GUEST EDITORS' NOTE
Special Issue on Fostering Creativity Through Web Audio

We are delighted to present the latest research in Web Audio for the third time in this special issue of JAES entitled Fostering Creativity Through Web Audio. The articles selected for this special issue went through a thorough review process and were submitted to a JAES open call. Their diversity clearly shows that Web Audio is a field of research of the highest interest, blending artistic, technical, and social aspects, which, on the scale of the Web, makes it possible to envisage a major change in the uses of audio and computer-assisted music. Some papers have been selected from the best published at the 2022 Web Audio Conference (WAC 2022) and are presented here in extended, curated versions, whereas others are new original contributions. They offer an overview of potential research in this emerging field, covering a wide range of topics from music production to live performances and from the development of web audio plugins to applications for live coding.

The first paper, "Euterpe: A Web Framework for Interactive Music Systems" by Yongyi Zang, Christodoulos Benetatos, and Zhiyao Duan, introduces and details "Euterpe," a new open-source prototyping framework designed to facilitate the deployment of interactive music systems on the web. The novelty is that this framework assumes the responsibilities of receiving both audio and MIDI real-time input streams, synchronizing them, and sending them to the core algorithm in a structured fashion.

The second paper, "Rocking the Web with Browser-Based Simulations of Tube Guitar Amplifiers" by Michel Buffa and Jerome Lebrun, reviews 7 years of work toward developing real-time, lightweight, and perceptually faithful browser-based simulations of tube guitar amplifiers. Most simulations are readily accessible on the Internet. All of them have received positive assessments from professional guitarists when compared with their commercial, browser-based counterparts.

The third paper, "Hack the Show: Design and Analysis of Three Interaction Modes for Audience Participation" by Matthias Jung and Ian Clester, presents the design of three interactive modes for audience participation, inviting audience members to influence both musical parameters and stage lighting of a live electronic music performance. This work addresses design aspects for audience participation and proposes ideas for future implementations of distributed music systems.

The fourth paper, "Distributing Generative Music with Alternator" by Ian Clester and Jason Freeman, deals in a smart way with some major issues of distributing generative music. To enable multiple outcomes or computational compositions that are not fully determined until they are played, they introduce a new platform called "Alternator" that provides scalable distribution via client-side playback with a music player interface to explore the possibilities of generative music. This article is an extended version of the conference paper that won the Best Paper award at the WAC 2022

The fifth paper, "The Web Audio API as a Standardized Interface Beyond Web Browsers" by Benjamin Matuszewski and Otto Rottier, takes the Web Audio API—the audio programming API included in all modern web browsers—and extends it to the desktop via two new open-source libraries. The web-audio-api-rs is a low-level implementation of the Web Audio API for the Rust programming language, while node-web-audio-api provides JavaScript bindings to web-audio-api-rs for use in Node.js, a popular JavaScript runtime for the desktop. The authors of this paper created detailed benchmarks showing these new libraries perform comparably with their browser-based counterparts.

The last paper, "Orchestra: A Toolbox for Live Music Performances in a Web-Based Metaverse" by Damian Dziwis, Henrik von Coler, and Christophe Pörschmann, presents the development of an open-source toolbox to realize live performances for web-based Metaverse environments. The possibilities offered by the Orchestra toolbox encompass a wide range of practices ranging from live streaming of volumetric audio and video to live coding and performing with generative algorithms and virtual instruments. To illustrate these capabilities, two telematic performances are presented as example use cases.

As you can see, these papers encompass a wide range of topics, exhibiting remarkable diversity. We are confident

that the web platform will continue to open new perspectives as the W3C regularly introduces new standards to expand the capabilities offered by web browsers. APIs such as WebCodecs (enabling client-side audio editing and encoding/decoding) and WebXR (for immersive environments), for example, are poised to make substantial contributions to the future of audio and computer music.

We are truly grateful to the JAES editorial team and especially to Professor D.-Sc. Vesa Välimäki for his expertise, constant help, and professional advice, as well as for the opportunity to publish this special issue in one of the most prestigious journals in the field. We would like to thank the WAC Steering Committee for the opportunity to organize the WAC 2022 conference in Cannes, France, as well as Université Côte d'Azur for hosting the conference in wonderful facilities. We are also grateful to the members of the WAC 2022 organizing and program committees for their generous commitment to producing a high-quality conference that has contributed to the existence of this special issue.

Finally, we want to extend our thanks to the sponsors of the WAC 2022 conference, including the University of Côte d'Azur, CNRS, INRIA, Google, Ableton, Dolby, Slate Digital, 53JS, AudioKinetic, and Haywirez. We look forward to the possibility of meeting you at the upcoming 2024 Web Audio Conference at Purdue University, Indiana, USA!

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