## Title

Gradually ascending sound with accelerating automatic driving vehicle mightchange passengers' tension or anxiety: analysis of biometrical index.



## Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 39(0)

## Authors

Tomita, Akitoshi
Harada, Etsuko
Miyashiro, Kozue
et al.

## Publication Date

2017

Peer reviewed

# Gradually ascending sound with accelerating automatic driving vehicle might change passengers' tension or anxiety: analysis of biometrical index.

**Akitoshi Tomita**
University of Tsukuba

**Etsuko Harada**
University of Tsukuba, Tsukuba, Ibaraki, Japan

**Kozue Miyashiro**
University of Tsukuba, Tsukuba, Ibaraki, Japan

**Satoshi Ando**
University of Tsukuba

**Maito Ohmori**
University of Tsukuba

**Hiroaki Yano**
University of Tsukuba

**Abstract:** When people ride an autonomous car, they might feel anxiety because they cannot know how it may move. Adding artificially augmented signals, which represent coming changes of the vehicle, it may be useful to reduce anxiety by change expectation. Thus we executed an experiment examining whether ascending sound could decrease passenger's anxiety, while riding on virtual autonomous car. In the experiment, participants saw 360-degree computer-graphics world through a head-mounted-display. The stimuli were views from a moving car with 2 speed (19 and 320 km/h), half of which was added ascending and descending sound at first / last 6 secs. Results of the heart-wave analysis as biometric index, i.e., index of sympathetic nervous (LF/HL), showed a marginal interaction between existence of sounds and the vehicle speed; while sounds reduced participants' anxiety with high-speed condition, they showed higher tension with sound at slow-speed conditions.