



Introduction to the 2024 Progress Report

BY RICHARD WELSH

Welcome to the 2024 SMPTE Progress Report. I hope you enjoy the insight and articles from our contributors as much as I have and that the wisdom contained within spurs you on in your own work supporting and advancing our industry. I wish to thank those who have contributed their time and knowledge to this very special and important annual edition of the *Journal*.

Since the 1940s, SMPTE has charted our industry's advances in the Progress Report, each a snapshot of our journey through the evolution of media technology. This has occurred against broader technological advancements, which have been exponential by many measures. Around the same time as the earliest SMPTE Progress Reports, the first fully automatic electronic computers were being developed. I wonder if the film and television engineers of the day could imagine how pervasive the computer would become in our modern media landscape. In fact, visionary writers and filmmakers often predicted the future of content consumption earlier and more accurately than the very technologists building the foundations of what was to come. Then again, science fiction is just that:

a story of a technological future. That is until it becomes real.

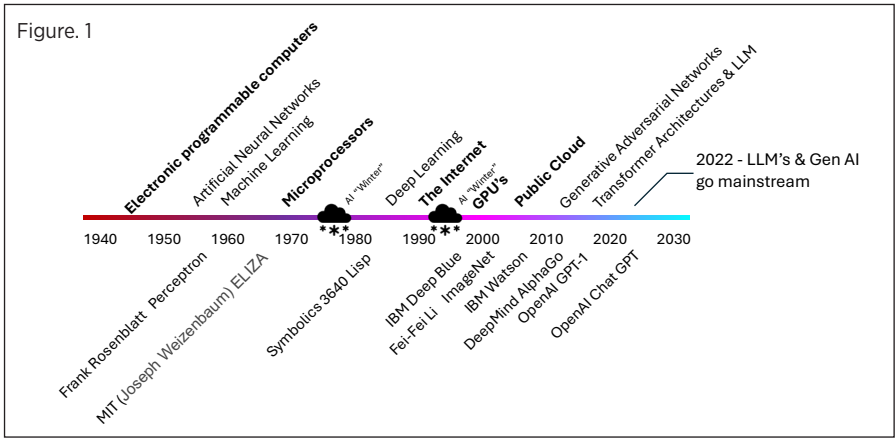
"It's all about AI"

So says the Entertainment Technology Committee (ETC) report, and their event in February of this year is entitled the same. And there's no better description of how this year has felt on the technology front. Of course, there have been advances in many areas of our industry that have nothing to do with AI, and those important advances are captured in this report, too. However, AI is a common theme that reverberates through so many of the conversations the industry is having every day, impacting almost every phase of content creation from script to screen. It's fair to say that advances in the capabilities of AI tools have been orders of magnitude faster than other technology developments, and to many people, it seems like science fiction has come to life.

Key Developments in AI in the Time of the SMPTE Progress Report

The timeline (**Fig. 1**) shows some of the advances in the field of AI in the era of SMPTE Progress Reports. Fundamental technologies have enabled

Figure. 1



AI; years of research and development have laid the foundation on which AI is built.” Of course, pioneering products have shown what’s possible and spawned a plethora of competition that drives advancement. Looking at this timeline, which is far from comprehensive, it’s easy to see that one can weave a thread of standards underpinning the practical deployment of technologies, education driving innovation, and a community that must coalesce for success. The so-called “AI winters of the late 70s-80s and 80s-90s are a stark reminder of what happens when a technology community is disrupted, disillusioned, and dispersed.

In some ways, this timeline demonstrates that AI has been on a long journey. So, in 2024, it’s easy to ask, ‘Why now?’ The answer may lie in the explosion of AI capabilities driven by transformer architectures and Large Language Models (LLMs). Over the past few decades, dedicated, highly powerful machines have surpassed humans in specialized problem-solving tasks such as “Chess” and “Go.” Now, LLMs are achieving similar breakthroughs across many areas of human reasoning, as this chart of AI vs. human performance in various cognitive tasks shows (Fig. 2).

What is striking about this chart is how recently some of these capabilities have emerged and how rapidly they have advanced. And, of course, thanks to cloud computing, smartphones, and telecom networks, such capabilities are at the fingertips of more than half the world’s population. This could be the

answer to “Why now?” but we as a Society must ask ourselves, “What now?” How do we take these incredible tools and put them to work in the service of our community and the content we produce?

When discussing these advances with SMPTE members and the industry in general, there is an equal mix of excitement about the possibilities of AI and concern for the protection of jobs, intellectual property, and content safety. The ethical considerations around AI should never be underestimated or ignored. As a Society, we have to address these questions and more. SMPTE is a convergence point for many industry experts, partner organizations, and the next generation of talent. We are privileged to drive the necessary conversa-

tions about using this new technology responsibly and effectively. SMPTE leads the industry in providing frameworks and standards for the practical and efficient deployment of these technologies in media and entertainment. Together, our community will continue to innovate and push technology forward to enhance our ability to bring media to audiences around the world.

When a SMPTE member looks back in another 80 years and maybe reads this progress report, it’s hard to imagine the world they will be in and how they view this period in time. There is much turmoil and division in the world in 2024. I hope that our SMPTE members of the 22nd Century will look back and see that at this moment, SMPTE members came together as one global group to inspire technological advancement in art, science, and media everywhere for everyone, and in doing so, they helped make the world a better place. That’s true progress.

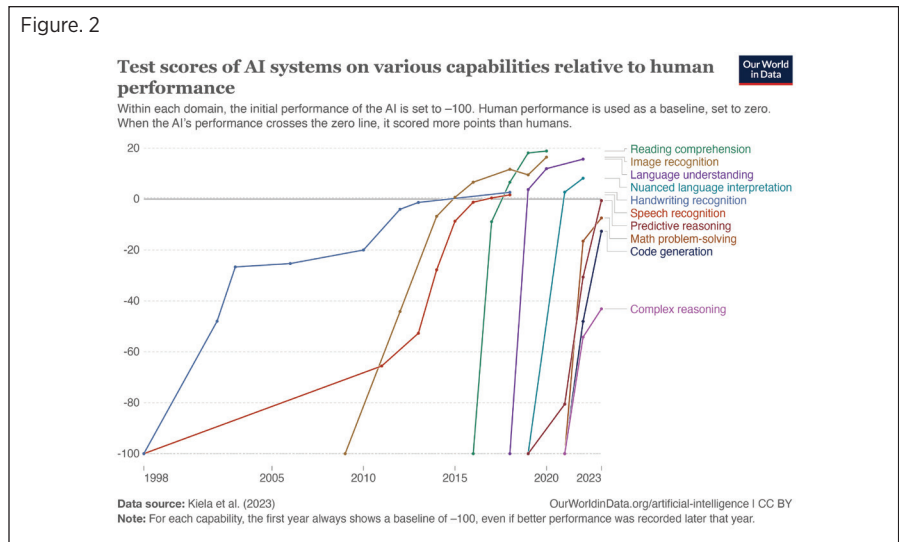
About the Author



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Figure. 2



Test scores of AI systems on various capabilities relative to human performance,” part of the following publication: Charlie Giattino, Edouard Mathieu, Veronika Samborska and Max Roser (2023)—“Artificial Intelligence.” Data adapted from Kiela et al. Retrieved from <https://ourworldindata.org/grapher/test-scores-ai-capabilities-relative-human-performance> [online resource].