

공간에 소리의 그림을 그리는 방법

김양한[†](KAIST) · 최정우^{*}(KAIST)**Spatial Sound Manipulator: its principles and applications**

Yang-Hann Kim and Joung-Woo Choi

Key Words: Active sound control, virtual acoustics, multichannel speaker array

Abstract : In this paper, we aim to control the sound field spatially, so that a desired or target acoustic variable is enhanced within a zone where the listener is located. This is somewhat analogous to have manipulators that can draw sound picture in any place we want. In order to manipulate sound field over a finite area in space, it is essential to control multiple sound sources. With all these regards, we propose a unified approach that can manipulate selected acoustic variables using multiple sources. However, the shape or color of the sound picture fully depends on the acoustic variable we want to enhance. Among the many possible choices, we focus on three acoustic variables that have to do with the magnitude and direction of sound: acoustic potential energy, sound intensity, and direction of wavefront. Various numerical and experimental results of the proposed methods certainly validate that we can draw our own sound picture in space and time.

운전자 감속특성을 고려한 통합 차간거리/충돌회피 제어기 설계

구자성[†](한양대) · 이경수^{*}(한양대)**Design of an Integrated Cruise Control and Collision Avoidance Controller in Consideration of Human Driver Deceleration Characteristics**

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Key Words: Cruise Control(차간거리 제어기), Human Driver Manual Driving(운전자 주행), Time Gap(타임 갭), Time to Collision(충돌시간), Collision Avoidance(충돌회피)

Abstract : An integrated cruise control and collision avoidance controller has been designed based on driving data of human driver of 125 participants. The test vehicle was composed radar sensor and acceleration sensors. An integrated cruise control and collision avoidance controller was designed to consider deceleration characteristics of human driver's. The collision avoidance controller was designed to 4-step collision avoidance operation mode for guarantee of safety to low and high speed. The collision avoidance operation mode was optimized using rapid deceleration driving data of human driver. Performance of these integrated cruise control and collision avoidance controller is evaluated using simulation.