Fraunhofer IDMT

Fraunhofer Institute for Digital Media Technology IDMT

Lärm - Straßenverkehr 2

Web-based Auralization of Noise Protection Measures in Urban Living Spaces

Oral presentation

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Noise is one of the greatest health hazards for people in industrialized countries. Noise assessment is based on long-term evaluations of standard sound sources, which have little relation to real short-term sound events. Before the implementation of planning and cost-intensive noise protection measures, their effectiveness is evaluated and analyzed visually and with the help of numerical simulations. Since the perception of noise is highly individual, the effect of a noise protection measure can only be conveyed to a limited extent without auralization. For the realistic auralization of noise situations with noise protection measures in urban living spaces, a web-based application was realized.

Based on an AI-supported evaluation of satellite images, the noise situation to be made audible is automatically analyzed and prepared for an object-based auralization. In addition to a noise source and a listening position, the position of a virtual noise protection measure can be defined in the software tool. For the three states initial noise situation (1), noise situation considering a passive noise barrier (2) and an active noise barrier with active noise control (3), the auralization is calculated and provided. By showing an example, the use of the auralization application is illustrated and noise reduction potentials are shown.