

Networked music performances in the COVID19 pandemic era: achievements and open challenges

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Abstract

The social distancing measures adopted to mitigate the propagation of the COVID19 pandemic have recently emphasized the need to develop multimedia tools to support remote music performances and teaching of music-related subjects.

Videoconferencing software currently available on the market does not allow for real-time musical interactions and does not guarantee adequate quality of the audio signal. The primary design goal of such software is to maximize the intelligibility of the voice signal, but it introduces too high latencies for real-time distributed musical performances.

This talk will offer an overview of the technological challenges faced during the development of a software solution for ultralow latency audio streaming over the Internet, finalized at allowing musicians located in different geographical areas to perform together in real time as if they were in the same room. A recent demonstration will be presented, involving musicians located in Turin, Munich and Stanford, who offer to the audience of the 2020 online edition of the "Festival della Tecnologia" (hosted by the "Biennale Tecnologia" event) a classical music concert.

Bio

Cristina Rottondi received both Bachelor and Master Degrees "cum laude" in Telecommunications Engineering and a PhD in Information Engineering from Politecnico di Milano (Italy) in 2008, 2010 and 2014 respectively. From 2015 to 2018 she had a research appointment at the Dalle Molle Institute for Artificial Intelligence (IDSIA) in Lugano, Switzerland. She is currently Assistant Professor at the Department of Electronics and Telecommunications of Politecnico di Torino (Italy). Her research interests include optical networks planning and networked music performance. She is co-author of more than 80 scientific publications in international journals and conferences. From 2016 to 2020 she served as Associate Editor of IEEE Access and since 2020 she is Associate Editor of the IEEE/OSA Journal of Optical Communications and Networking. She is co-recipient of three best paper awards (IWIS 2020, DRCN 2017, Online GreenCom 2013), of one excellent paper award (ICUFN2017) and of the 2020 Charles Kao award. In 2020 she has been included in the list of the top 10 "Rising Stars in Computer Networking and Communications" by the Networking Women Association.



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