Introduction to Innovations in Media Production

BY CATHERINE MEININGER

Emerging technologies and workflow inefficiencies are key drivers of innovation within media production. Our society is filled with engineers who constantly look to solve problems for our industry or invent new tools that continue to expand the options available for creatives to bring their visions to life. This issue of the Motion Imaging Journal shares a mixture of technical papers, applications, and tutorials that dive into some of these latest solutions and future-looking technologies for media production workflows.

"Video Processing on Quantum Computers" by Thomas Edwards kicks off this issue with a technical introduction on quantum computing, an emerging technology that shows promise in providing notable speed

1545-0279/25©2025SMPTE

improvements for image and video processing algorithms. The paper takes the reader through the history and fundamentals behind this technology, then explores current proposals for representing images on a quantum computer and its future potential for video processing algorithms.

"Camera Solutions for Achieving Cinematic Aesthetics in Live Production" by Klaus Weber provides a technical discussion behind the desire to achieve a "film look" in a live production environment. The paper presents how the different workflow needs behind live production and cinema production impact the fundamental design components of their respective digital cameras. Rather than simply use existing digital cinematography cameras for a live production workflow, the author provides suggestions for designing a camera that is intended to meet both the creative desire of a "film look" and maintain the functionality needed to produce a real-time, broadcast-ready image.

"LG TV Management for "Color-Close" Applications and Disney" by Lathrop et al. walks through the development of an internal display management system for a studio that allows for remote, programmatic control of TV picture settings on a large scale. Rather than relying on creatives or engineers to manually configure a display for the specific color requirements of a production, a centralized server allows for easy adjustment and monitoring of picture settings to ensure appropriate color management for creatives across multiple displays and locations.

"Video Production with Generative AI" by Brent Rabowsky describes the expanding use and advancements of video generation models (VGMs) and Generative AI (GenAI) across all stages of the production workflow. The paper highlights the importance of effective prompt engineering for VGMs and how the visual language of cinematography is key to training the models to achieve an aesthetically pleasing picture. The author also describes other GenAI applications, such as editing tasks, media archival, metadata generation, and visual dubbing.

The final paper in this issue comes from the SMPTE Rapid Industry Solutions On-Set Virtual Production (RIS-OSVP) initiative. "Color Management Principles for LED Panels in On-Set Virtual Production" by Long et al. introduces color engineering principles and their specific use and challenges in OSVP color workflows. The authors guide readers through an example color-managed pipeline for LED panels, providing recommendations of where and how to perform specific colorimetric transformations and highlighting the importance of understanding when colors should "match" each other throughout the workflow. The information in this paper helps to lay a foundation for other color workflow components, such as color calibration for in-camera visual effects (ICVFX) and image-based lighting.

I hope you enjoy the topics presented in this issue and are inspired to solve current challenges and pursue future work that continues to push the limits of media production technologies. Happy reading!

About the Author

Catherine Meininger is Sr. Director of Color Science at Portrait Displays, where she leads the design and development of color calibration algorithms.

DOI: 10.5594/JMI.2025/WARA5016
Date of publication: 1 April 2025