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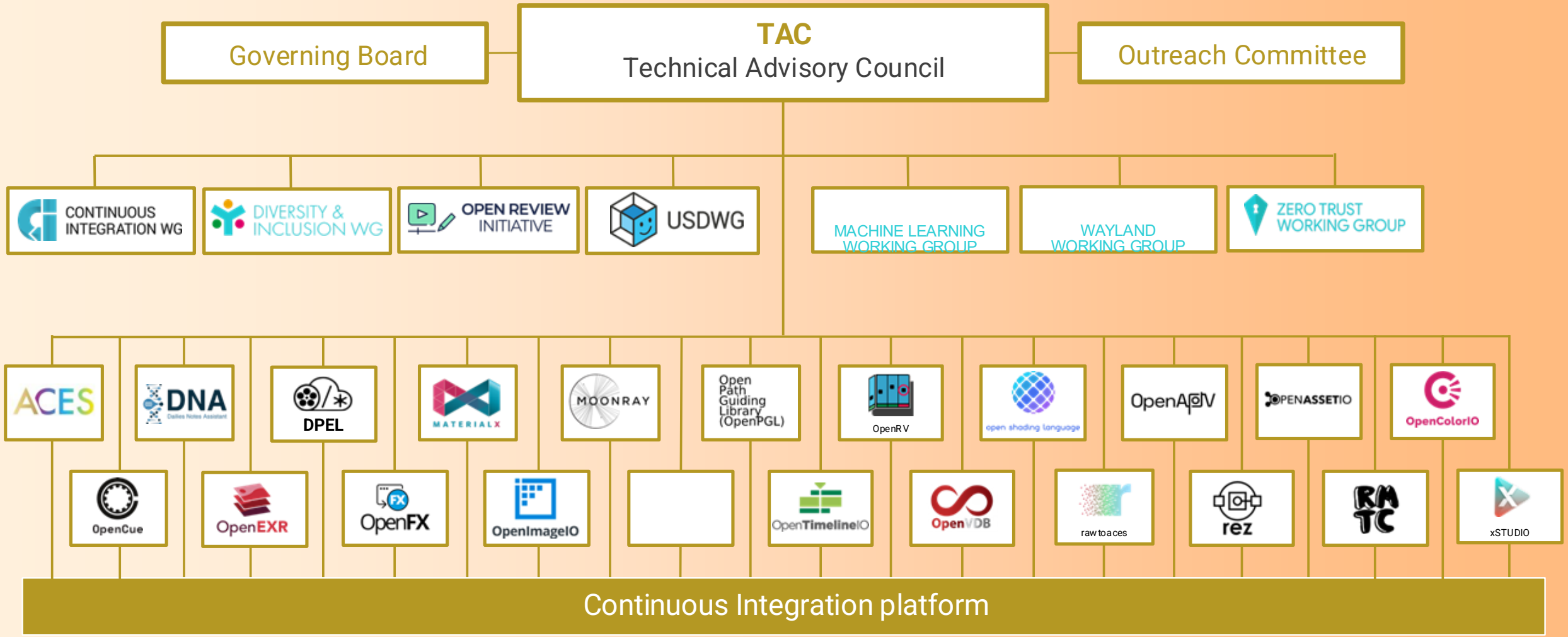
Project Fast-Forward

A Tour of the ASWF Landscape

Carol Payne - 2026 TAC Chair

ASWF Structure



Graduated

Mature, widely adopted. Has met defined best practices and security criteria

Digital Production Example Library (DPEL)

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DPEL is a curated library of digital assets that demonstrate the scale and complexity of modern feature film production, free to use for researchers and developers to test, demonstrate, and inspire.

- Contributed by Netflix Animation Studios, ALab is a scene of an Australian backyard workshop. It now contains a Gaussian splat representation, taking advantage of OpenUSD's new particle field schema.
- Contributed by the ASC, the Standard Evaluation Material for Virtual Production (StEM3-VP) provides reference content for in-camera VFX and LED volume technology

Learn more in their talk this afternoon!

dpel.aswf.io

MaterialX

MaterialX is an open standard for the exchange of rich material and look-development content across applications and renderers.

- MaterialX v1.39.4 added support for WebGPU shaders, hex-tiled images, NanoColor spaces, 2D fractals, animated materials, and more
- MaterialX v1.39.5 added support for Slang shaders, 2D and 3D flake nodes, Graph Editor improvements, and more
- The upcoming MaterialX v1.39.6 will add formal mathematics for the Physically Based Shading Nodes

Open Shading Language (OSL)

OSL is a language for programmable shading in advanced path tracing renderers and other applications. It contains a compiler and runtime for CPU and GPU.

Found in: RenderMan, Arnold, 3ds Max, Blender Cycles, Sony Imageworks, Pixar, Netflix Animation

- Released OSL 1.15.x with performance improvements and bug-fixes.
- Continuing to improve support and feature-parity on GPU.
- NEW: BDSL – Standalone BSDF library reference implementation of common BSDFs (OpenPBR, etc.).

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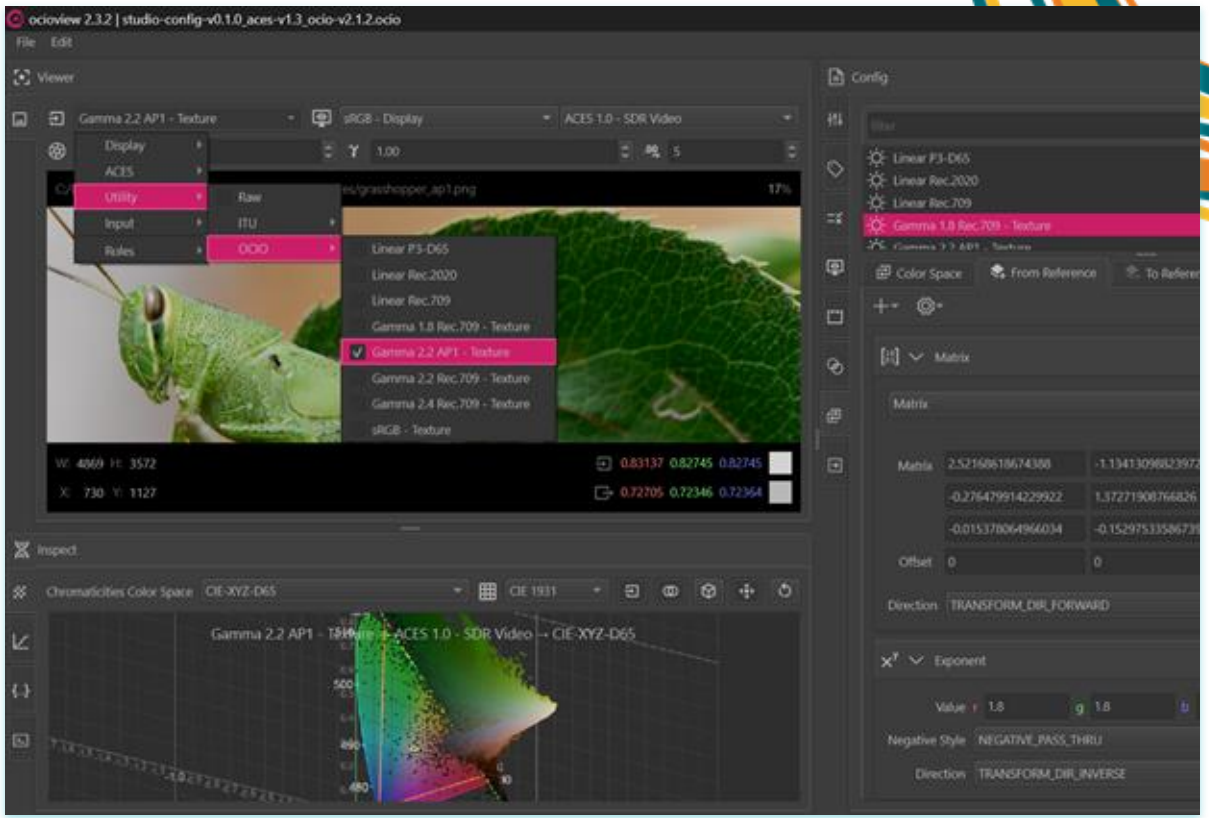
#openshadinglanguage

OpenColorIO (OCIO)

OCIO is a complete color management solution geared towards motion picture production with an emphasis on visual effects and computer animation.



OCIO 2.5 Includes:

- Config Merging
- Hue Curves
- Color Interop ID Support

And also - OCIO is now supported in FFmpeg!

OpenCue

OpenCue is an open source render management system.

- Redesigned rust monitor agent. 2x Faster, 4x Smaller, and more stable.
- New Web Interface for interacting with the farm
- Integrations with metrics and monitoring systems like: Loki, Grafana and Prometheus.

OpenEXR

OpenEXR provides the specification and reference implementation of the EXR file format, the professional-grade image storage format of the motion picture industry.

New Features for 2026:

- Lossy HTJ2K compression
- Deep compression w/ZSTD

And there's more…

- 80+ "security advisory" patches
- 19 patch releases so far this year

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#openexr

OpenImageIO (OIIO)

OpenImageIO is a toolset for reading, writing, and manipulating image files of all image file formats relevant to VFX / animation via a format-agnostic API with a feature set, scalability, and robustness needed for feature film production.

Recent highlights:

- Improved OCIO color management and working toward CIF conventions
- JPEG Ultra HDR support
- Lots of hardening against corrupt or malicious input files

OpenVDB

OpenVDB is a library comprising a compact hierarchical data structure and a suite of tools for the efficient storage and manipulation of sparse volumetric data.

- fVDB, a PyTorch extension for spatial intelligence and ML applications.
- NanoVDB, introduced in 2021 as a static GPU port of OpenVDB v9, is now mutable and supports dynamics application like simulation.
- OpenVDB v13 supports in-memory half (16-bit) float grids.

Incubating

Projects with a community and established production usage

Academy Color Encoding System (ACES)

ACES provides a common color language so everyone can see and work with the same image throughout production, distribution, and archival. It enables filmmakers to preserve the intended look of their images when using different cameras, software tools, and displays.

- **ACES 2.0:** Updated core math for more consistent results and modern workflow support.
- **Pipeline Metadata:** New tools to help track and maintain ACES pipelines

https://acescentral.com/get-involved/

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#aces

OpenFX

OpenFX is an open standard for creating visual effects (VFX) plug-ins. It allows plugins (shared libraries) to interface with host applications, giving artists thousands of new tools and capabilities.

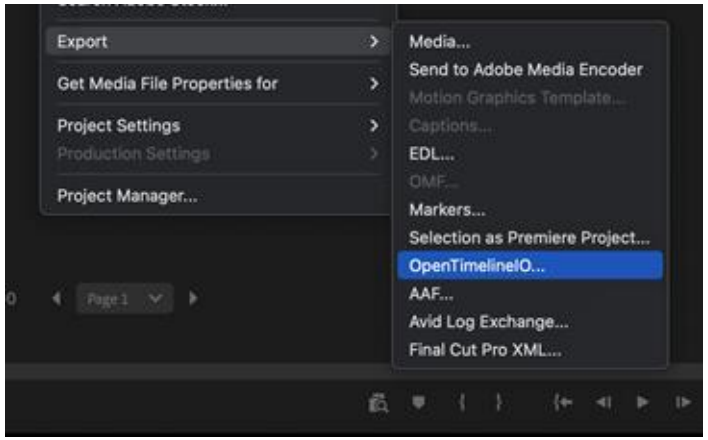
1.5 Major Release Includes:

- Full ACES/OCIO color management
- Comprehensive GPU rendering support
- OpenGL-independent draw suite

OpenTimelineIO

OpenTimelineIO is an interchange format and API for editorial cut information. It provides a toolset to exchange and query edits.

1. Import and export now available in Adobe Premiere
2. Integrated in RØDECaster Video Core
3. Added schema to help preserve color labeling on tracks and clips.
4. Continued enhancements to Raven - the OpenTimelineIO viewer



rawtoaces

rawtoaces is a framework for converting digital camera raw images into a common color space (ACES) and file format (OpenEXR).

Recent highlights:

- Implemented lens correction functionality
- Expanded the spectral measurements database by 30+ camera
- rawtoaces is now available in homebrew

```
Usage:
    rawtoaces --wb-method METHOD --mat-method METHOD [PARAMS] path/to/dir/or/file ...
Examples:
    rawtoaces --wb-method metadata --mat-method metadata raw_file.dng
    rawtoaces --wb-method illuminant --illuminant 3200K --mat-method spectral raw_file.cr3

    --help                          Print help message
    --version                       Print version and exit
    --wb-method STR                 White balance method. Supported options: metadata, illum
    --mat-method STR                IDT matrix calculation method. Supported options: auto,
    --illuminant STR                Illuminant for white balancing. (default = D55)
    --wb-box X Y W H                Box to use for white balancing. (default = (0,0,0,0) - f
    --custom-wb R G B G             Custom white balance multipliers.
    --custom-mat Rr Rg Rb Gr Gg Gb Br Bg Bb
                                    Custom camera RGB to XYZ matrix.
    --custom-camera-make STR        Camera manufacturer name to be used for spectral sensiti
    --custom-camera-model STR       Camera model name to be used for spectral sensitivity cu
    --headroom VAL                  Highlight headroom factor. (default: 6)
    --scale VAL                     Additional scaling factor to apply to the pixel values.
Lens correction:
    --lens-correction STR           Lens correction types to be applied to the images. Speci
    --require-lens-correction       Image conversion will fail if this flag is set to true a
    --custom-lens-make STR          Lens manufacturer name to be used for lens correction. I
    --custom-lens-model STR         Lens model name to be used for lens correction. If prese
    --custom-aperture VAL           Lens aperture (F-number) to be used for lens correction
    --custom-focal-length VAL       Lens focal length (in mm) to be used for lens correction
    --custom-focus-distance VAL     Lens focus distance to be used for lens correction If pr
General options:
    --overwrite                     Allows overwriting existing files. If not set, trying to
```

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#rawtoaces

Rez

Rez is a cross-platform package manager for creating/managing standalone configured environments that reference centrally installed packages. Many studios rely on it to support versioning and usage workflows for their complex internal pipelines.

- Latest releases added: type annotations, enhanced support for ephemeral packages (solver-only packages), shifted the supported python range to 3.8+<3.14,
- Exciting/promising developments around mypyc acceleration and long-awaited `provides` feature (system or software-suite-provided packages) are taking shape!

```
# Contexts

# Create new
$ rez-env --nl oiio-1.8.11 -o oiio.rxt

# Check request
$ rez-context --print-request oiio.rxt
oiio-1.8.11

# Check resolve
$ rez-context --print-resolve oiio.rxt
platform-linux arch-x86_64 os-CentOS-7 python-2.7.13 ilmbase-2.2.0.m3
openexr-2.2.0.m2 oiio-1.8.11.m0
[...]

# Check package updates based on existing request
$ rez-context oiio.rxt --fetch
oiio.rxt
current                      updated
-------                      -------
numpy-1.15.3                 numpy-1.16.3              (+1 versions)
six-1.11.0                   six-1.12.0                (+1 versions)
boost-1.61.0.m2              boost-1.61.0.m4           (+2 versions)
wrapt-1.10.11                wrapt-1.11.1              (+1 versions)
python_configparser-3.5.0.m1 python_configparser-3.7.4 (+1 versions)
```

Sandbox

Entry point for early-stage projects

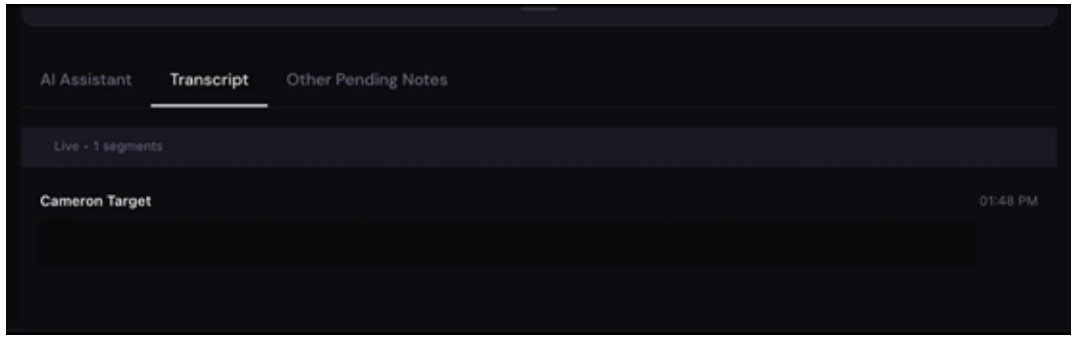
Dailies Notes Assistant (DNA)

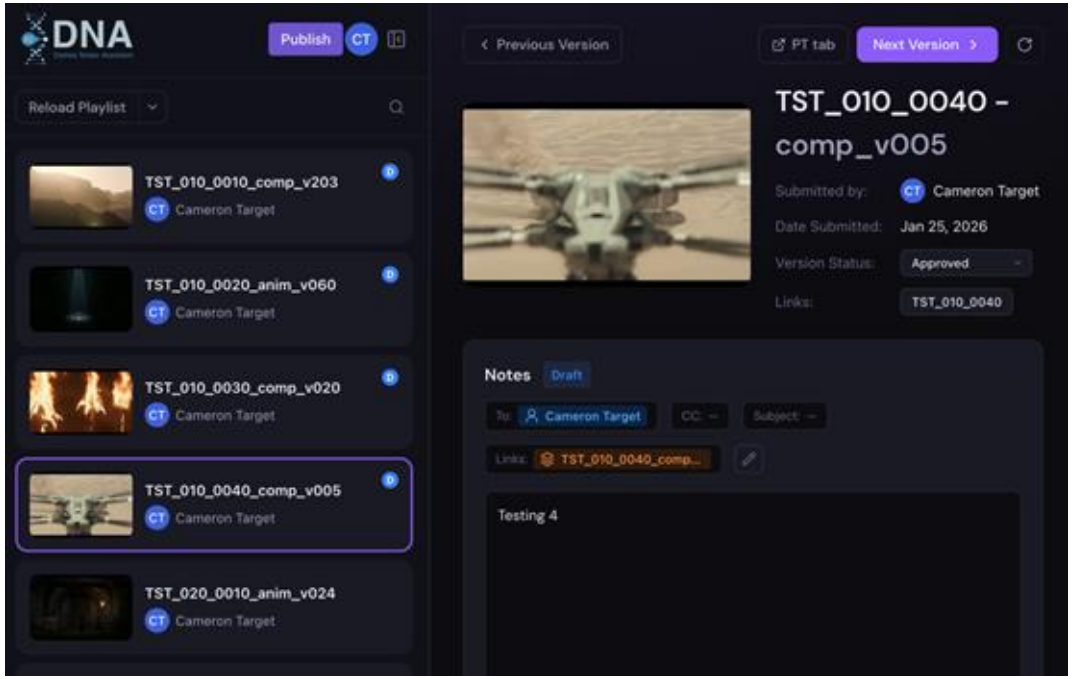
DNA aims to explore how large-language-model-assisted transcription can meaningfully enhance the VFX dailies note-taking process.

Building an open-source, integratable platform that improves accuracy and efficiency in capturing review feedback.

1. Created a **backend** to support interactions with a transcription service (Vexa), ShotGrid, AI Models, and Google Meetings.

1. Built out a **frontend** UI with VFX note takers in mind.





MoonRay

MoonRay is a high-performance production path tracer with layerable shaders and a computation framework for local and distributed rendering.

Recent Highlights:

- Joined ASWF
- Building our CI
- New date-based versioning scheme
- MaterialX support in progress
- Hydra 2 support in progress

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#moonray

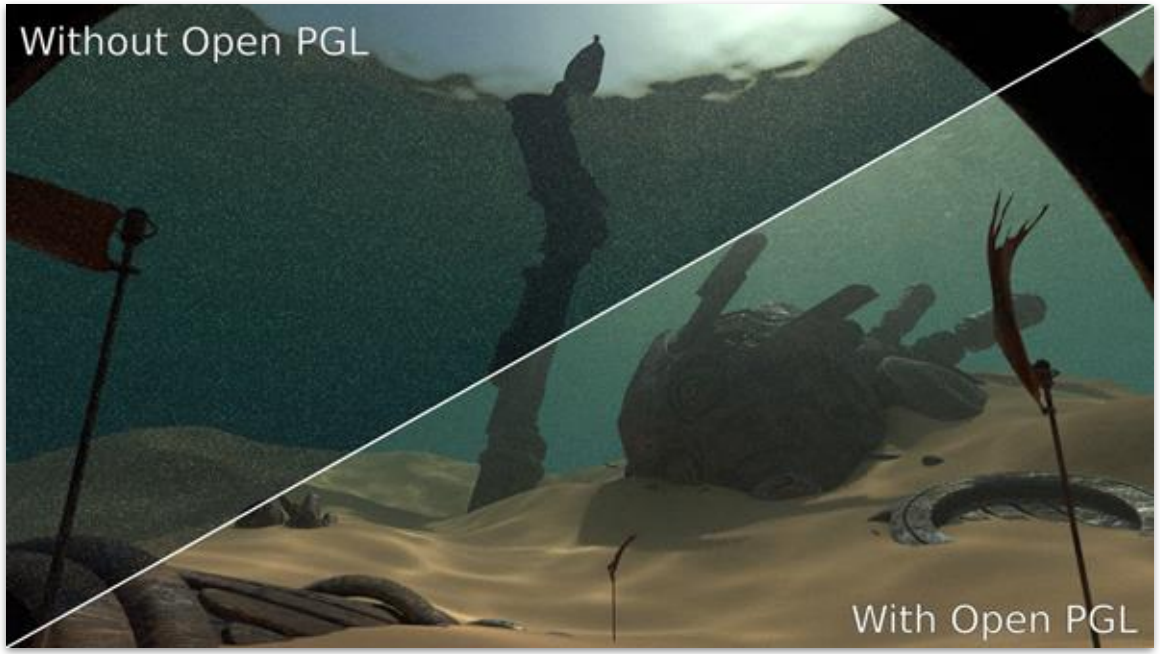
Open Path Guiding Library (OpenPGL)

OpenPGL is an open-source library providing state-of-the-art path guiding algorithms that are ready to use by and easy to integrate into production renderers.

By improving the importance sampling process OpenPGL increases rendering efficiency of scenes with complex illumination setups.

Recent Highlights:

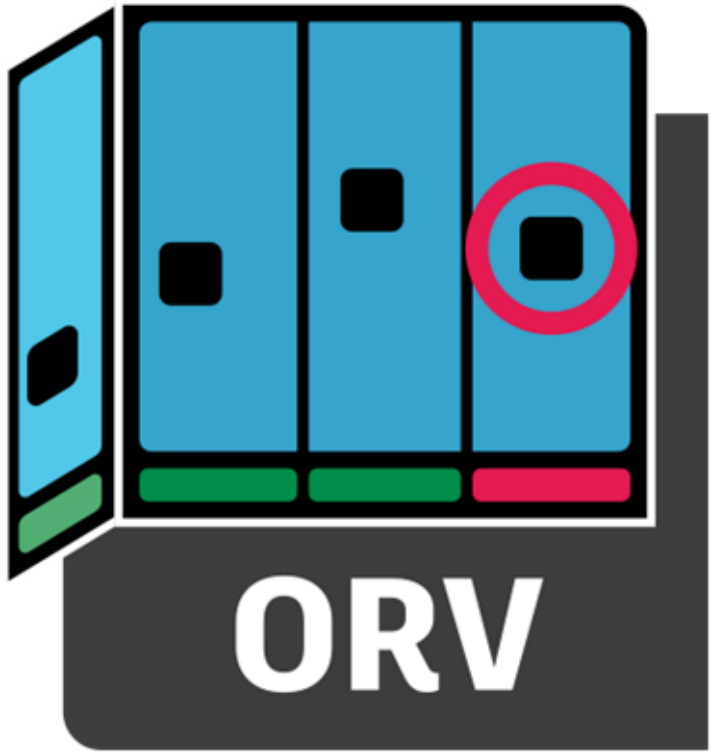
- Joined ASWF
- Preparing first release (v0.8.0) under ASWF
- Used in two feature films: **Zootopia 2** (Disney Animation) and **Super Mario Galaxy Movie** (Illumination)



OpenRV

OpenRV is an Academy Award-winning review tool, leveraged by major studios for high-definition review and approval workflows

- Allows stakeholders easy access to review, comment and annotate assets
- Highly customizable due to its plugin architecture and configurable processing graph engine
- Recently released:
  - OTIO-based Live Review integration
  - Open source annotation framework



xSTUDIO

xSTUDIO is a high performance, modern playback and review application with an artist-friendly interface. xSTUDIO's unique architecture, based on the 'actor model', ensures the most is made of the available hardware and the UI stays responsive even under heavy loads.

Recent development:

- Streamlined build steps for macOS, Windows and Linux
- Fast rendering from offscreen viewport via FFMPEG.
- WebRTC based video streaming solution, including interaction via web client, for remote review (pending release)

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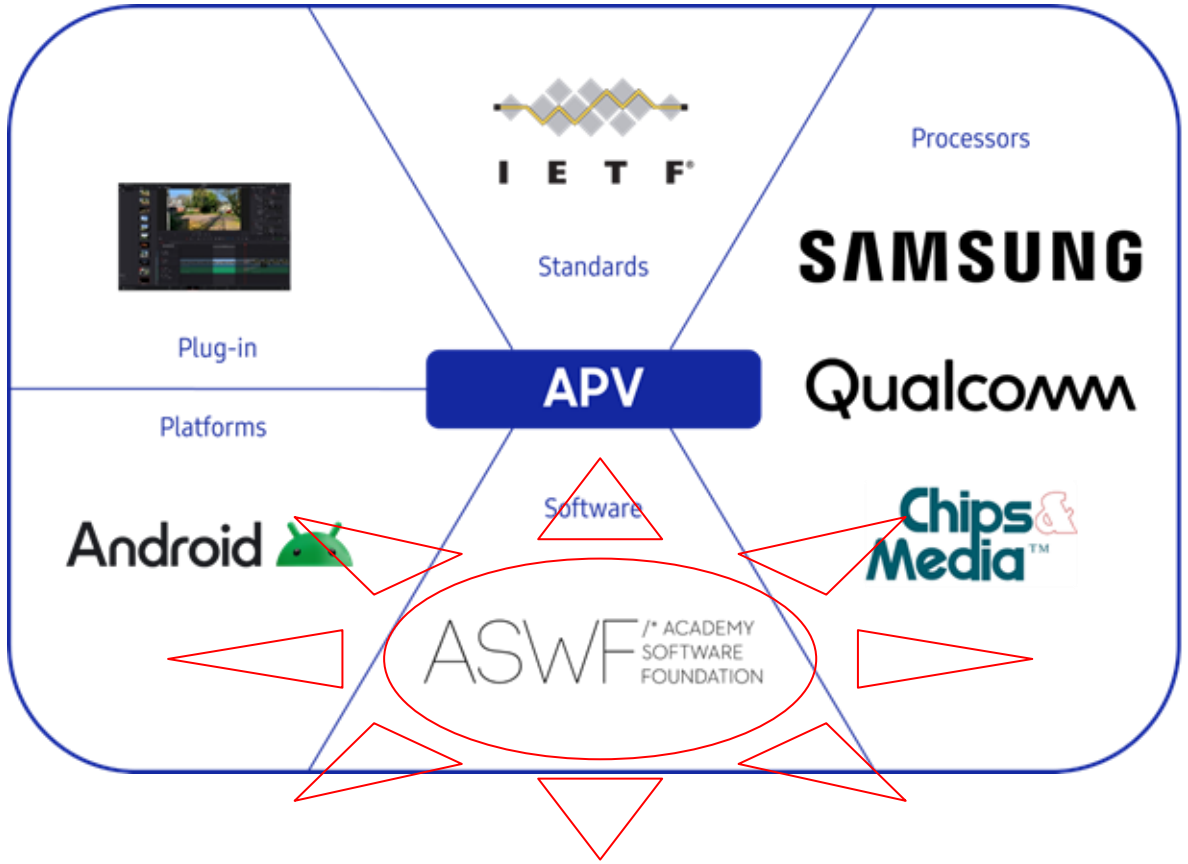
#open-review-initiative

OpenAPV

The mission of the Project is to develop a royalty-free, open-source, open standard video codec for professional video capture and post-production.

- Absolutely free video codec (free specification, royalty free technologies and open source software)
- Fast encoding and decoding at high quality (good alternative to open source Prores implementation)
- FFmpeg integrated & vulkan API supported
- Included in Unreal Engine 5.8
- RAW video support is on the way



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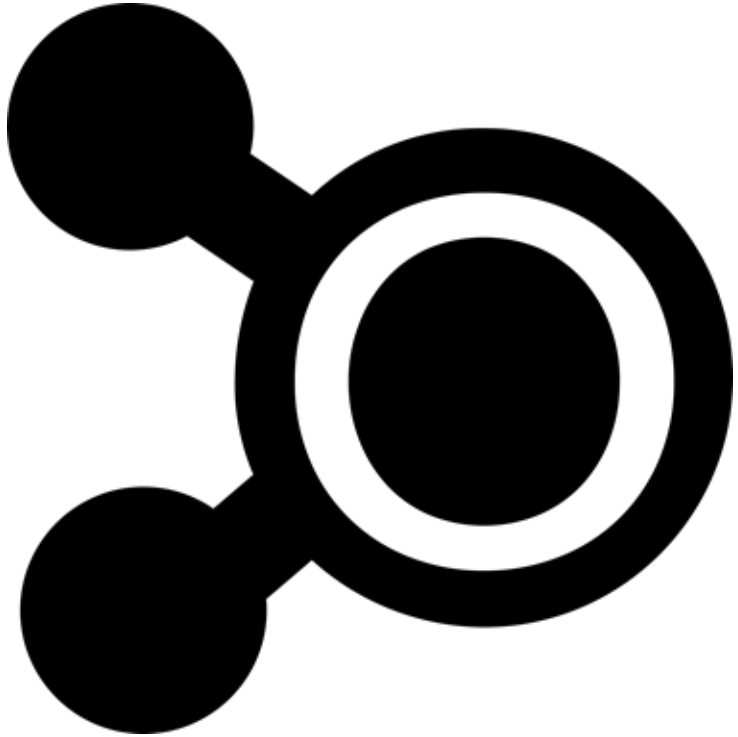
#openapv

OpenAssetIO

OpenAssetIO defines a common set of interactions between a Digital Content Creator (DCC) host, e.g. Nuke, and an Asset Management System (AMS), e.g. AYON. It exists as a bridge, providing a shared language for exchanging asset information.

- **OpenAssetIO MCP Server** - An MCP server that exposes OpenAssetIO functionality as tools for LLM clients.
- **OpenAssetIO-ComfyUI** - Custom ComfyUI nodes for resolving and publishing assets directly from a workflow via OpenAssetIO.



OpenQMC

OpenQMC is a high-quality Quasi-Monte Carlo (QMC) sampling library for feature film VFX production.

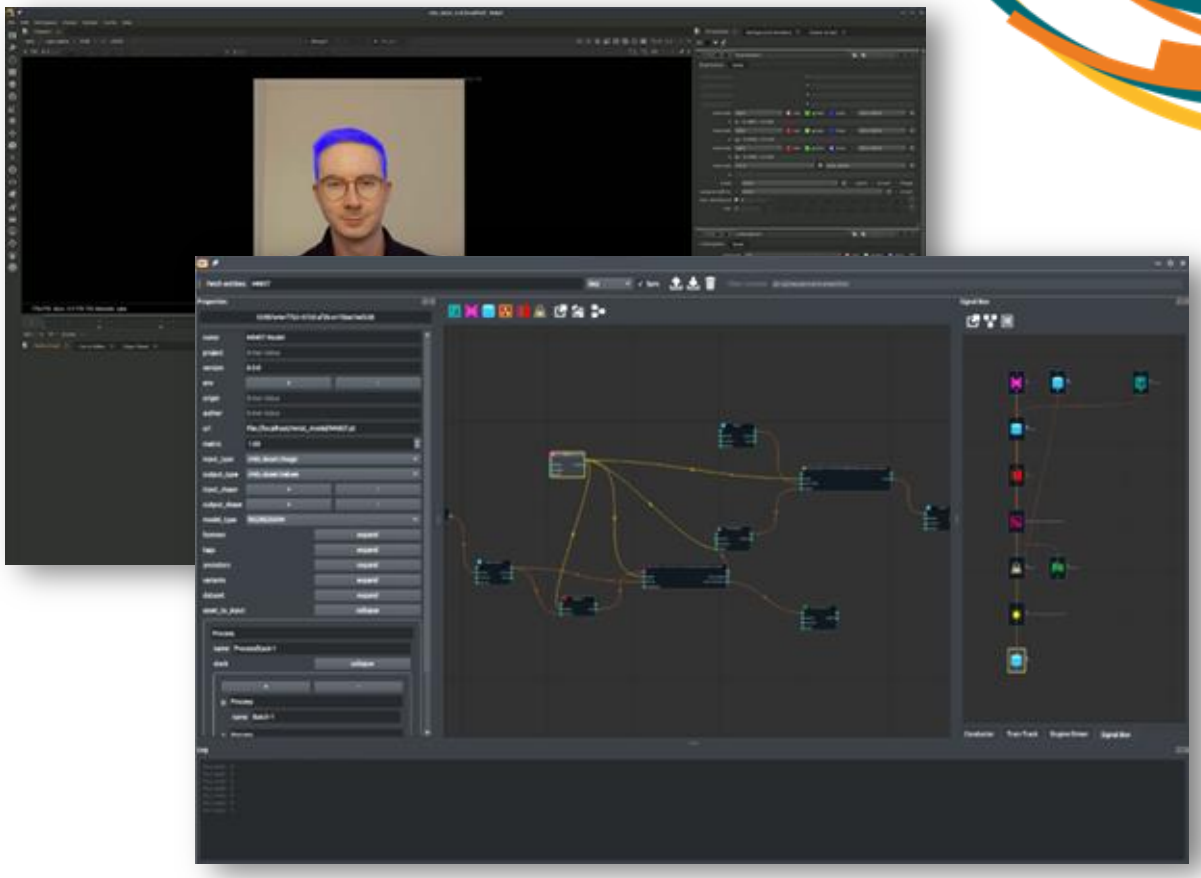
QMC is an integral part of rendering platforms and tools, reducing compute time and making render times tractable. This year we have had:

- **OpenQMC adopted** into ASWF and seen use in multiple projects.
- **External contributions** to the project implementing current research.
- **New website**, improved CI, etc
- **New roadmap** for upcoming changes including C-ABI and extended language support.

Rongotai Model Train Club (RMTC)

RMTC is a provenance focused tracing, training & inference framework. Designed for responsible AI use in VFX productions.

- Collaboration between Wētā FX, NVIDIA, RSP & Sony Imageworks
- Initial code delivered to public
- Python API, PyTorch, ONNX & Cypher graph DB support with Qt UI
- Injectable asset management and renderwall integration
- Refinement, inference, publish & tracing of simple foundational models with complex model support coming soon
- Burgeoning support for Nuke (CAT) and standard VFX asset types - USD/EXR



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#rmtc

Working Groups

Long-term Working Groups

CONTINUOUS INTEGRATION WG

DIVERSITY & INCLUSION WG

USDWG

OPEN REVIEW INITIATIVE

Working Groups

ZERO TRUST WORKING GROUP

Machine Learning WG

Wayland WG