Journal of Network Music and Arts

Volume 1 | Issue 1 Article 5

2019

Considering Telematic Tools for Conferences

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Considering Telematic Tools for Conferences

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Overview

Participation in conferences and other gatherings is an important component of professional and cultural life throughout the world. Yet, the synergy gained from attending a far-away meeting of is offset by several issues. First, participation often involves air travel, resulting in a large carbon footprint. For example, according to the World Bank, in 2013, the average American burned 16.4 tons of carbon emissions per year; correspondingly, a flight from New York to San Francisco generates almost 1 metric ton of carbon per passenger.[6] This kind of environmental expense warrants engagement. Another issue is the expense of attending a far-away conference, which prevents many from participation who could otherwise benefit and contribute. These matters have not yet altered how conferences function, but they will most likely factor into how they evolve. Technologies will develop in order to provide a viable green option while also expanding the breadth of an organization to a broader constituency.

For many years, musicians and artists around the world have contributed to growth of networked technology through the development of modes and techniques for music education, as well as for artistic realizations in the telematic arts. The expertise of this craft can be applied to a broader population in order to provide ways for online participants to more fully learn from and engage with others. As videoconferencing becomes more sophisticated, it will serve as an alternative that not only benefits constituencies of people, but will also expand the reach of a conference to more communities. This paper outlines a rationale and a blueprint for a video conferencing initiative called the *Green and Inclusive Project* (GI). The project group intends to merge technology from the videoconferencing (VC) industry (webinar, educational, and business applications), with

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[6] Tatiana Schlossberg, "Flying is Bad for the Planet. You Can Help Make It Better," *New York Times*, July 27, 2017, accessed January 4, 2018, https://www.nytimes.com/2017/07/27/climate/airplane-pollution-global-warming.html.

networked music and telematic tools (customized audio/video streaming, degrees of interactivity with transmedia techniques). By joining these areas into one practice, VC systems have the potential to enhance the conference experience.

In light of climate change, experts have been addressing conference travel/participation with growing frequency. One example is the website *Flying Less, Reducing Academia's Carbon Footprint*, whose authors keep an up-to-date blog on efforts in carbon footprint reduction.[7] *Climate Change, Views from the Humanities* is a website providing information via a white paper that discourses on strategies for carbon-neutral conferences.[8] The website *NoFlyClimateSci* serves as an organizational hub and advocacy base for this issue.[9] There are numerous projects from the international music community towards carbon reduction in conferences. Richard Parncutt, Professor of Systematic Musicology at the Karl-Franzens-Universität Graz, has posted a carbon reduction pledge for academicians, and his university presented the 15th International Conference on Music Perception and Cognition.[10] The 2018 event was simultaneously held via four hubs, connected via the internet in Austria, Canada, Argentina, and Australia.[11] The Online Conference for Music Therapy has been holding annual online conferences since 2014.[12] These and many more examples show that academicians worldwide realize the carbon problem and are seeking alternative solutions.

Over the years, governments, businesses, educational institutions, and scientific entities have largely driven the development of VC technology. In two generations, formats have evolved to the point of being a common component of main-stream society. The range of applications range from free video chat applications, to high-end conferencing systems such as Tandberg and Cisco Systems Webex. Advanced applications, including DVTS, Access Grid, Conference XP, and Ultragrid paved the way for usage of high-quality, low latency transmission over high bandwidth, government and corporate-backed networks throughout the world, such as Internet2 (USA), Canarie (Canada), AARNet (Australia), and GÉANT (Europe). The accessibility to bandwidth spawned a great amount of creative and educational inquiry.

For example, one compelling early model for conferencing solutions was the Access Grid, first demonstrated in 1999.[13] Developed by Argonne National Laboratories, it was created to provide the

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[7] Parke Wilde and Joseph Nevins, *Flying Less, Reducing Academia's Carbon Footprint* (blog), accessed February 5, 2018, https//academicflyingblog.wordpress.com.

[8] Ken Hiltner, "A Nearly Carbon-Neutral Conference Model," last modified 2018, accessed February 1, 2018, http://hiltner.english.ucsb.edu/index.php/ncnc-guide/.

[9] Peter Kalmus, *NoFlyClimateSci* (blog), accessed December 20, 2017, July 10, 2019, https://noflyclimatesci.org.

[10] Richard Parncutt, *Reduce flying to academic conference* (blog), last modified January 2017, accessed January 10, 2018, http://www.parncutt.org/flying.html.

[11] ICMPC15/ESCOM10 – Uni Graz, "15th International Conference on Music Perception and Cognition / 10th Triennial Conference of the European Society for the Cognitive Sciences of Music," *Universität Graz*, accessed July 15, 2019, https://music-psychology-conference2018.uni-graz.at/en/.

[12] Online Conference for Music Therapy, accessed July 10, 2019, https://onlineconferenceformusictherapy.com.

[13] Access Grid Toolkit, *Argonne National Laboratories*, last modified December 21, 2007, accessed July 18, 2019, https://www.mcs.anl.gov/research/projects/accessgrid/index.html.

American public, free of charge, with a powerful conferencing system designed to facilitate large online meetings involving hundreds of participants at once. While it did find use in scientific meetings and experimental telematic arts groups, it did not grow into a mainstream tool, and development was concluded in 2010.[14] In the early 2000s, the world was introduced to inexpensive and accessible video conferencing tools such as Skype (2003) and Apple's FaceTime (2010). These applications have been highly successful, and have revealed society's thirst for social online interactivity. Over time, a growing collection of webinar and distance education formats became available commercially, such as Zoom (2011) and Adobe Connect (2012). Today's conferences are increasingly accessing a range of social media tools, such as Twitter, Facebook, Instagram, YouTube, phone applications, and websites, but at this juncture, most stay away from real-time interaction. Some large conferences do offer very limited constructs that go beyond social media. One of the world's largest conferences The American Geophysical Union Fall Meeting (AGU), employs several applications, including AGU Go, which streams a limited number of important sessions, and eLightning, the format for poster presentations.[15]

Music education and arts efforts have pursued networked engagement with a different emphasis. Where the business applications have focused on peer to peer contact and information sharing, researchers in music education have focused on high-quality audio/video, low latency, and interactive capabilities. One example is LoLa (LOw LAtency audio visual streaming system) designed at the Conservatorio di musica Giuseppe Tartini. LoLa enables such low latencies, that musicians are able to perform precise classical works over networks with surprising accuracy.[16] Another is the extensive work carried out by many educational entities to develop best practices for creating a compelling online teaching environment for master classes, lessons and rehearsals over networks. Internet2, the United States' high bandwidth research consortium, has organized many events for musical network research, as well as the cultivation of best practices through activities such as the annual New World Symphony Performance and Masterclass Workshop. Since the late 1990's institutions such as the Manhattan School of Music and the Cleveland Institute of Music have invested in activities to develop these best practices, reaching students throughout the world.

Artists in telematics have utilized high-bandwidth networks to create a variety of media-enriched musical scenarios for multi-site ensemble performance, audience interactivity, live videography, and transmedia narratives. A primary telematic audio tool, JackTrip, was developed by the

[14] Wikipedia contributors, "Access Grid," *Wikipedia, The Free Encyclopedia*, last modified September 10, 2019, accessed July 18, 2019, https://en.wikipedia.org/wiki/Access_Grid.

[15] "eLightning – 2018 AGU Fall Meeting," *American Geophysical Union*, accessed June 29, 2019, https://www.agu.org/Fall-Meeting; "Go – 2018 AGU Fall Meeting," *American Geophysical Union*, June 29, 2019, https://fallmeeting.agu.org/2018/anywhere/.

[16] Consortium GARR, *LOLA (Low Latency Audio Visual Streaming System),* Conservatorio G. Tartini, 2011, accessed July 8, 2019, https://www.internet2.edu/presentations/fall11/20111004-ALLOCCHIO-LOLA.pdf.

Center for Computer Research in Music at Stanford University.[17] As a popular application for network artists, JackTrip runs high-quality multi-channel audio over networks.[18] Syneme Labs's Artsmesh, an audio/video application designed as a comprehensive telematic tool, combines audio/video into a networked software passage enabling a range of communication modes.[19] The Interactive Media Research Lab at the University of Virginia developed NOMADS, a telematic application designed to initiate live audience interactivity with performing musicians over the Internet.[20] These are just a few of many software applications developed in the genre.

Green and Inclusive Project

As high-quality functions for networked engagement increase numerically and qualitatively, opportunities for growing online conference participation is also increasing. In 2017, a working group affiliated with the Donald Tavel Arts Technology Research Center at IUPUI (Indiana University – Purdue University Indianapolis) began imagining constructs that could effectively help people to fly less and have better access to meetings. Building upon a panel discussion held at the 2018 NowNet Arts Conference titled "A Greener, More Inclusive Musical Community Through Network Technology," the group commenced the GI project.[21] Over time and through deliberations, the group settled upon developing a system of scalable technologies, enabling users of the system to tailor features for a particular conference. Weighted into the process is consideration for funding, bandwidth capability, conference activity, size, venue, and location. Some of the aspects of the project are in the process of in-house design, while others will be drawn from popular applications currently available. It is important to address a range of scenarios designed for a conference format, including high resolution audio/video and new forms of social media. Elements should range from tools for virtual keynote speeches, performances, and paper presentations, to panel discussions and poster sessions. Future efforts will pursue ideas related to new social media structures. Success of the project will be the dissemination of software systems, virtual environments, and best practices for organizers of large-scale meetings in education, business, and cultural sectors.

There is ample room among the various categories of conferencing applications for GI-styled projects. Popular applications such as FaceTime or Skype are virtually cost-free, but clearly have limitations. Zoom and Adobe Connect carry a modest financial cost and offer a good webinar

[17] JackTrip – CCRMA, Stanford University, accessed July 11, 2019, https://ccrma.stanford.edu/software/jacktrip/.

[18] Caceres, Juan Pablo and Chris Chafe. "JackTrip: Under the Hood of an Engine for Network Audio," Journal of New Music Research 39(3). September 2010.

[19] "Artmesh," *Syneme*, accessed July 22, 2019, https://www.artsmesh.com/?utm_source=StateOfTheDApps.

[20] Matthew Burtner, "NOMADS | Matthew Burtner," accessed July 22, 2019, http://matthewburtner.com/nomads/.

[21] Judith Bowman et al., "A Greener and More Inclusive Musical Community Through Network Technology" (panel), *NowNet Arts Conference 2018*, Stony Brook, New York. For more information, see https://static1.squarespace.com/static/58c764e3725e25b97bd382e6/t/5c7ea18a971a1821ca25727c/1551802763010/nownet+conference+2018+program.pdf.

experience, but once outside of a meeting room scenario, they also show limitations. In a similar vein, more sophisticated webcasting products such as the Inxpo Webcast Studio are designed specifically for multimedia webcasts where the speakers are recorded in studios and broadcast to online viewers via the web.[22] They integrate video streams with additional supporting materials such as PowerPoint slideshows and file downloads. However, this is more suited to the classroom or online course then a large gathering of people. At the high end are the companies selling turnkey systems such as Cisco WebEx, Tandberg, and Polycom. These systems are expensive and proprietary, but they offer reliability and high-grade a/v and are intended for lecture halls and board rooms. The GI project envisions a versatile system designed for a conference with many meetings and various activities over a temporary time span.

System Design

There is a long list of system models for conferences. At one end is the traditional conference, possessing few, if any, means to communicate beyond the walls of the venue, and at the other end is the virtual conference, where there is no venue. As a result, features of a particular meeting system are highly variable. With this variability in mind, the team envisions a constellation of technologies that will hybridize conventional conferences, enabling online participants access to a robust degree of content and interaction. The GI system aims to offer a comprehensive platform that will, to one degree or another, stream presentations; provide real-time peer communication, establish access to archived content, and map meetings, speeches, concerts, and poster sessions with cloud-based note taking, annotation, bookmarking and sharing features.

To illustrate this system, a sample model merits description, one that the team labels as a *partial hybrid* meeting. This conference is modestly enhanced with VC tools that are used to target important features of the event. It streams keynote speeches and presentations, while keeping the rest of the symposium in the conventional, on-site-only fashion. Online participants experience presentations as well as the in-session discussion with the on-site speakers and peers. The online participants access archived content, on-demand. The interactivity of partial hybrid events is enhanced with social media tools, managed by the on-site VC operation team. This partial hybridization minimizes the amount of resources needed to run the system. In a world where the vast majority of meetings offer very little in the way of online connectivity, this system is an excellent proof of concept design that is both inexpensive and easy to implement, and as such, it helps promote the advantages of online conferencing.

A more complete hybrid conference would possess more elements and features. Participants would have greater access to activities. All presentations, speeches, concerts, breakout sessions,

[22] "Inxpo," *Intrado Studio*, accessed August 14, 2019, https://www.inxpo.com/webcasts/.

poster sessions and perhaps meetings would be streamed, archived, and open to interactivity in real time. The online participants would log on to the GI platform with a complete schedule and map of the conference. They would also be able to navigate to any room or session in real time, or browse and access archived content on demand. During presentations, the online users could communicate with peers, and engage in discussions with the speakers if applicable. The GI system, with the added benefit of archived content access, communication among peers via text, voice and ad-hoc video conference meetings, and other cloud-based features for note taking, bookmarking and sharing, will enhance the conference experience for online users.

Transplanted Roots Research Symposium

A real world example of the *partial hybrid* model is the 2019 Transplanted Roots Percussion Symposium that was hosted by the University of Guanajuato in the city of Guanajuato, Mexico from September 12–14, 2019.[23] The symposium gathered percussionists from numerous countries to perform, lecture, and discuss trends in their field, and the keynote speaker was noted percussionist Steven Schick. Transplanted Roots organizers Aiyun Huang of the University of Toronto and Ivan Manzanilla of the University of Guanajuato invited the GI team to implement and test a partial hybrid prototype during the symposium. This enabled the group to try ideas and techniques in a real-world scenario.[24] As is the case with the online synchronous classroom, the quality of conference proceedings to an online participant can vary and as a result, meetings are optimal laboratories to encounter learn how these systems engage regular conference attendees. With this in mind, the team engaged several areas of activity for observation, including setup, planning, and logistics; training and assignment of audio and video acquisition tasks to assistants; development of best practices for telematic audio and video; and utilization of global video conferencing presence. The main takeaway from the experience is that the quality of interactivity depends not only on the technology but also on the personnel and the participants. Clyde A. Warden, James O. Stanworth, Jian Biao Ren, and Antony R. Warden state in their paper on best practices in synchronous learning that technology is not the biggest hurdle, but that "difficulties [that] emerge from human behaviors and their interactions with system features" are.[25]

During the symposium, the team produced three keynote sessions (which included musical performances) and two round table sessions, one of which combined online with onstage individuals. There were more events in multiple spaces, so the team opted for the largest events that would appeal to a broader online audience. Rodney Smith traveled from Indiana to the symposium

[23] "Percussion: Counterculture Within," *Transplanted Roots Percussion Symposium*, accessed August 16, 2019, https://www.transplantedroots.org.

[24] Ibid.

[25] Clyde A. Warden et al., "Synchronous learning best practices: An action research study." Computers & Education, 63 (April 2013): 197.

in order to facilitate the system. Smith, together with a hired student assistant, maintained all of the interactivity between remote participants attending from IUPUI, University of Toronto, and the University of Western Australia in Perth.

In preparation for the conference in Guanajuato, there were several details to coordinate with the event organizers and participants. In addition to the streaming of keynotes, Zoom feeds of at least two remote participants were required from Toronto, Canada and Perth, Australia with two-way communication. We reached out to all the locations to do a broadband speed test, analyzed the microphone and cameras they would be using, assessed the room acoustics, and determined how many people would be involved. The goal was to work through technical issues before the remote participants logged in during the event.

Two durable Shure SM57 mics in an X-Y array at the back of the hall as room microphones worked well. These microphones ran into a Yamaha portable mixer with four inputs. A Sennheiser wireless lavaliere microphone worked effectively for speakers and performers for the proximity and control. Using a room X-Y pattern seemed to provide the overall audio quality needed. However, a feed from the house mixer's board would have been optimal. With the house feed, if there was a microphone passed for members of a round table or questions from the audience, the drier proximity mic could be mixed with the room mic for a natural sound and presence.

The video setup included a Panasonic GH5 camera with a standard zoom lens for wide-angle and medium shots, and a Sony XDCam was used for zoom shots, close-ups, and shots of the presenter's screens for PowerPoint. The two cameras were switched in real time using the Blackmagic Web Presenter. The resulting feed appeared up on a MacBook Pro as a webcam. OBS software then allowed linking to YouTube Live for streaming. A graphic was used as a placeholder while viewers were waiting for the live stream to start. A customized streaming application developed at the Tavel Lab by Chuiyuan Meng, named *Tavel Online Access*, delivered the live stream with a chat function that enabled users to type their questions/responses or use a walkie-talkie type of audio recorder button. Lighting was not exceptionally bright, but the cameras seemed to work without excessive video noise or graininess. Either a minimum 3-input switcher with an HDMI feed of the PowerPoint presentations or a single camera with HDMI/PowerPoint would have been optimal.

Outcomes and Observations

The symposium had roughly fifty participants in Mexico, and ten online. A post-event meeting took place between the GI team and the symposium organizers, that revealed an overall satisfaction with the way the system operated throughout the weekend. Observations of the outcomes and conditions are considered in the following remarks.

One area of great importance is the composition of a team on the ground at a conference site, and what each person is tasked to do. The streaming technician could benefit from assistants, but

the support should be part of a rehearsal or dress rehearsal before the event. It seemed to be ineffective to have help during the proceedings, as just trying to manage the technological needs and adapt to the live demands was consuming. The streaming technician may want to arrive a day or more before the event to be part of the setup and rehearsals. A live stream test should also be executed and then viewed for quality assurance.

The use of Zoom is another area for analysis. From a functional standpoint, it generally proved challenging, mainly from a latency perspective. For the first roundtable, no one actively participated remotely. The second roundtable was much more effective. Latency was still an issue when transmitting the panel's video and audio through zoom. The feed came from the camera and the x-y room mic, then through the Blackmagic Web Presenter, and streamed via Zoom. To avoid any echo, muting the onstage panel's audio was necessary while the remote participant spoke. Further study will be necessary to determine if the remote participants using Zoom felt isolated or not part of the round table. Similar to Joanne M. McInnerney and Tim S. Roberts's study of online learning and creating a sense of community, the GI system development must be committed to making online participants feeling like part of the proceedings and not "outsiders."[26] In that study, guidelines for online communication and expectations were critical to creating an online community.[27] Additionally, students in the study were given a "warm-up" stage to acclimate themselves to the online processes and features.[28] A similar approach would benefit the GI system, with the end goal being to maximize participant immersion. For instance, questions such as "are there camera angles, audio quality, or other factors that would help the remote participants?" need engagement. For the streaming platform, the use of the walkie-talkie style of interaction would require a thorough understanding between the streaming technician and the organizers about the purpose and use. Time may be necessary for the streaming technician to explain the process to local participants and audience members to get the most effective communication environment. Additional on-site tests and run-throughs would be beneficial.

Improvements to the conferencing solution will require more people and a dedicated facilitator that will guide viewers through the conference day. Items include a schedule of upcoming events, notes, and resources for each speaker, a virtual copy of the presenter's presentation, (this may be difficult to obtain in advance as presenters are typically making changes at the last minute), behind-the-scenes interviews and Q&A sessions. It is also important to involve the live audience with the online participants through virtual chat rooms. This scenario requires multiple streams, multiple gear setup, and numerous facilitators. However, once implemented, the online version of the conference could become appealing and informative. Those working as facilitators would need the skills of a camera operator, sound engineer, streaming media specialist, but also

[26] Joanne M. McInnerney and Tim S. Roberts, "Online Learning: Social Interaction and the Creation of a Sense of Community." *Journal of Educational Technology & Society* 7, no. 3 (July 2004): 73–81.

[27] Ibid., 77.

[28] Ibid., 77.

have the interpersonal skills necessary to act as a master of ceremonies and engage both local and online participants. The online component should be implemented in the planning stages and into each session. And finally, a synergy between other involved technicians, such as the house audio-visual team, is imperative.

Future Directions

The study and implementation of the GI system paves the way for several research areas. Further research is needed in overall resource analysis, with a goal to build a sustainable cost structure. Since a primary goal of the project is to provide green alternatives to meetings, a careful analysis of the carbon footprint for the various aspects of the system is in order, with a goal to create the greenest scenarios possible.

The project will collaborate with various conference organizers in the beta testing of the tools under real world conditions over the foreseeable future. These tests will ideally be performed with entities matching the general description of a GI target demographic (e.g. universities, libraries, government agencies, or cultural organizations, and including civic and religious entities). A contextual design process will be used to design the GI conference hardware/software in a way that best supports the desired outcomes, including the development of interviews, affinity notes, diagrams, and models that help organize data gathered. For the design and evaluation of the system, a mixed-methods approach integrating both quantitative and qualitative research will be utilized. The steps taken in the mixed-methods research process will include: aggregating existing studies relevant to the research problem, obtaining field studies and observations, including data gathering and analysis using a contextual inquiry method, developing a system using metrics and design iteration, optimizing the system through controlled experimentation and usability studies, and implementing and showcasing the system for critique and future research. Rather than focusing solely on error rate and learnability of the interface, this study will also explore the experience of the user. The qualitative research of a GI network conferencing tool will include data such as perceptions of how engaging, social, affective, and aesthetically pleasing the interface is among users. This mixed methods research approach will best serve the multidisciplinary nature of the project. Technical evaluative work will include a comparison of network broadcast types (e.g. UDP, RTM, Unicast/Multicast, Dante, AVB, Ravenna, etc.) to determine protocols used by various formats in the GI model. These connection tests will help determine methods of best practice for functions of the GI initiative.

Since the origins of this work stem from telematic artistry, a question arises: Can telematic strategies re-worked for a broader constituency, where they cross pollinate with other disciplines, then be re-introduced into the telematic arts community? The response is a resoundingly affirmative. Indeed, the very nature of telematics suggests a genre that thrives on new stimulus.

Therefore, strategies intended to empower remote participants to a greater degree, can in turn be used to create larger, broader, and more interactive telematic productions. For example, the *Tavel Online Access* application, which combines HD streaming with remote engagement tools such as text and voice chat, could be harnessed to exponentially increase the number of locations a telematic event could be presented. To illustrate, consider a telematic production focused on artistic responses to a large topic of international interest, such as empowerment of women worldwide. Small venues, such as arts galleries, community centers, museums, and schools, all possessing varying degrees of bandwidth capability, could organize their own activities, and incorporate that one telematic production into their programming. This kind of networked coordination presently occurs in isolated events, but is perhaps on the brink of becoming a culturally mainstream activity. A real-world example is the telematic opera *Auksalaq,* which joins performing musicians, speakers, media artists and audience together on stages connected via the Internet.[29] In 2013, one of its performances included venues with very limited connectivity, and no performers, only viewers. The Lu Magnus Gallery of New York City held an arts opening on the evening of the performance and streamed the opera on multiple screens during the gala event, which highlighted art inspired by climate change activity.[30]

Consequently, practitioners of the telematic arts should be viewed as leaders and developers of technologies that can be harnessed for the greater public good. How can this happen? This occurs primarily through information and technology exchange scenarios such as conferences or other meetings on focused not on publicly performing artistic works, but on the scholarship and research behind those works. For example, Stanford University has sponsored several audio over networks symposiums, focused on communicating technological developments intended to advance online performance.[31,32] Another example is the NowNet Arts International Conference,[33] launched in 2018, which brings together telematics artists and researchers to generate emergent ideas and techniques. It is this sort of activity that is sorely needed to provide leadership in innovation of online activity, which will naturally spread throughout the IT community worldwide.

In summary, video conferencing will continue to develop as a powerful medium for gatherings of many kinds. The expertise and technology that has been cultivated over years shows great promise to expand into a profitable component for organizational meetings by enhancing the conference experience for those physically present and those online. This is carried out through a system, or collection of tools designed to integrate easily and smoothly into the social dynamics of

[29] Scott Deal and Matthew Burtner, "Auksalaq, A telematic opera," in *Proceedings of the International Computer Music Conference* (University of Huddersfield, 2011), 511-514.

[30] Scott Deal and Matthew Burtner, "Auksalaq," accessed October 8, 2019, http://auksalaq.org/main/.

[31] Juan-Pablo Caceres and Chris Chafe, "ANET Summit II – Music for Teleconcerts, *SoundWIRE Research Group at CCRMA*," Stanford University, April 8, 2008, accessed September 28, 2019, https://ccrma.stanford.edu/groups/soundwire/.

[32] Audio Engineering Society, "AES 44TH CONFERENCE ON AUDIO NETWORKING," accessed October 8, 2019, http://www.aes.org/conferences/44/.

[33] NowNet Arts, "NowNew Arts Conference, 2018, 2019, accessed October 8, 2019, https://nownetarts.org/

meetings. The system benefits user communities through the reduction of green-house gases and its ability to help provide greater access for all.

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Abstract

Participation in conferences is an elemental component of professional life throughout the world. Two problems offset the social synergy gained from attending a far-away gathering of like-minded people. The first is the highly pronounced carbon footprint from air travel, and the second is the expense involved to participate in a conference which may be on another continent. These factors prevent many from participating who could otherwise benefit as well as contribute. As videoconferencing becomes more common and more sophisticated, it will serve as an alternative that not only benefits constituencies, but will expand the reach of a conference to more communities. This paper outlines a rationale, ideas, and a blueprint for a video conferencing toolkit intended to merge both on-site and on-line participants, via tailored applications and best practices. These include high grade audio/video capabilities common to telematic artists, in addition to integral components and practices of online presence that address issues of event management, social networking, collaboration-communication, information exchange, and asynchronous presence.