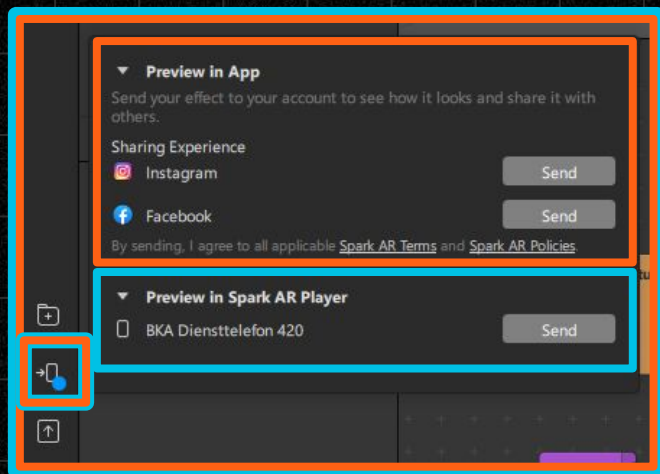
Logic

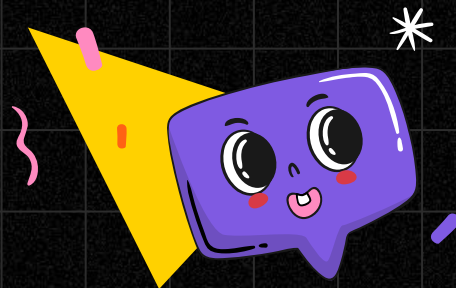
- Triggers
- Transitions
- Scripting API



Testing

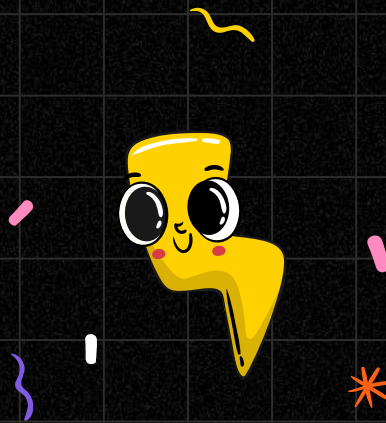
- Preview Window
- Export to Spark AR Player
- Export to Instagram / Facebook





Let's create our first effect!

"Hello World" in Spark AR

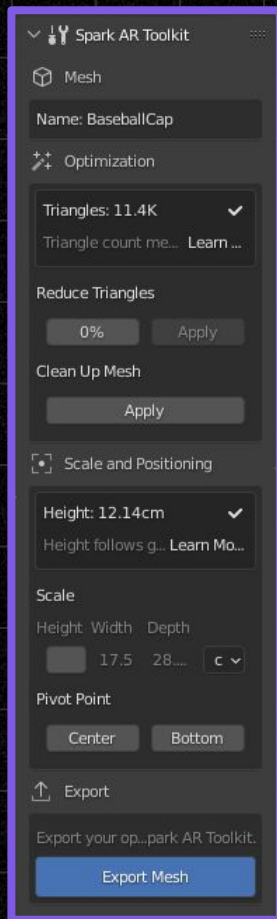


Adding 3D assets properly!

Blender toolkit & ORM textures

3D Helpers

- Blender toolkit
- Face assets
- ORM texturing





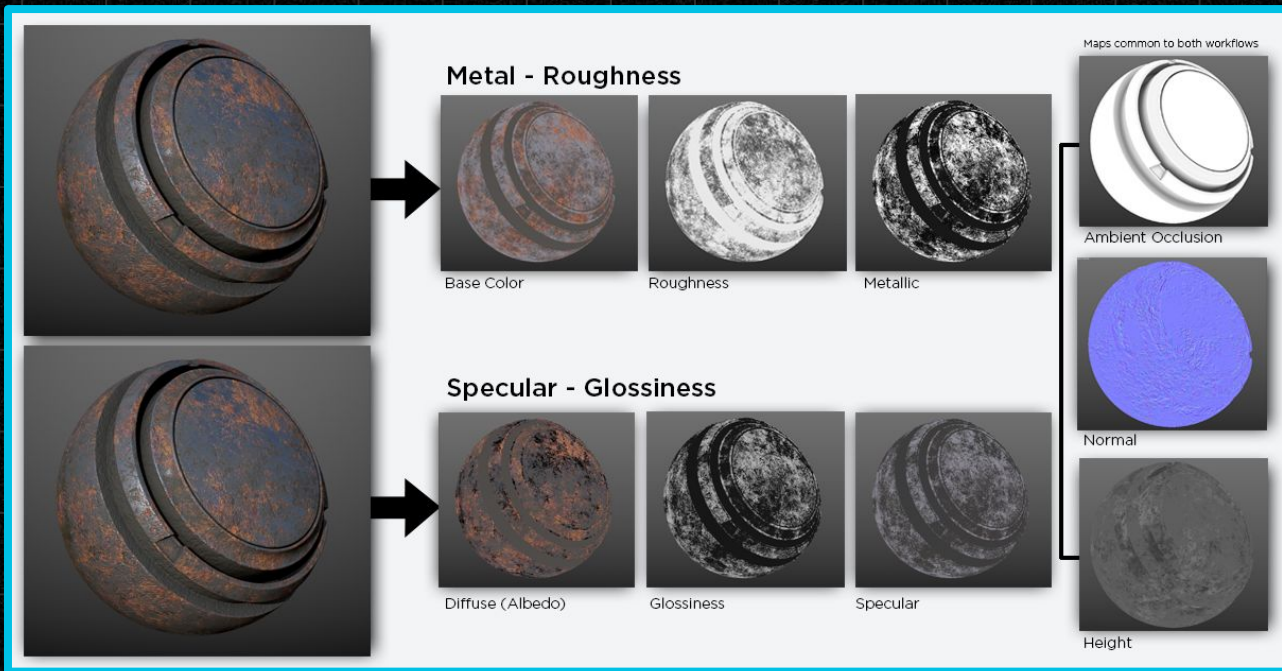
3D Helpers **ORM** Texturing

- Common PBR maps packed into single image, using RGB color channels



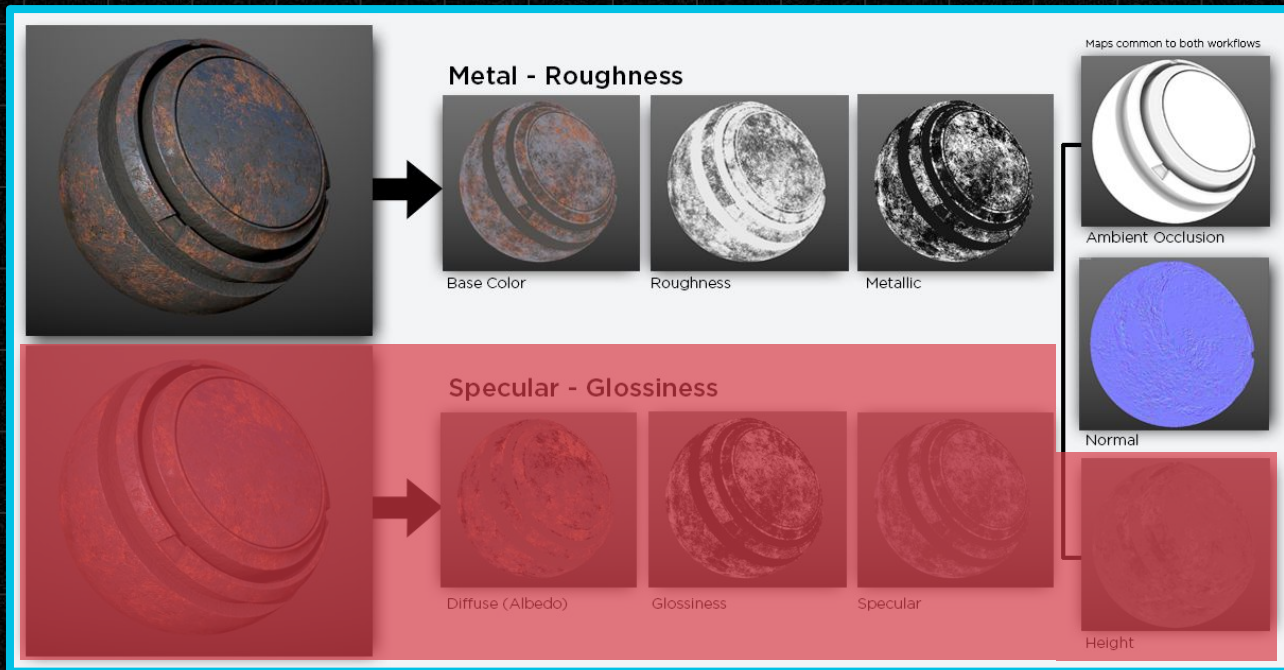
3D Helpers ORM Texturing

- Common **PBR maps** packed into single image, using RGB color channels



3D Helpers ORM Texturing

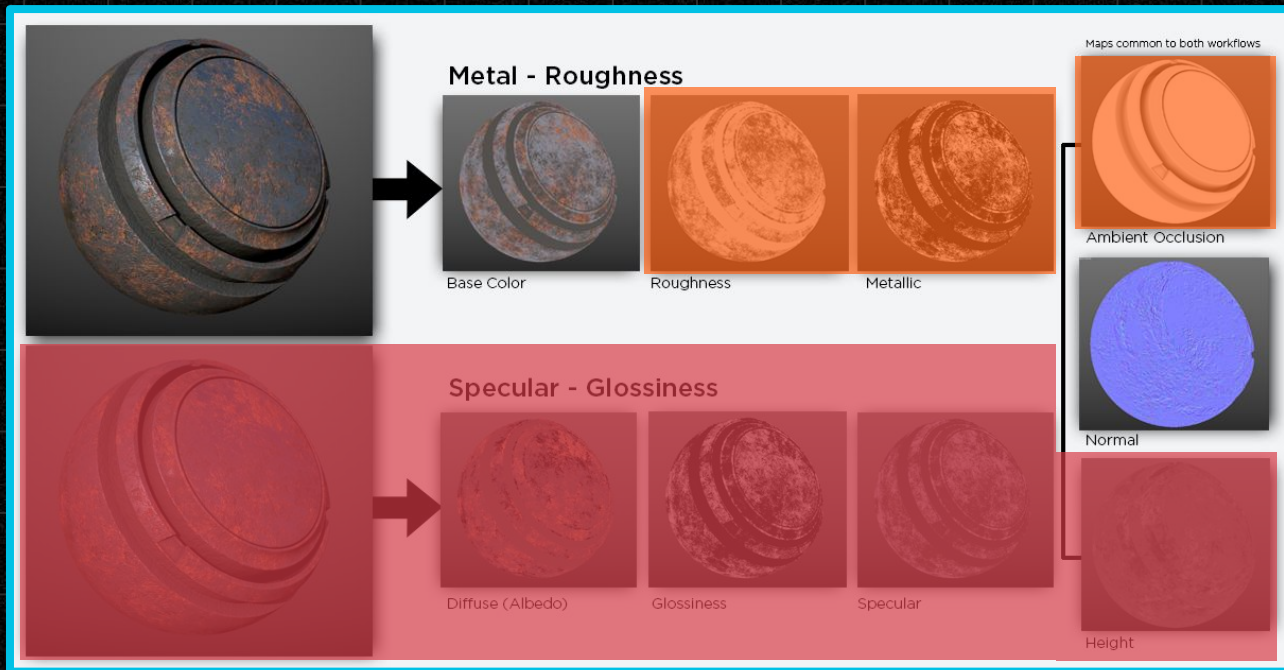
- Common **PBR maps** packed into single image, using RGB color channels



Not available in
Spark AR

3D Helpers ORM Texturing

- Common **PBR maps** packed into single image, using RGB color channels

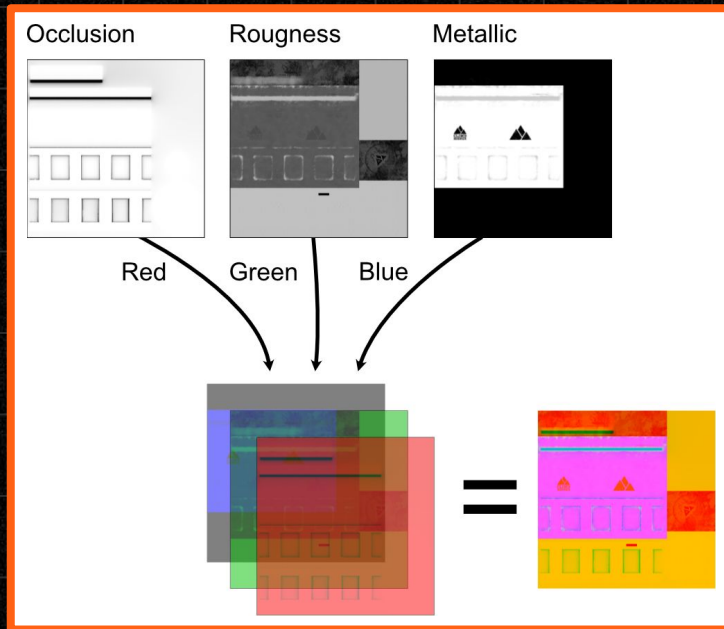


Part of an
ORM
texture

Not available
in Spark AR

3D Helpers ORM Texturing

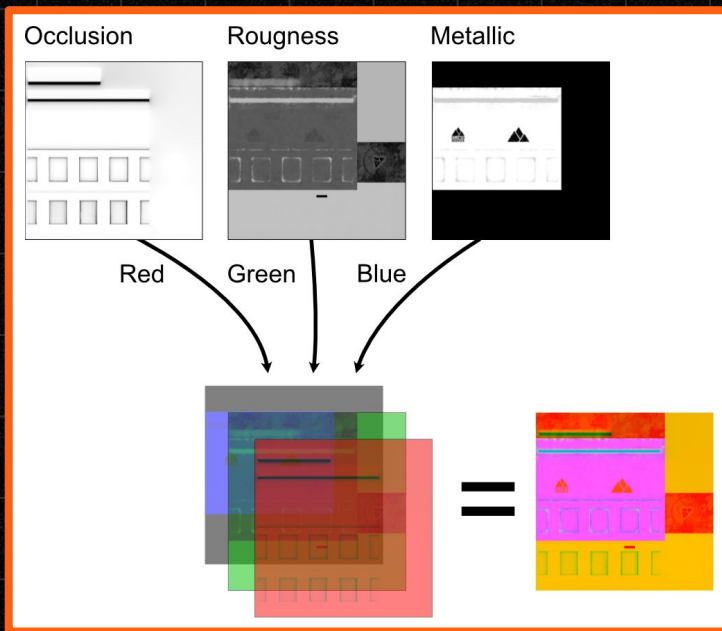
- Common **PBR maps** packed into single image, using RGB color channels



What does **ORM** stand for?

3D Helpers ORM Texturing

- Common **PBR maps** packed into single image, using RGB color channels



Occlusion → **R**ed
Roughness → **G**reen
Metallic → **B**lue



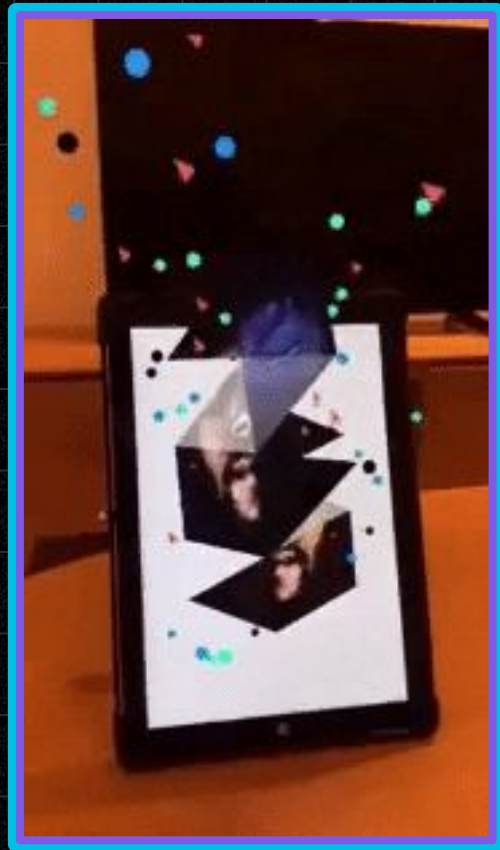
Target Tracking

Expanded Reality

Target Tracking

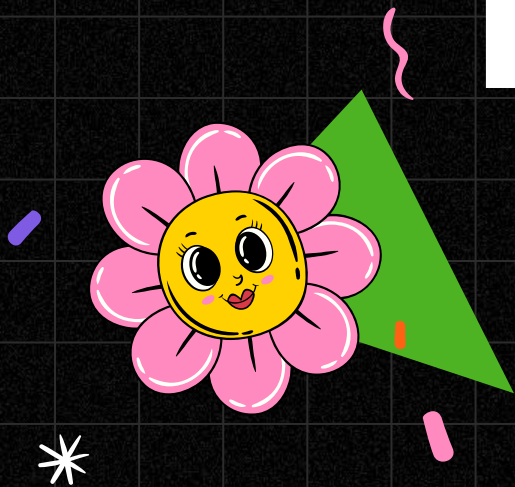
- Target
- AR objects

Limited to maximum of 5 targets.



Source: <https://sparkar.facebook.com/blog/expanding-world-ar-capabilities-on-instagram/>

Playtime!

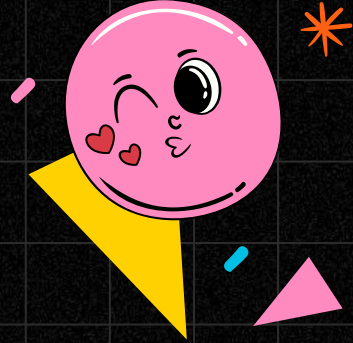


Create your first effect and get to know Spark AR.

OR You can look at the different templates and see how other features are implemented.

OR Improve on one of the projects I did with you.

Also check out the asset library!

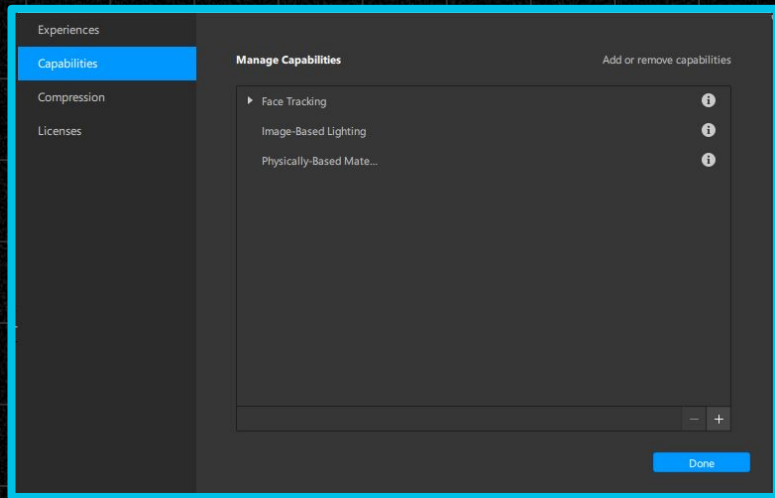


Publishing

Sharing your effect

Requirements

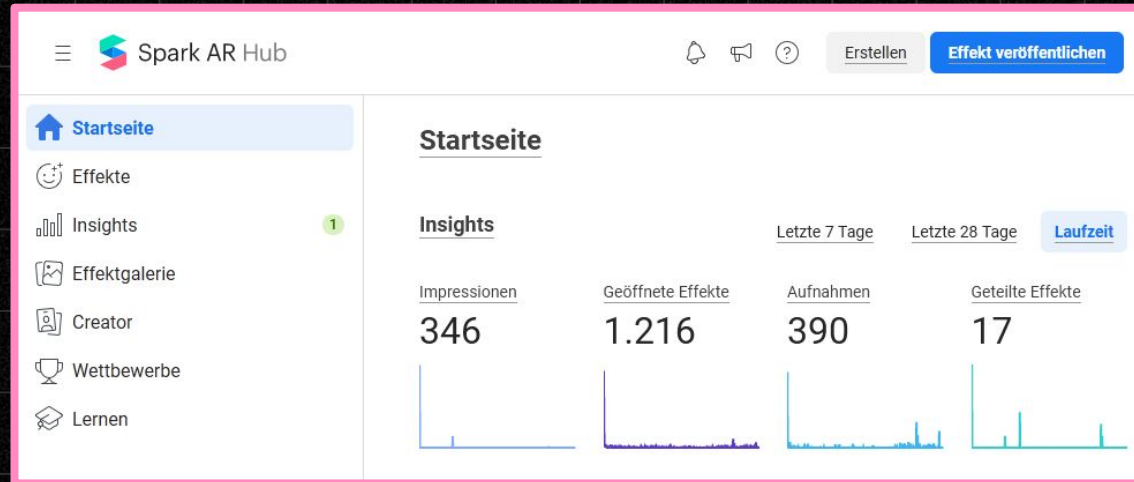
- **File size**
 - .arexport file needs to be under 40 MB
 - .arfx file needs to be ...
 - ... less than 10 MB for Facebook effects
 - ... less than 4 MB for Instagram effects
- **Capabilities (depending on target platform)**
- **Facebook's Guidelines**



Spark AR Hub

- Dashboard for uploading and editing your effects
- Exposes use statistics and possible problems

Found under <https://www.facebook.com/sparkarhub/dashboard>



Thank
you

