

Virtual Sound Gallery: a web stage for modern multichannel music and multimedia art

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ABSTRACT

Virtual Sound Gallery (VSG) is a web stage for modern multichannel music, sound, and audiovisual art. It is an accessible, web-based virtual reality (VR) environment for a visualized binaural simulation of multichannel sound reproduction. In this environment, a user can change their location among virtual loudspeakers and rotate their head to get the best spatial listening experience. In addition, an integrated video engine provides the ability to play visual content on one or several virtual screens in sync with the audio. VSG provides access to different electroacoustic music compositions presented in several virtual exhibitions and classified by concepts, styles, and organizations.

TECHNICAL BACKGROUND

Technically, VSG is a one-page website developed with modern JavaScript, PHP, and MySQL. Its front-end includes the Web Audio API, WebGL, Device Orientation API, Web VR API, Pointer Lock API, and Fullscreen API. Its graphical core is implemented with the ThreeJS framework. For best performance, a server is running on a CDN host, and uses client-server model based on asynchronous requests. VSG works on a modern desktop and mobile browsers. It is also compatible with such virtual reality devices as Oculus Rift and Google Cardboard. Further development of the system includes adding algorithmic composition functionality, a sound objects spatialization approach, panoramic video engine, static addresses of works and exhibitions, comments, and personal messages.

Artworks management is organized through the complex administration panel. It includes capabilities for uploading audio and video tracks, formatting virtual loudspeakers layouts, choosing or uploading a specific impulse response, and editing information about an exhibition, a work, and an author. There are two types of accounts in the system: author and exhibition curator. Curators can edit information about an exhibition, upload and delete works, and create author accounts. Authors have access to upload, edit, and delete their works in specific exhibitions. The goal of the project is to organize an international online community of electroacoustic music composers and sound artists.

WEB LINKS

Virtual Sound Gallery: <http://virtualsoundgallery.com>

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