

# AI Town Hall Presented by the TC-MLAI\*

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The number of AI audio tools available to professionals is increasing, but it is not clear how rapidly they are being adopted or how they are being used in practice. What is apparent, however, is that AI is having a profound impact on many creative industries, and thus these developments are of interest to the AES community. The AES Technical Committee for Machine Learning and AI (TC-MLAI) seeks to facilitate activities that will deepen members work with and knowledge of machine learning and AI-enabled audio tools. To learn about the AES community's attitudes, interests, and concerns with regards to the increasing use of AI in creative audio production, the TC-MLAI hosted a town hall meeting at the 155th Audio Engineering Convention. This communication reports on what was learned from this event and proposes next steps.

## 0 INTRODUCTION

To learn about the AES community's attitudes, interests, and concerns with regards to the increasing use of AI in creative audio production, the technical committee for machine learning and AI (TC-MLAI) hosted a town hall meeting at the 155th Audio Engineering Convention (Friday, October 27). The following communication reports on what was learned and proposes next steps. Video of the town hall is available in its entirety <sup>1</sup>.

## 1 Motivation, Structure and Execution

Recent developments in AI technology (e.g., releases of ChatGPT and other generative AI technologies) are having a profound effect across the creative industries. In early 2023, the TC-MLAI began an internal dialog about how the TC-MLAI and the AES more broadly could appropriately serve the interest and needs of the AES community

as audio professionals adapt. This work was undertaken knowing that the AES community is diverse. It is comprised of audio practitioners, scientific researchers, technology developers and students. All these perspectives are reflected even in the composition of the highly specialized TC-MLAI. The AES is well-positioned to play a role in shaping the future of audio AI. Many creative unions or guilds form primarily for the purposes of collective bargaining, worker safety or standardization; and several notable creative guilds have recently used collective bargaining to limit AI's impact on creative workers. Though AES also contributes to many standards, the organization is in a different position, one that enables it to actively foster innovation in both practice and technology. But, this goal requires integrating varied perspectives represented in the AES. The TC-MLAI discussed many initiatives that could increase community engagement with machine learning and AI. However, it quickly became apparent that the TC-MLAI's understanding of the broader community's interests and concerns was lacking. Hence the "town hall" was proposed.

Since technology, working practices and law are changing so rapidly in the face of recent technological developments, the town hall focused on identifying the commu-

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<sup>1</sup><https://www.youtube.com/watch?v=-K3CvWrPFK8>

nity’s questions about AI rather than on proposing solutions. And because AI touches audio in so many ways, for the sake of structuring a coherent event, the scope (of this town hall) was limited to AI technologies intended for use in creative audio work. In conjunction with the event, a survey was conducted to enable contributions by non-attendees and/or those who preferred to participate through written comments. Survey data collection began a few weeks prior to the event and stopped one week after the event. The survey design and results are described in section 2. Additionally, in the run up to the event, the TC-MLAI posted educational resources online so attendees could familiarize themselves with the issues if they wished to do so.

During the 90-minute town hall event, (equal) blocks of time were allocated for discussing four distinct perspectives: the creative, legal and IP issues, technology development and the role of the AES. Four AI experts were invited to facilitate discussions around these themes, and each expert kick-started the conversation with their own questions about the issues.

## 2 Survey Results

To help inform the Town Hall discussion, and allow participation from those who were unable to attend, a brief survey link was distributed via relevant mailing lists, social media channels, and the AES “Loop” email newsletter. The link was also promoted at the town hall. In total, there were 61 responses submitted by both attendees and non-attendees. Because of the small sample-size and the fact that survey respondents were likely self-selected as those already interested in AI technologies, we don’t make any claims regarding statistical significance from the survey across the entire AES, but instead highlight some interesting general trends that emerged in the results.

**Which of the following areas best describe your work in audio?** Because of the wide variety of expertise of AES members, we began the survey with a demographic question in which categories were provided and multiple categories could be selected. Some of the most highly selected areas of work amongst respondents include: 34.4% self-identified as working in music production or post-production, 36.1% work in product development, and 31.1% were researchers.

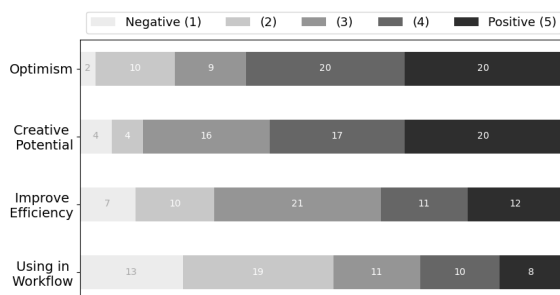


Fig. 1. Results for survey rating questions regarding AI use in creative audio production. All questions used a 1-5 point scale.

**Ratings on opinions and use of AI.** We also included four ordinal scale questions where responses were collected using a 1-5 point scale, where a “1” represented the most negative response. The questions were:

- How optimistic or apprehensive do you feel about the impact of AI on your work?
- How much creative potential do you see in the AI technologies used in your area of work?
- How much does AI technology improve efficiency in your work?
- How often are you incorporating AI technologies into your workflow?

Figure 1 summarizes the responses to these four questions. The ratings suggest that respondents tend towards optimism about the technology and see its creative potential. They were neutral about the technology’s potential to improve efficiency. Importantly, respondents indicated that most were not incorporating AI technology into their workflows. While this disconnect between optimism and adoption of AI technology is not surprising given that most AI-related audio tools are still relatively new, this gap should close over time if AI-based audio tools are to make a substantial impact in how audio professionals work.

**How might the AES help members like you to adapt to the widespread use of AI in your area(s) of specialization?** Examples from the 45 responses to this free-text question included: “Helping to develop standards for collecting data sets”; “Creation of best practices” or “recommend uses to help dispel fear surrounding the technology.”; “Education...”.

## 3 Town Hall Themes

The goal of the town hall was to generate questions, and it succeeded in doing this. Even so, none of the question blocks provided a coherent presentation on any topic. Invited experts instigated and facilitated, and the audience comments and questions, back and forth, steered discussions. In this way, each block sketched out a problem space.

The *creative perspective block* was led by Andrew Scheps, music engineer. This block covered a wide scope with topics ranging from philosophy and creativity to pragmatic and technical questions relating to content protection. Scheps opened with a “Dickensian” suggestion that AI technology brings out the best and worst in creative production. The worst, or most threatening, tendencies dehumanize music production. He pointed out that genres pre-dating generative AI have utilized conventional technologies to these ends. AI may change techniques to reach these ends, while not changing the fundamental approach. For the best, Scheps pointed to the technical potential of AI, for example, the power to cleanly separate drums or precisely render spatially immersive experiences. The audience was excited to hear that he was messing around with cutting-edge research prototypes, and commented on the value of creative thought-leaders sharing what they do with the AES community.

Regarding applications of AI, concerns were voiced about intellectual property (IP), and it was suggested that data poisoning or watermarking to protect content should be explored. Fears were shared about emerging tools enforcing rigid distinctions between technical and creative tasks because it would limit how users explored co-creation. Participants were uncertain about distinguishing between music generated using models of human creativity and using creative humans and the feasibility of tracing and definitively attributing creative ideas. Scheps argued, as has Brian Eno, that misappropriating, ignoring intended purposes or even breaking technologies will lead to the discovery of new applications and expressive potential.

Emily Tate, Patent Attorney Jones Day, led the *legal perspective block*. Unsurprisingly, since Tate brought expertise not found within the AES, this segment fell into a question & answer format. Tate warned the audience about the “uncertain” state of the law surrounding AI, and observed that “the law just moves so much slower than technology and moves so much slower than creativity.” She drew attention to the need for new, foundational thinking in the areas of intellectual property (IP) and copyright law. She explained that generative AI challenged established definitions of authorship and fair use. Moreover, “developing tools and the data sets that are used to inform the tools will often span nationalities and legal systems and values”, Tate argued. In the US, for example, copyright laws are intended to “promote progress” and innovation, and thus provide limited protections for finite periods of time. Different approaches prevail elsewhere. She added, the strong opinions inspired by rapid developments in AI are impacting how the law is discussed and develops.

Participants sought clarity on what constitutes fair use, and Tate referenced historic cases while reiterating that how they set precedence for AI is yet to be seen. She offered that (in the US) fair use for the development and application of AI has been determined by the absence of an intent to replace human labor or knowledge. Does data scraping show this intent? Can the originality of the scraped data be assessed? These are issues need to be addressed in the courts. The town hall discussion centred on system output. However, input must also be considered. When pressed for advice, Tate suggested— for the time being— seek transparency about data in contracts and track human contributions whenever AI is employed.

Christian Steinmetz, researcher and technology developer, initiated the *technology block* with a call to think about the audio user. He asserted that many of the emerging AI-empowered audio tools are inspired by other domains, and he challenged participants to consider that maybe these tools do not suit the needs of audio creators. He also speculated that an open-source approach could change audio technology development substantially. Participants welcomed the advent of AI that could be integrated into familiar tools or that could take over the “tedious and mundane” aspects of engineering audio. However, opinions differed regarding where engineers’ (creative) “interests” ended, and tedium began. Also, it was acknowledged that inter-

faces would greatly influence perceived utility and control. Participants were intrigued by assistive AIs, but the matter of AIs replacing human labor surfaced immediately. Participants ventured that we would likely soon see generative models built to imitate popular artists’ personal styles or cater to narrowly defined audience tastes that are capable of producing endless quantities of highly targeted content. The artistic value of unlimited supply as well as the impact on IP were questioned.

Gordon Wichern, TC-MLAI chair, closed out the town hall by bringing discussions back to *the AES and what it as a professional organization might do to serve its members*. Participants agreed on the importance of educating the community by sharing knowledge about new technologies and techniques. It was also suggested that audio professionals will have new responsibilities to the creators, for example regarding training data and models, and these responsibilities might be folded into professional standards and common practices regarding “quality control”. The AES can offer much to professionals adapting to changing circumstances while perpetuating core professional values.

#### **4 Summary and Lessons About Hosting Town halls**

With the caveat of the small number of participants in the survey and event, AES members involved with creative production appear to be cautiously optimistic about the potential of AI for both technical and creative applications. However, at the time of the 155th convention, it appears that few are currently integrating these tools into their workflows. There appears to be a desire for more knowledge sharing about techniques, technologies, resources, and importantly, about ethical ways to use AI, given the current lack of legal or technically enforced protections for creatives. A chief concern for the community is clarification around what professionals need to understand about using AI tools in a climate of legal uncertainty.

The town hall format brought forward a diversity of perspectives and helped to identify several specific needs and concerns. Nevertheless, town hall events are limited in several respects, and these shortcomings should be considered when planning future (AI-oriented) activities. The most obvious limitation is time constraints. Within any given live event, very few topics can be discussed and none in depth. Without depth, perhaps inadvertently, town halls seem to deter a problem-solving mindset, and are therefore not useful forums for devising action plans. Also, there is a risk that regular town halls might turn into sessions for airing grievances, which, though important, should not be at the expense of discussing solutions and potential. Finally, it proved very helpful to have insightful experts leading theme discussions. However, it was difficult to banish the Question & Answer structure altogether. Other types of events and activities should be explored.

## 5 What Should We be Asking About AI in Creative Audio Production?

Looking forward, based on the interactions at the town hall, here are some of the key issues that should be considered as we employ Generative AI in our workflows:

**Understanding and Context:** Generative AI models do not (currently) understand content in the way humans do. This limits their utility in some contexts, especially in complex, nuanced, or highly specialized domains. Performance can suffer on highly specialized tasks without additional fine-tuning or narrow domain-specific training data.

**Dependence on Quality Data:** The quality of the output is heavily dependent on the quality of the training data. Poor, unrepresentative, or biased training data can significantly affect the performance and outputs of the model, leading to unreliable or skewed results.

**Transparency and 'Explain-ability':** Generative AI models are often described as “black boxes” because their internal decision-making processes are opaque. Lack of transparency can be a significant hurdle in applications where understanding the “why” behind a decision or output is important or in legal contexts where intellectual property or concepts of creativity are involved.

**Data Privacy and Security:** Using Generative AI trained on vast datasets that are potentially from untrusted sources raises concerns about data privacy and security.

**Ethical and Societal Impact:** The deployment of Generative AI can have broad ethical and societal implications. It may impact future employment, and reinforce societal biases and inequities. These issues require careful consideration, shared ethical guidelines, and perhaps even a societal “duty-of-care.”

**Legal and Regulatory Compliance:** Navigating the legal and regulatory landscape can be challenging. The use of Generative AI in various applications may fall under different jurisdictions and regulatory frameworks and change as the regulatory environment shifts. Issues around copyright, data protection, and liability, in particular, are still evolving but may have significant business and legal impacts.

**Cost:** Although costs have been decreasing, accessing and using state-of-the-art generative AI models can still be expensive. Open-source models may change the development dynamics, however.

**Familiarity, Boredom, and Surprise:** While Generative AI excels at predicting the most likely next word, image, or note, such rote results, while perhaps novel at the current moment, will likely lead to a kind of content homogeneity.

Understanding and mitigating these limitations requires a multidisciplinary approach, involving not just technical solutions and new practices but also ethical considerations, user education, regulatory compliance, and ongoing research and development. As a professional organisation, AES derives strength from the diversity of perspectives represented within the community. This town hall was a first step in tapping into our collective expertise. The purpose of this town hall and indeed part of the mission of the TC-MLAI is to empower the creative and technical communities in the use of these technologies. AES, and similar professional organisations where experts gather, provide a sounding board and filter for ideas and the stewardship that leads to constructive change in industry practices. As Gordon Wichern, TC-MLAI chair, remarked “audio professionals will have new responsibilities”. We need “clarification around what professionals need to understand about the ramifications of using AI tools right now as legal precedence is only just emerging”. AES can both educate about and also define these changes if we continue the discourse.