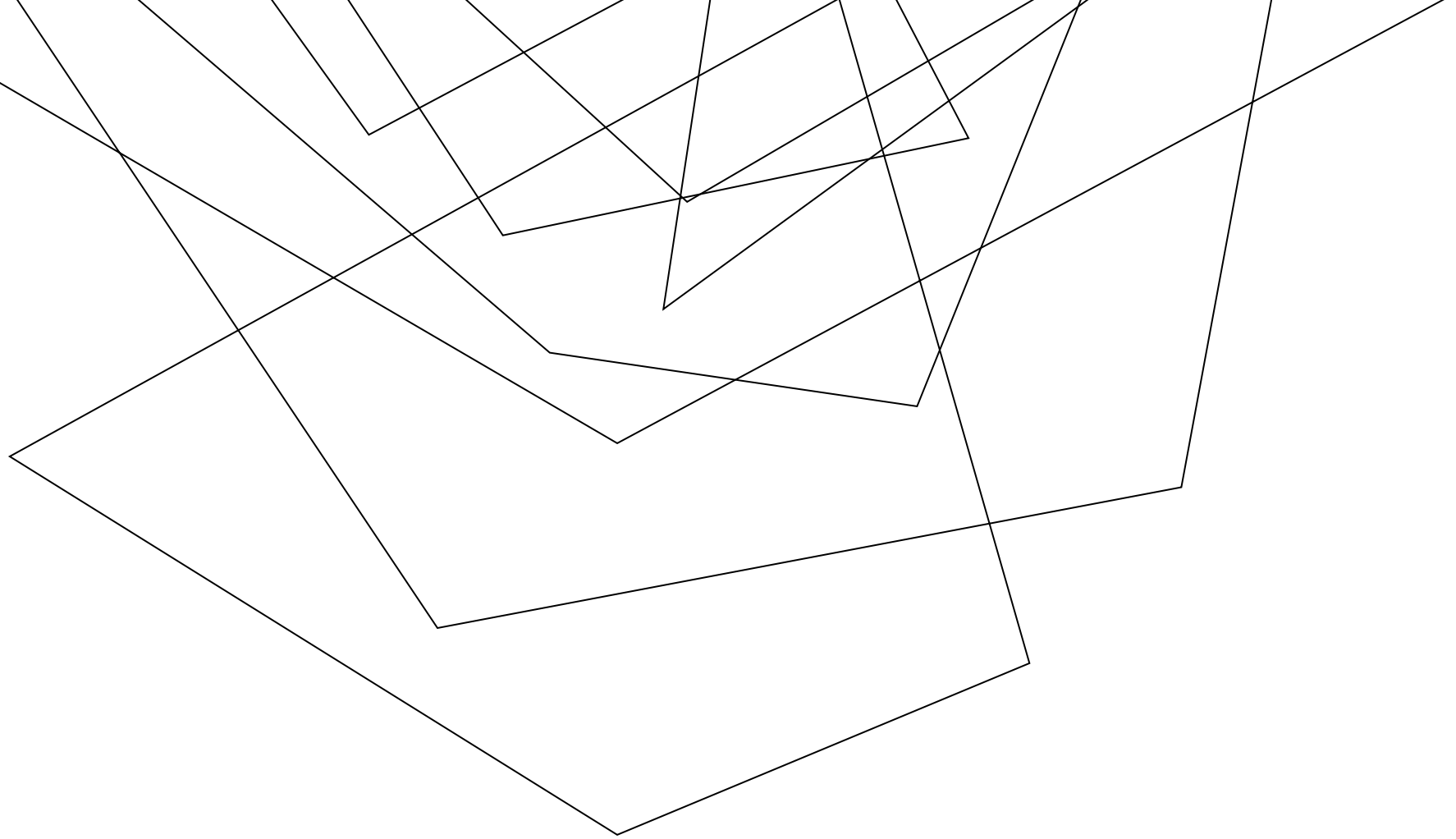


OPENTRACKIO

ASWF TAC Sept 25

AGENDA

BACKGROUND

Development and current state of OpenTrackIO

PROPOSAL

Transition of the software associated with OpenTrackIO to ASWF

SMPTE AND ASWF

Responsibilities and migration considerations

THE THREE JAMES'S

JAMES UREN

Technical Director,
Mo-Sys Engineering

Technical Lead of
OpenTrackIO

JIM GEDULDICK

VFX/VP Supervisor

SMPTE RIS Chair

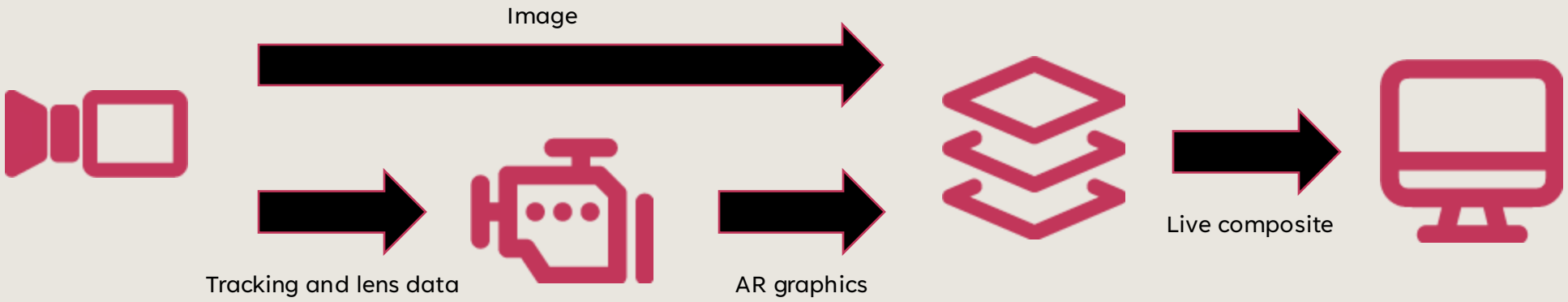
JIM HELMAN

CTO, Movielabs

SMPTE RIS Chair

VIRTUAL PRODUCTION

- On-set Virtual Production (VP) is an umbrella term for real-time visual effects (VFX) spanning:
  - Augmented Reality (AR),
  - Chroma key (both for live broadcast and 'Simul-Cam' for on-set VFX pre-visualization),
  - In-Camera Visual Effects (ICVFX), eXtended Reality (XR for LED set extensions) and other Mixed Reality (MR) combinations.



Example Augmented Reality (AR) on-set workflow

- VP requires live accurate camera tracking and lens modelling metadata to align the real world with the virtual every frame.

PROBLEM

'WILD WEST' VP

Before OpenTrackIO, no open standard for VP metadata existed, resulting in many different communication protocols needing to be wrangled on-set and in post.

METADATA PRODUCERS

In the absence of any standard, lens, camera and tracking system manufacturers develop and maintain their own bespoke protocols.

METADATA CONSUMERS

Real-time render engines and post-production tools must support multiple protocols.

ADOPTION

Software tools and reference implementations are required to encourage wide adoption by producers and consumers

CURRENT STATUS

OpenTrackIO is an open standard for real-time on-set virtual production metadata.

It was developed by the SMPTE RIS OSVP group and v1 published in January 2025.

The specification can be found at https://www.opentrackio.org/

The spec and associated web page is generated by RIS's CamDKit.

OpenTrackIO uses the OpenLensIO mathematical model, also developed by SMPTE RIS members.

CURRENT STATUS

OpenTrackIO support is available in Unreal Engine 5.6 (releasing June 2025).

The protocol is currently being implemented by Canon, Sony, Mo-Sys, Pixotope, Stage Precision, Disguise, Chaos Arena and maybe more!

SOLUTION

DEFINE THE STANDARD

Industry experts define what is required and how it should be represented.

DOCUMENTATION

Software-defined specification and usage examples are created.

OPEN SOFTWARE TOOLS

The community publishes their APIs, libraries, tools and context-specific implementations in a peer-reviewed open-source environment.

REFERENCE IMPLEMENTATIONS

The community publishes templates and end-to-end references that enable integrators to compare their outputs and debug their implementations.

PROPOSAL

CREATE AN OPEN-SOURCE SPACE

For libraries, tools and reference implementations.

INITIAL CONTRIBUTIONS (CONFIRMED)

SMPTE RIS will migrate their Python API, examples and generator tools to this space. Mo-Sys will migrate their C++ API and Pixotope their OpenLensIO reference implementation for image generation.

EXPECTED CONTRIBUTIONS

Epic's OpenTrackIO Live Sender tool. Mo-Sys' OpenTrackIO simulator.

FUTURE CONTRIBUTIONS

Improved OpenLensIO reference implementations and shader. OpenLensIO lens calibration library. OpenTimelineIO integrations. USD camera integrations

RELATIONSHIP WITH SMPTE

Maintenance and extensions to specification require the involvement of a quorum of industry experts. Updates to the standard are infrequent and clearly versioned.

By contrast, tools and reference implementations are more agile with multiple contributors constantly creating and updating tools. Maintenance and code review are managed via issues and pull requests. Automated CI / CD help to maintain code quality and application stability.

RELATIONSHIP WITH SMPTE

SMPTE RIS group continues to maintain the OpenTrackIO specification.

SMPTE RIS migrates the tools and examples to ASWF that have been created during the development of the spec.

ASWF becomes the home for all software tools and reference implementations.

Where necessary (e.g. in advanced Python applications) the CamDKit pydantic OpenTrackIO models that generate the documentation may be referenced via git sub-module.

SMPTE

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SUMMARY

OpenTrackIO is a big step forward for interoperability in VP. To support its growth and expand adoption, it needs a home for developers to access tools and resources.

THANK YOU

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https://www.opentrackio.org