

# A armory Digest

ISSUE 1 - Q4 2020

## FREE INTERIOR ARCHVIZ SCENE

THIS MONTHS ISSUE  
INCLUDES A COMPLETE  
ARCHVIZ SCENE FOR  
ARMORY3D



## LIGHT DISPLAY SCENE

FULL TUTORIAL AND  
DEMO SCENE INCLUDED



# Index

News	3
Notable changes	4
Notable changes	6
Interior ArchViz	8
Mastering Lights	12
Blacksmith	16
Showcase	18
Support Armory	19

# News

## New format

I'm slowly working towards creating more of a magazine format for the newsletter, and the first issue in this new format didn't become as extensive as I'd have wanted due to time spent on setup, busy at work and some corona related issues. But in any case, it's done and December is here with a few pages, lots of pictures, a few tutorials and some cool demo scenes. It's a start that I hope to improve more on in the future.

I hope you like it.

## Armory 2020.12 is released!

Armory December is released, and contains a lot of nice new features!  
Get the latest SDK version here: <https://github.com/armory3d/armory/commits/master>

For a list of changes, keep on reading!

## Armorpaint updates

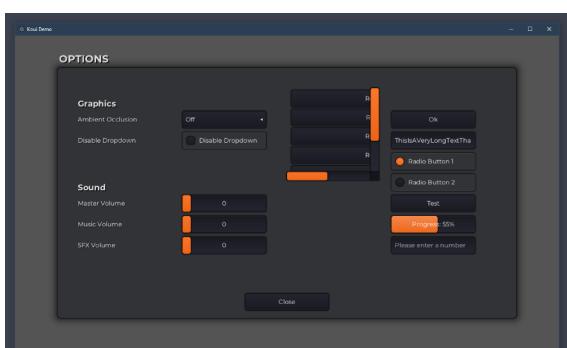
ArmorPaint will feature translucency painting in the upcoming ray-tracing update! In general, progress on ArmorPaint is going great with Lubos adding lots of features almost daily! Check out the progress here: <https://github.com/armory3d/armorpaint/commits/master>



## Kou updated to 2020.10

Kou has been updated to 2020.10 and includes a bunch of new features including support for gradients, drop shadows, rounded corners as well as massive theming improvements allowing much better control, additional debug information and speed improvement!

Check it out here: <https://koui.gitlab.io/>



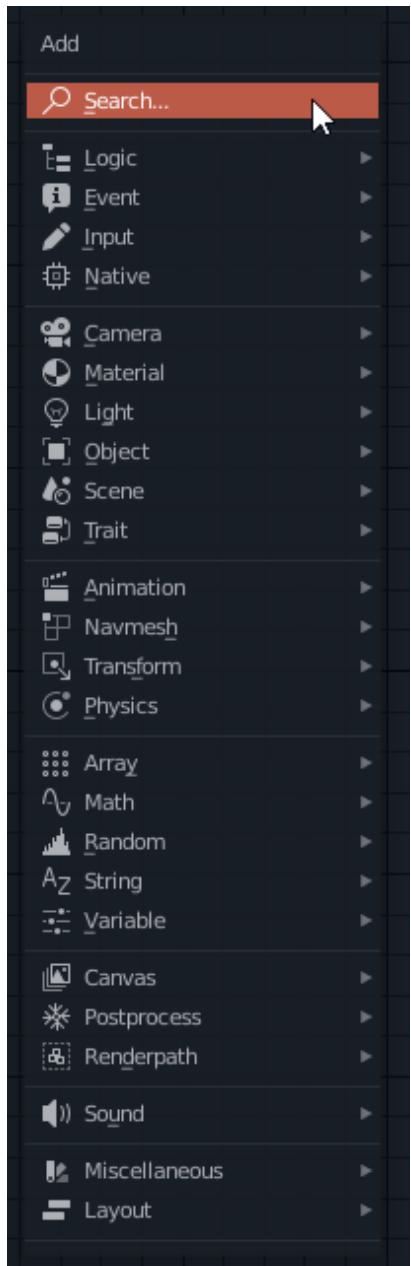
# Notable changes

## Since September

### Highlighted changes:

#### Massive logic node overhaul

The logic node menu has been overhauled with sections, menu, icons, categories and are now grouped nicely together based on their purpose. There's also been a few significant changes to the underlying python API, so if you've existing libraries that adds custom logic nodes, you might want to check up on that.



#### World nodes and environment refactor

MoritzBrueckner added better support for world nodes in Armory. This commit brings a great amount of new supported nodes when customizing worlds. Supported nodes includes color mix, math, vector math, normal, geometry and many more.

Warnings are now provided when unsupported nodes are used, and a new python parser class have been added to hold information related to world creation.

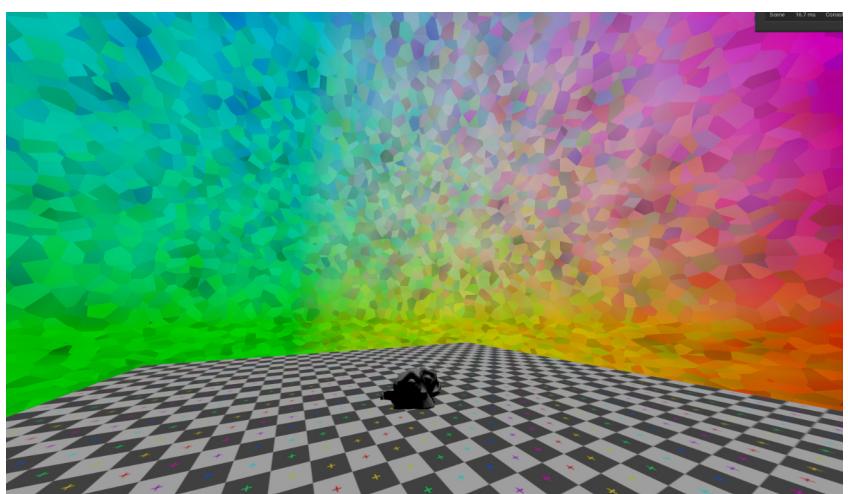
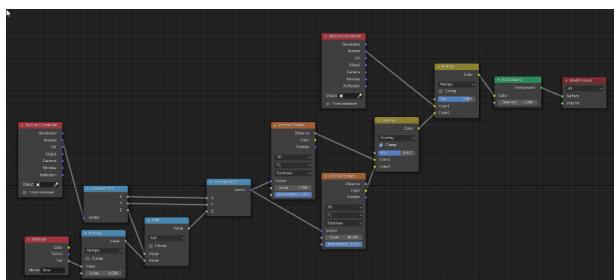
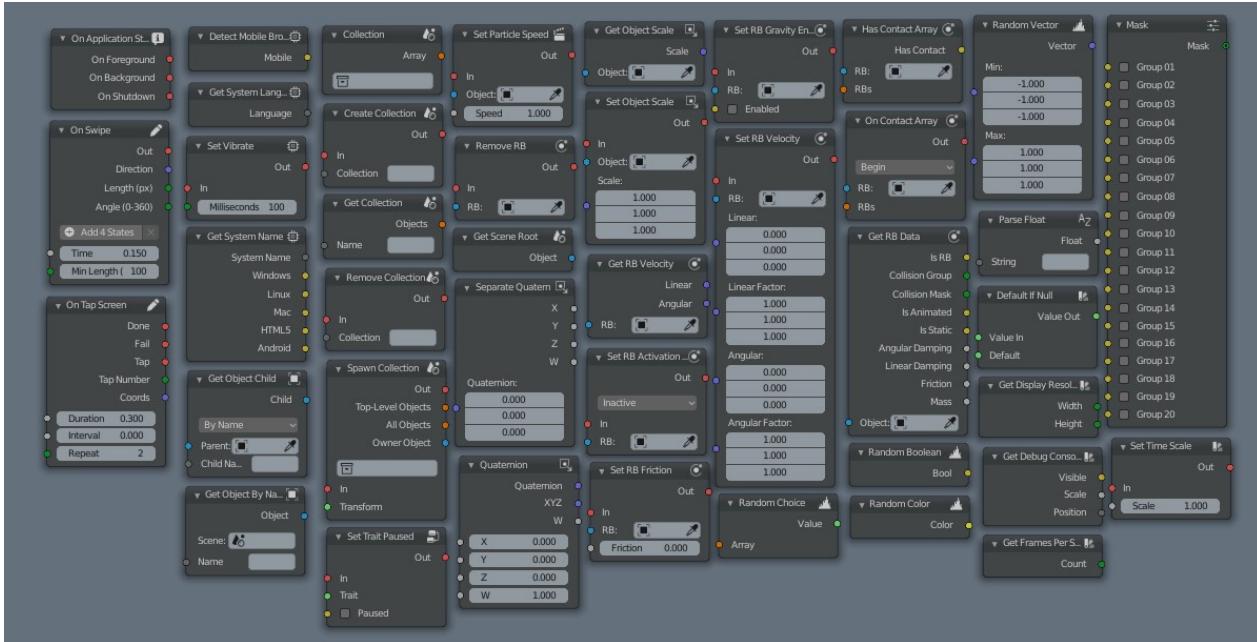


Image courtesy of MoritzBrueckner

## Many new logic nodes to the family

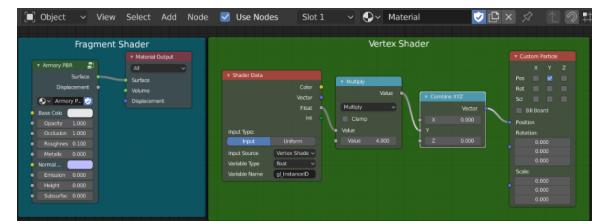
MoritzBrueckner, QuantumCoderQC, e1e5en-gd, knowledgenude and others have added lots of useful and interesting logic nodes which includes over 45+ different nodes for all uses and applications - The more nodes the merrier!

For a complete list of the new nodes, please refer to the next page.



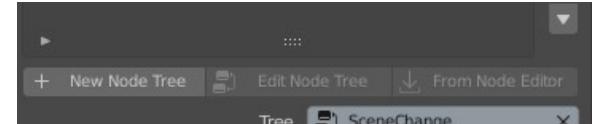
## Particle System Node

A new custom particle system node was introduced by QuantumCoderQC, which allows users to create arbitrary complex GPU particle systems in Armory3D. This allows you to efficiently control what particle parameters are modified at run-time, and includes built-in support for spherical billboards.



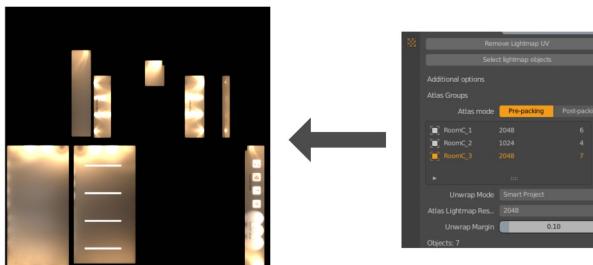
## New nodetree operators

e1e5en-gd added some useful nodetree operators, that will help workflow a little. These includes possibility to add a new nodetree, edit the selected nodetree and set trait from active node editor.



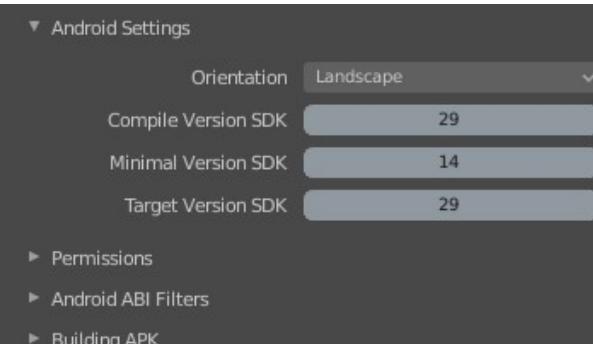
## Lightmapper updated to version 0.4

The lightmapping in Armory3D was updated to version 0.4, which includes lots of new features, such as Atlas packing, more finish alerts, supersampling options, additional filtering and better background baking.



## Extended publishing options

e1e5en added extended publishing and exporter options for several platforms such as Windows, HTML5 and Android for much better platform control.



## And many many more features!

Apart from this, there's also been plenty of additions and contributions to Armory3D by a big bunch of nice people, that each deserves a big thanks, read more below!

# Notable changes

## Since September

### Listed commit changes:

- Added functions to disable and enable collisions
- Added ridig body node
- Logic node math expressions
- Added per-material UI support for driver API
- Added node context entry for material parameters
- Map range node
- HTML5 Export settings
- Additional android options
- Option to compile khamake with debug option
- Added ValueChanged node
- Math node refactor
- Show launch commands
- Upgraded VectorMath nodes
- Fixes for musgrave node
- Added GetTraitPaused node
- Added Clamp node
- Upgraded Math nodes
- Update nodes with OnLocalAxis
- Fixes for trait updates
- Fixes to node upgrades
- Blender version check for Armory
- More fixes for custom nodes and library improvements
- Fix for play button not working with Krom
- Fix for trait paths
- Implement optional profiling for export
- Added DetectMobileBrowser node
- Added DefaultIfNull node
- Added SetActiveCamera operator to Debug console
- Improved handling of deprecated logic nodes
- Added bounce and elastic options to Mix Nodes
- Improved node registration
- Added GetFramesPerSecond node
- Bundle icon for Bundled Armory traits
- Added GetTraitName node
- Added GetObjectTraits node
- Fix for Bump node
- Light Path node aligned to Eevee
- Light Falloff node aligned to Eevee
- Added Separate HSV node
- Fixed Normal output in TextureCoordinate node
- Improvements to MixRGB node
- Added VectorToObjectOrientation node
- Fully implemented VectorMath node
- Added Cycles clamp node
- Added VectorFromBoolean node
- Added panel for building android APK
- Fix for BlendAction nodes
- Fix for volumetric light with different lamp combinations
- Added RandomOutput node
- Added RandomChoice node
- File encoding set to UTF-8
- Added SetVibrate node
- Added Android settings
- Added option to build directory after publishing
- Added GetTilesheetState node
- Improved ScreenToWorldSpace node
- Added GetSystemLangauge node
- Improved VectorMath node (additional distance and length options)
- Added ParserState class to hold global variables
- Added support for world nodes as subpackage
- Added GetDebugConsoleSettings node

- Added SetDebugConsoleSettings node
- Debug Console moved to separate subpanel with additional settings
- Merged Pause/Resume nodes for Trait, Tilesheet, Action
- Improved SetObjectMaterial to slot be slot specific
- Fix for CallFunction node
- Fix for logic node readability
- Fix for OnSwipe node
- Fix for inverted physics collisions margins
- Added contextual operator for node python source code
- Added contextual operator for node haxe source code
- Added contextual operator for node documentation
- Fix for description exceptions
- Script to generator logic node references
- Updated node docstrings
- GetObjectNode now allows objects from other scenes
- Further handling of node depreciation
- Added OnApplicationState node
- Automatic node and category registration for libraries
- Added GetSystemName node
- Python context manager for better working directory handling
- Improvements to logic labels
- Merged MouseLock and MouseVisible nodes
- Added SetCursorState node
- Added GetCursorState node
- GetMouseMovement and Get Cursor Location instead of Mouse Coords node
- Improved socket naming
- Support for LZ4 encoding
- Added OnTapScreen node
- Added CustomParticle node
- Fix export for sockets with no default values
- Added OnSwipe node
- Added poll() function in python for AddNodeOverride
- Socket node fixes
- Improved SetVisible node
- Improved GetVisible node
- Added GetRigidBodyData node
- Added GetObjectOffscreen node
- Fix for logic node string inputs
- Node versioning system revision
- Added Armory flag for Armory/Kha differentiation
- Fix canvas nodes for invalid element names
- Added New Node Tree operator
- Added Edit Node Tree operator
- Added From Node Tree operator
- New node tooltips
- New custom node socket shapes
- More PEP8 python code standardization
- New API for logic nodes and extension packs
- Node category sorted, and are their own subpackages now
- Node category icons
- Node sockets are their own module
- Deprecation warnings for old input nodes
- Added GetMouseVisible node
- Added GetMouseLock node
- Added CanvasGetVisible node
- Support for displacement in instanced objects
- Fix for getChild to be only immediate
- Fix for getGravity node
- Added Set Friction node
- Added Set Activation State node
- Added Remove Physics node
- Fix for ray casting mask
- Fix for backwards compatibility with RotateObject nodes
- Fix for rigid bodies moving when parenting
- Add SpawnCollection node
- Renamed camera nodes
- Apply transform on Keep Transform (Fix for parenting issue)

*Contributors - Huge thanks to:*

*- Lubos, MoritzBrueckner, QuantumCoderQC, knowledgenude,  
e1e5en-dev, N8n5h, niacdoial, Henrique, Lykdraft,*

# Interior ArchViz



## Interior ArchViz

This free showcase scene for Armory consists of an apartment of roughly 85 square meters and has 2 bedrooms, 2 living rooms which are connected through a 2-sided kitchen area and a single bathroom. Additionally, the apartment features 2 balconies with north-south directionality.

The specific layout was scrapped as a better was found with a better space utilization, but it works well as a showcase nonetheless as I suspect most of the Armory Digest readers aren't architects anyway.

The model xx mb and can be downloaded from here (backup added to github):

<https://naxela.itch.io/ad-showcase-2>



## *Modern*

The actual model was made from an exported FBX model from Revit, which was only used as a quick-base for remodelling (as geometry from Revit is generally crappy). The room was tested out with single gray material and from then the lighting was then applied while trying out different things.

Afterwards, some of the more essential model as added to the scene, such as kitchens, doors, windows and so on. Mind you, the remodelled base was essentially just walls with holes for doors and windows, so it was very bare. The wall-bases was added using simple lines, and solidify modifiers.

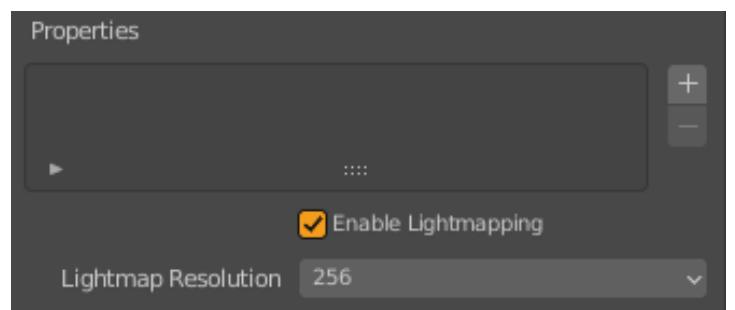
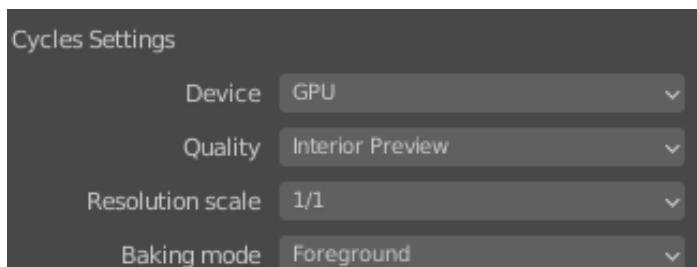


## Spacious

Initially, when I started out applying materials they were high-quality scanned textures from Megascans and used them on some of the floors and walls.

In the end, I had to change these textures to CC0Textures due to their EULA, as it prohibits sharing these, not to mention that it also prohibits the usage within other engines than Unreal Engine/Twinmotion if you're registered on the free tier.

The lightmaps were build with resolutions ranging from 256 for the smallest items to 2048 for the larger parts. For previewing I mainly stuck with Internal Preview settings, and slowly shifted to Medium/High as I needed more light detail.



# Customizable

I've added a few options for changing the material on post-build, and while you can reset the lightmaps, it will break the functionality, as a value node is configured to be a controlled property, that shifts between texture sets.



Anyway, I hope you like the showcase. Feel free to use it as you like!



# Mastering Lights

## In Armory3D

This free showcase demo contains 4 rooms with each their own lighting setup, and showcases the various methods of using lighting and the properties of light. The showcase is already setup for you to run, all you need to do is to **press Play (F5)**.

In order to transition from room to room, you've to point towards the flowing marker on either side of the wall and **press F**. I've mainly utilized existing bundled scripts as well as logic nodes.

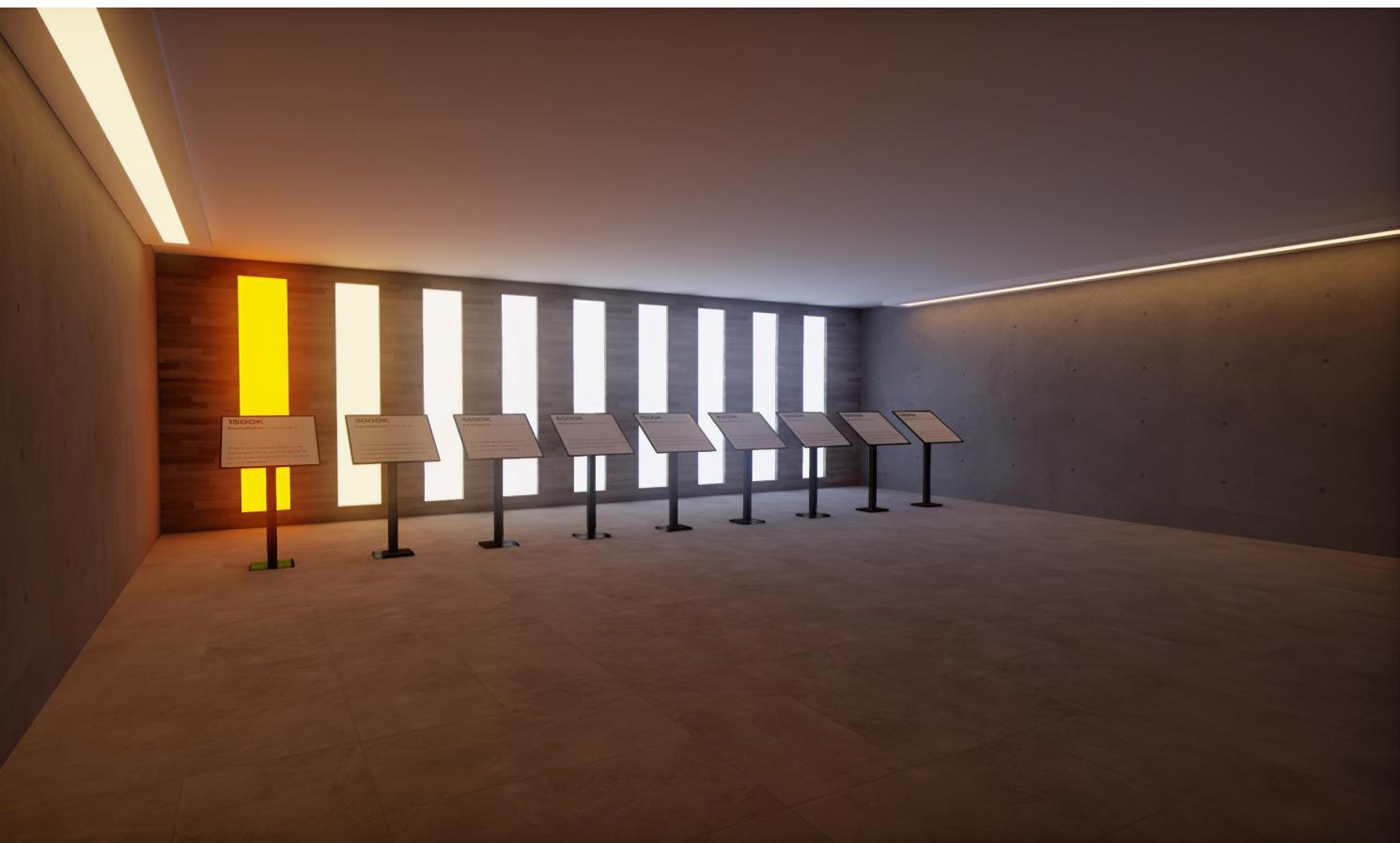
As for the textures, they were initially made with Megascans, unfortunately I had to change that to a mix of CC0Textures and substances due to license issues.

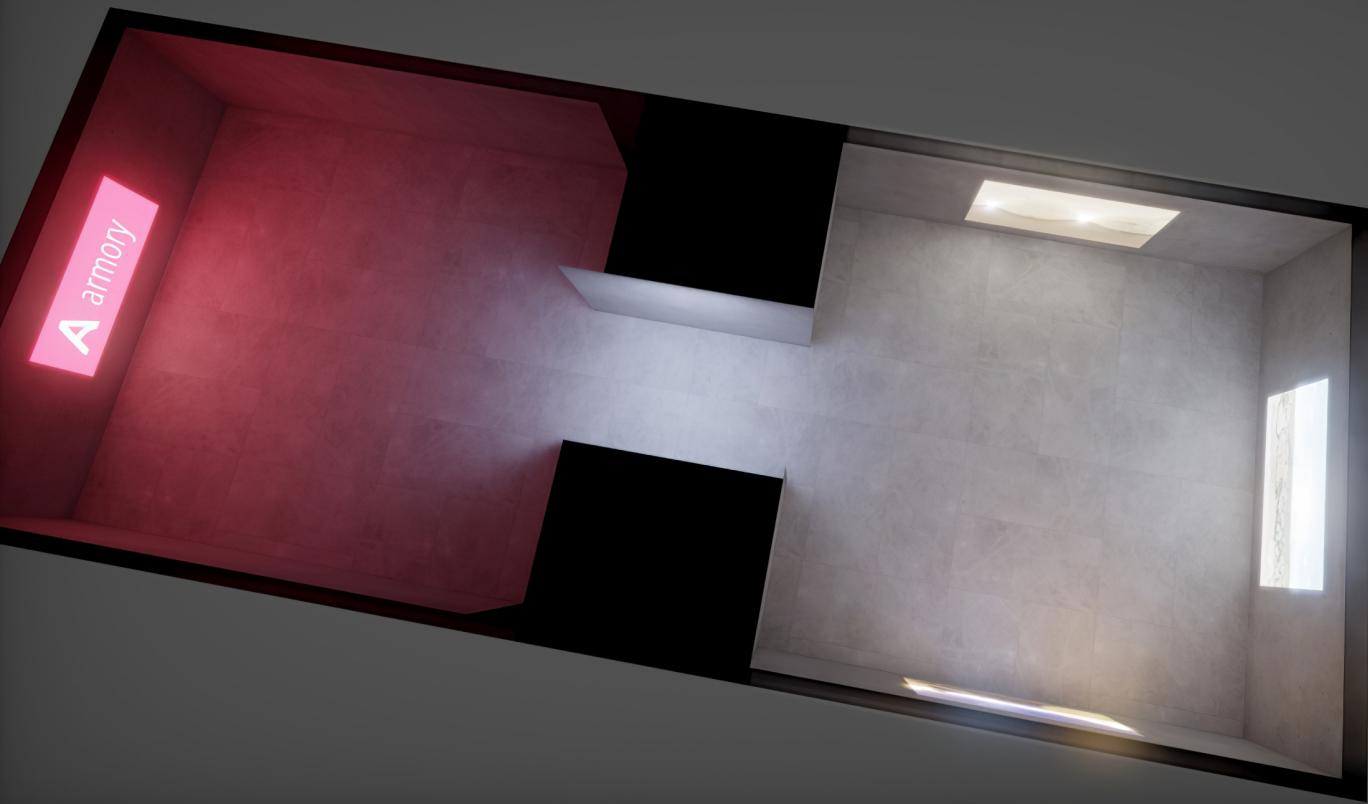
I've also added some copyright free background sounds to play while you learn.

If you get any errors (such as pink textures, try making the textures absolute).

Download the showcase from here: <https://naxela.itch.io/ad-showcase-1>

First room:





Second room:

The first room contains lights distributed throughout the spectrum of blackbody temperature, as well as a brief description of the temperature in kelvin, the real-world equivalent as well as the practical usage within Armory and Blender. On the back wall, there's an information board containing the basic steps, nodes and elements that are contextually relevant.

The second room shows lighting done entirely with images on planes. An ordinary 8-bit image on one side, and a 32-bit HDR image on the other. What you'll notice is that the ordinary 8-bit jpeg image is relatively even and flat in terms of the lighting provided, whereas the HDR image has various lighting levels inside the image itself.

Using HDR images as material lighting works in much the same manner as using HDR images as environment lighting,

I couldn't come up with some interesting additional information for this room, so it's the only room that hasn't gotten additional information.



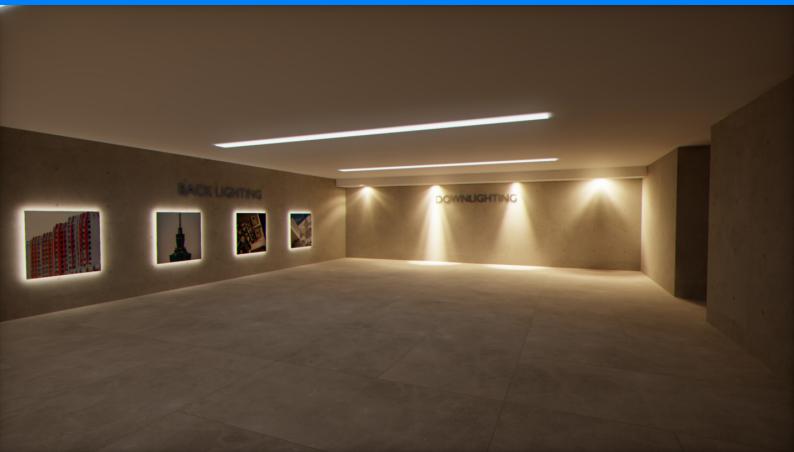
## Second room:

The third room is technically 2 rooms in one. The first room tries to display the various kinds of lighting types, whilst the second room tries to emphasize the methods than one can use. Most of all, it displays the very nice effects that IES lights can provide.

IES Lights is an international standard file format for defining lightshapes, which is widely used for architectural visualization as well as for lighting design. Essentially, the IES file is an ASCII text file containing variables that defines the shape, size and strength of the light, and are often derived either from real-world light bulbs or used during the design phase.

When you're making games, it's a good idea to keep in mind the concepts and methods of the lighting you're providing, as these are also used by professional architects and lighting designers. First off is the actual type of lighting itself:

- Ambient/General lighting
- Accent/Focus lighting
- Task/Utility lighting



Second is the method of the lighting, each has their own specific usage and effect that it provides

Methods:

- Downlight
- Uplighting
- Front lighting
- Back lighting

The fourth room shows examples of curves imported from other applications. In this case, the curves are exported from Affinity Designer and Adobe Illustrator to SVG files, which are then imported into Blender as curves and given width.

Neon lights are similar to cables easily made by using curves in Blender, and adding emissive materials to them, making it easy to make things such as various Las-Vegas inspired entry signs primarily made from gas-discharge lights.

Flourescent tube lights often used in offices and stores, is easily made by adding an elongated box with a small-radius cylinder inside.

A good workflow is to draw up your signs inside Inkscape, Illustrator or similar applications and then export them as SVG. These SVG's can then be imported directly into Blender - Easy as that!



# Blacksmith

Blacksmith is a project I've been working on for a while now, and rewritten countless of times.

It is a free online-repository of assets made specifically for Armory3D, which also means that I'll be able to cover the costs myself provided the Armory3D community doesn't grow too fast.

Includes everything from 3D models, textures and audio to scripts, environments and Blender addons. Registration is simple (although no Github login yet), and I plan to add user tiers/levels with more advanced features being unlocked as the users upload more and their assets become more popular.

**Blacksmith**    HOME    BROWSE    ABOUT    CONNECTION TCP SERVER ONLINE    CONNECTED TO BLENDER    DOWNLOAD DRIVE E:/.../MATERIALS 453 GB    Naxela

CATEGORIES:

- 3D MODELS
- MATERIALS
- ANIMATIONS
- ADDONS
- SCRIPTS
- TEXTURES
- AUDIO
- VFX
- TEMPLATES

SEARCH

MONTHLY STATS

TOP ARTISTS

- 1. McRandomName466 [ 31 ❤ ]
- 2. supaaaahMan123 [ 25 ❤ ]
- 3. DiarrhoFeeever [ 15 ❤ ]

TOP DONATORS

- 1. HerbertPervert [ \$10 ]
- 2. FunkyGoose [ \$7 ]
- 3. Mr. ChunkyMunk [ \$5 ]

MONTHLY POT OF GOLD

This month, there's donated \$37 towards server costs. 1/5th of this is awarded to this month's top artist - That's \$8!

**THE LIGHTMAPPER**

**THE LIGHTMAPPER**

CATEGORY	ADDONS
SUBCATEGORY	UTILITY ADDON
PUBLISHER	NAXELA
RATING	7 ❤
VERSION	0.2 (04.11.2019)
SIZE	35.4 MB
DOWNLOADS	121
WEBSITE	<a href="http://Naxela.info">Naxela.info</a>

ASSET DOWNLOADED

BROWSE FILES

ADD TO ACTIVE PROJECT

What is The Lightmapper and why use it?

Lightmaps are essentially textures that holds information about the surface luminance of objects, and have been used in games for a long time, as they're cheap and easy to work with. Defining a scene with ordinary dynamic lights usually has two downsides: Regular shadow casting lights are still rather expensive on the GPU even on deferred, and especially on mobile devices, and they don't bounce the light around in an environment, meaning they only provide direct lighting information unless you provide expensive secondary means of doing this (such as Voxel GI or SSDO).

With HDR Lightmaps, you can potentially have unlimited lights in your scene as these are baked into your textures not to mention they're much less expensive than dynamic lights. The difference between regular lightmaps and HDR lightmaps is the larger range - Where normal lightmaps have a range between 0 to 1, HDR maps can act as light sources with values from 0 to 6 (gamma space), or  $6^{2.2}$  in linear space.

Researching on how other engines does it

If we compare it to the other "main" game engines on the market, they all employ similar means of lightmapping, but with different encoding schemes and different ways of

OTHERS ALSO LOOKED AT

- SciFi Scene Naxela
- TempleScene Naxela
- PPM - Postprocess... Naxela
- Eden - Galaxy ch... Naxela

## CATEGORIES:

- 3D MODELS
- MATERIALS
- ANIMATIONS
- ADDONS
- SCRIPTS
- TEXTURES
- AUDIO
- VFX
- TEMPLATES

SEARCH

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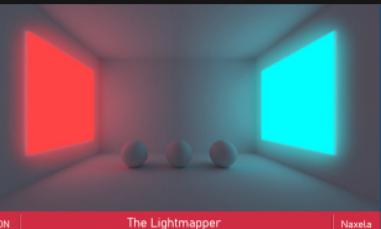
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## MONTHLY POT OF GOLD

This month, there's donated \$27 towards server costs. 1/5th of this is awarded to this months top artist - That's \$5!

\$8 12 days left!



ADDON | The Lightmapper | Naxela



ADDON | PPM - Postprocessing Module | Naxela



3D MODEL | Eden - Galaxy chart | Naxela

• • • •

## FEATURED

## TOP RATED

## LATEST

The Lightmapper  
ADDON

Naxela

7 ❤

PPM - Postprocess...  
ADDON

Naxela

5 ❤

Eden - Galaxy ch...  
3D Model

Naxela

2 ❤

InteriorViz  
3D MODEL

Naxela

2 ❤

TempleScene  
3D MODEL

Naxela

3 ❤

SciFiScene  
3D Model

Naxela

0 ❤

VIEW ALL ➔

Additionally, apart from being just an app to download models, there's also a working prototype addon for Blender, essentially allowing you to download and apply materials, textures and add models to your Blender scene with a single click using a system called PowerPlug. Imagine not having to find, download and unpack your textures everytime you need them, or quickly populate your archviz scenes with furniture and people.

I plan to release it as a closed alpha in late 2021 Q1.

Stay tuned here: <http://blacksmith.naxela.info/>

# Showcase



## Snorkel Explorer by porchman

Porchman completed his first release using Armory3D – An educational interactive Experience featuring diving, unique creatures and more!

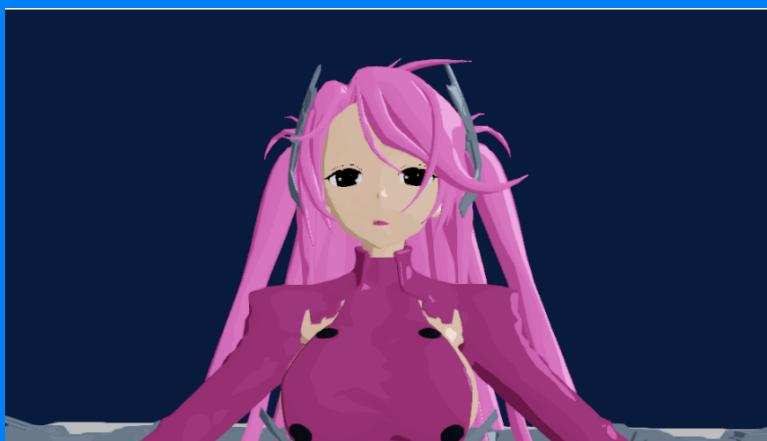
Check it out here: <https://porchman.itch.io/snorkel-explorer>



## Offroad Mania by grmaster

Offroad Mania was updated, and now includes trading cards, badges, backgrounds and smiles!

Get it on steam: [https://store.steampowered.com/app/1222040/Offroad\\_Mania/](https://store.steampowered.com/app/1222040/Offroad_Mania/)



\$adL!fe made a celshader for Armory3D

Check it out on the discord server: <https://discord.gg/ccQyuHP>

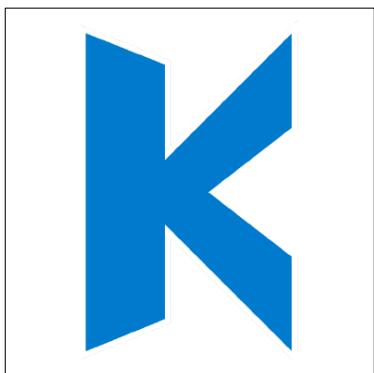
# Support Armory



*Lubos Lenco*

- *Armory3D*
- *Iron*
- *Armorpaint*
- *And more...!*

<https://armory3d.org/fund.html>



*Robert Konrad*

- *Kha*
- *Kinc*
- *Kore*
- *And more...!*

<https://www.patreon.com/RobDangerous>