AI Media Creation – Promise and Threat

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SMPTE

ISO JTC1 IEC

INFORMATION TECHNOLOGY STANDARDS

SC 42 – Artificial Intelligence

Introduction

Artificial intelligence (AI) is transforming the media industry in various ways. AI can help media professionals and creators to produce, distribute, and present content more efficiently and effectively. AI can also enable new forms of media and entertainment that are more engaging, personalized, and creative. There is great value here, but it also comes with risks.

Windows 11 CoPilot + a Human

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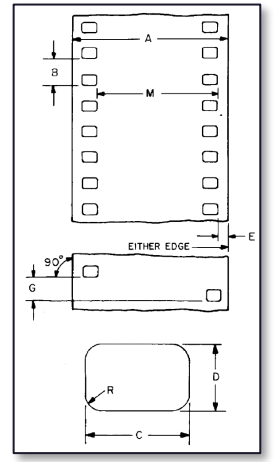
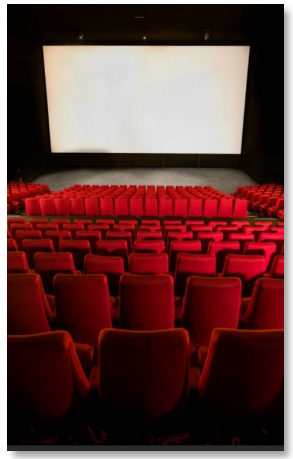
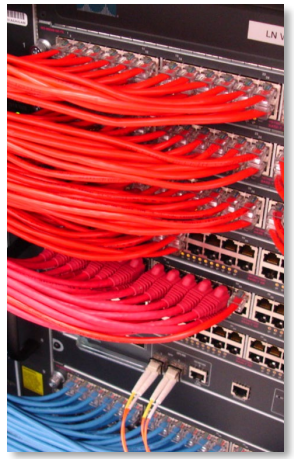
SMPTE Overview

SMPTE is a global society of more than 5,000 diverse and engaged members, including creative professionals, media technologists, and engineers. Members transform the industry through Standards Technology Committees with over 1000 engineering standards and guidelines developed to advance global interoperability of hardware and software; advance their careers through our vast educational offerings; and have access to our invaluable network of mentors and colleagues via local and global industry events. Collaboration leads to innovation, and SMPTE is proud to provide members a space to do both.







- Internationally recognized SDO founded in 1916 (107 years old)
- Areas: Broadcast, Film, D-Cinema, Audio, IT, and Medical Imaging etc.
- Liaison A organization to ISO/IEC JTC 1/SC 29
- Liaison A organization to ISO/TC 36 and ISO/TC 46/SC 9
- Secretariat for ISO/TC 36 and Admin for the US TAG to ISO/TC 36

https://www.smpte.org/

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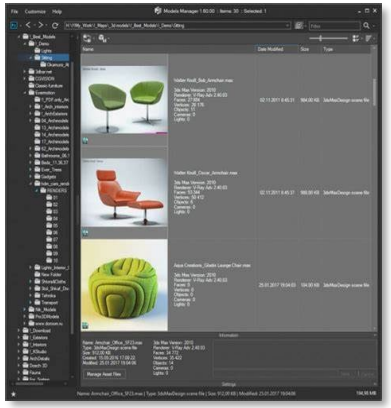
The Promise

Simplified, more efficient workflows enabling more creativity

- Automating mundane tasks
  - Automatic timeline creation, media ingest, metadata annotation, asset search, content recognition, facial recognition, speech to text etc.
- Generating content
  - AI generated video, audio, text etc., subtitle and closed caption generation, content versioning
- Content aware workflows
  - AI supported compression systems, scaling, scene-based transcoding, online and satellite distribution. Fix it in Post on steroids.

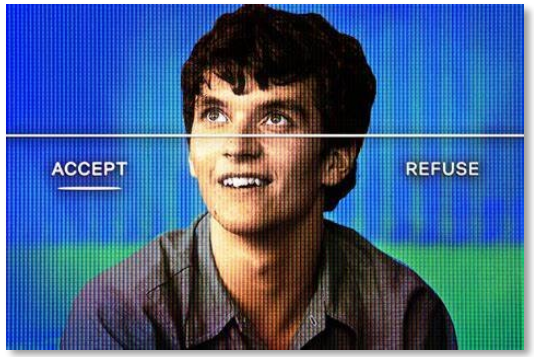


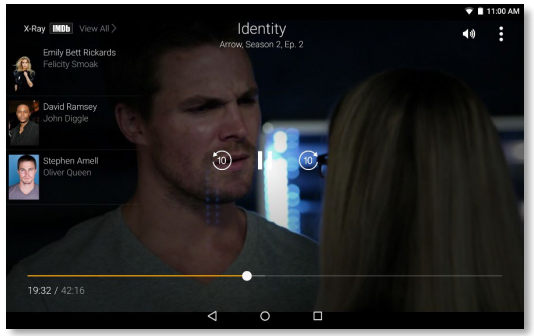
https://thispersondoesnotexist.com/

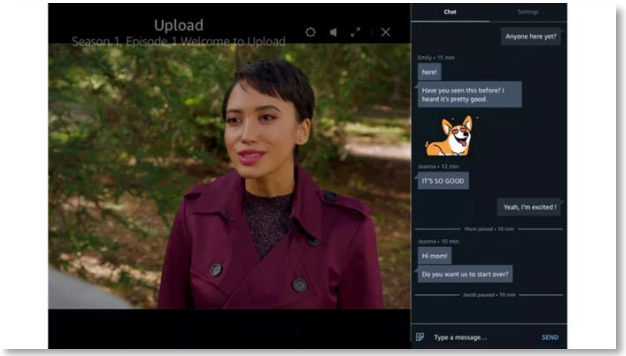
The Promise

New ways to consume media and advertisement

- Personalizing content
  - Analyze user preferences/behavior, provide feedback to deliver tailored content that matches their interests, needs, and goals
- Interactivity
  - Convergence of television, gaming and social media, alternate story path, chatbots, show and movie insight
- Ad Strategy
  - AI optimized ad strategies, detect trends to deliver relevant and effective Ads, enhancing keywords, titles, tags, and descriptions







The Threat

Damage through disinformation and discrimination

- Disinformation
  - AI generated media or deep-fake videos, impersonation as a challenge to news organizations. Increased effort to vet and authenticate content.
- Discrimination
  - AI using biased data creates unfair or harmful outcomes for certain groups or individuals. No mechanisms for benchmarking data sets.
- Intellectual Property and Copyrights
  - IPR/Copyright violations of content owner, IPR violations of others in e.g. content or virtual character creation, descriptive metadata etc.

https://www.youtube.com/watch?v=cQ54GDm1eL0&t=40s
https://www.youtube.com/watch?v=0FH8Fb80kQ8

The Threat

Broader threats to data privacy and cybersecurity

- Ethics
  - Violating the rights of viewers through misuse of personal data, lack of data security and transparency.
- Effects on Society
  - May erode thrust, human agency, responsibility, and creativity, as well as reduce human interaction and empathy.
- Cybersecurity
  - AI can be used to launch more sophisticated and stealthy attacks that can evade traditional security measures.

https://www.youtube.com/watch?v=cQ54GDm1eL0&t=40s
https://www.youtube.com/watch?v=0FH8Fb80kQ8

Oversight is needed

Today, President Joseph R. Biden signed an Executive Order (EO) to build U.S. capacity to evaluate and mitigate the risks of Artificial Intelligence (AI) systems to ensure safety, security, and trust, while promoting an innovative, competitive AI ecosystem that supports workers and protects consumers. The U.S. Department of Commerce will play a key role in implementing the EO, combining sophisticated standards and evaluation capabilities with a robust combination of reporting requirements and voluntary measures. Specifically, the National Institute of Standards and Technology (NIST), the Bureau of Industry and Security (BIS), the National Telecommunications and Information Administration (NTIA), and the U.S. Patent and Trademark Office (USPTO) will be responsible for carrying out a significant portion of the EO's objectives.

NIST, 2023-10-30, https://www.nist.gov/news-events/news/2023/10/department-commerce-undertake-key-responsibilities-historic-artificial

As part of its digital strategy, the EU wants to regulate artificial intelligence (AI) to ensure better conditions for the development and use of this innovative technology. AI can create many benefits, such as better healthcare; safer and cleaner transport; more efficient manufacturing; and cheaper and more sustainable energy. In April 2021, the European Commission proposed the first EU regulatory framework for AI. It says that AI systems that can be used in different applications are analysed and classified according to the risk they pose to users. The different risk levels will mean more or less regulation. Once approved, these will be the world's first rules on AI.

EU Parliament, 2023-06-14, https://www.europarl.europa.eu/news/en/headlines/society/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence

But …

How Nations Are Losing a Global Race to Tackle A.I.’s Harms

Alarmed by the power of artificial intelligence, Europe, the United States and others are trying to respond — but the technology is evolving more rapidly than their policies.

… Lawmakers and regulators in Brussels, in Washington and elsewhere are losing a battle to regulate A.I. and are racing to catch up, as concerns grow that the powerful technology will automate away jobs, turbocharge the spread of disinformation and eventually develop its own kind of intelligence. Nations have moved swiftly to tackle A.I.’s potential perils, but European officials have been caught off guard by the technology’s evolution, while U.S. lawmakers openly concede that they barely understand how it works. ….

New York Times, 2023-12-06

https://www.nytimes.com/2023/12/06/technology/ai-regulation-policies.html?smid=nytcore-android-share

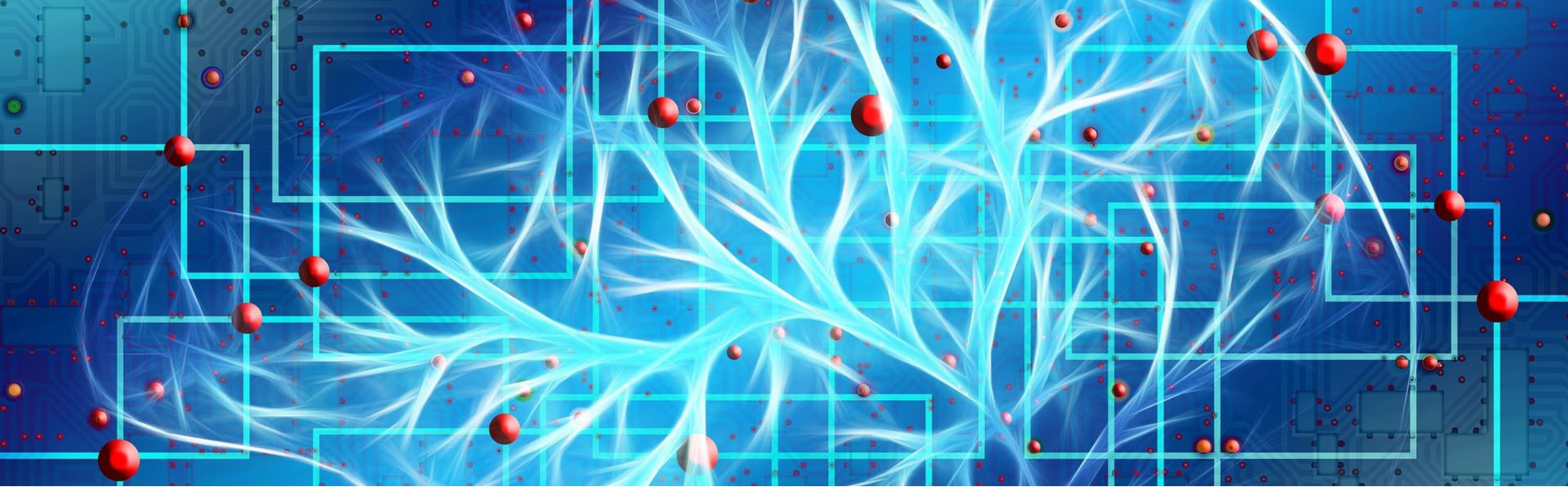
Opportunities for Standardization

- Training Sets
  - Standards for model/dataset characteristics for interoperability across implementations, media specific dataset for training AI as well as measurement system for training sets
  - Standard training sets certified by trusted source.
- Metadata and APIs
  - Standards for metadata created by AI for storage or exchange between AI systems. Cross-cloud APIs for distributed AI systems
- Content protection
  - Standards and mechanism to vet media content and to protect it from misuse. Detect manipulation and effective watermarking. Standards on blockchain in media workflows.

SMPTE/ETC AI Taskforce

- Started around 2020
- What is needed in standardization and make recommendations
  - Within SMPTE but also in the greater Media and Entertainment industry
- Joint Task-force between SMPTE and the Entertainment Technology Center (ETC)
  - With input from the European Broadcasting Union
- AI Overview
- AI in Media
- AI Standards Landscape
- Opportunities for new AI/ML standards
- Dataset and the need for Data

https://5253154.fs1.hubspotusercontent-na1.net/hubfs/5253154/SMPTE-ER-1010-2023.pdf



Summary

AI in media is a new, still evolving tool which just started to transform how media is being produced and presented. Its is a tool, and just a tool, which will support professionals in their job. It comes with risk but with proper application and regulation these risk will be out weight by its benefits. Standards can help in this task.

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Thank you

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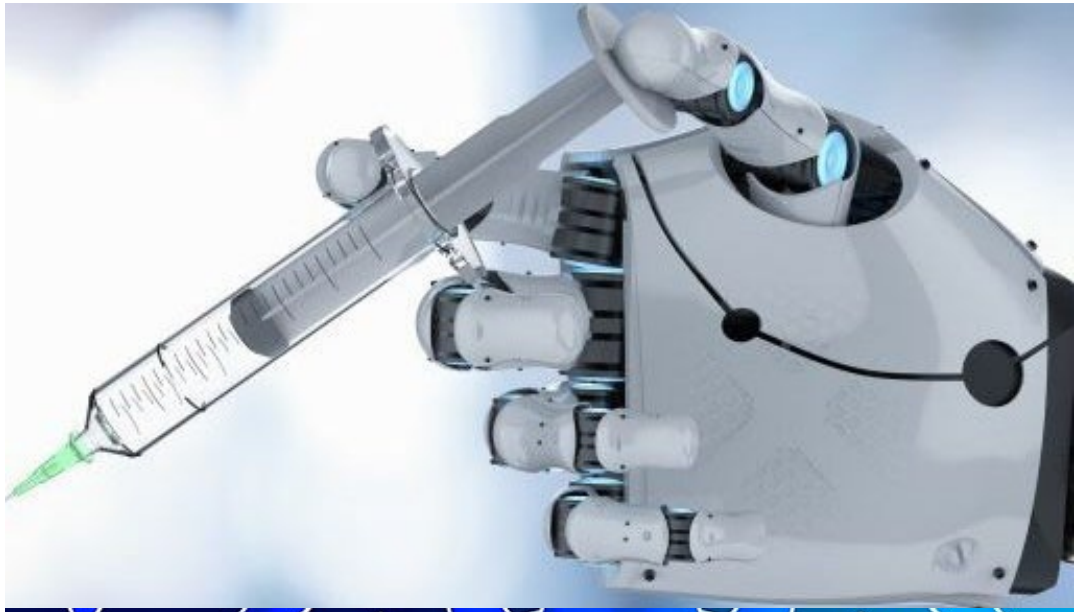

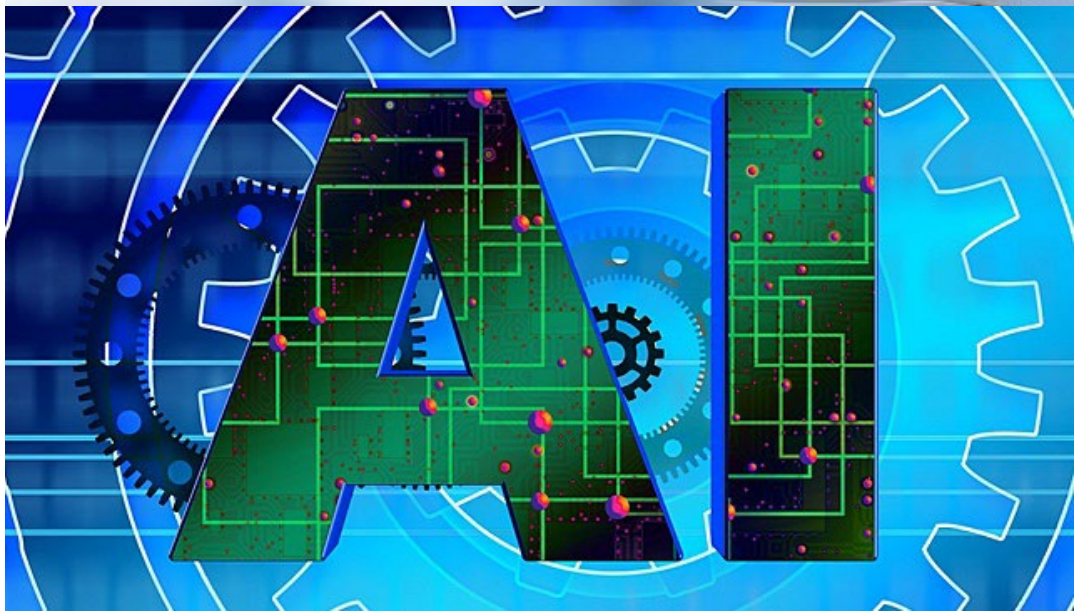

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