

## Subjective Age Estimation using Speech Sounds: Comparison with Facial Images

Mayuka Nishimoto, Yasuhiro Azuma, Naoyuki Miyamoto, Takashi X. Fujisawa, and Noriko Nagata

We have defined the perception of one's own age as "subjective age", and have so far approached using other people's facial images. In this paper, we propose a relative estimation method for subjective age by using people's speech sounds and their chronological age. A relative estimation task is performed, wherein an estimator gives rating values to other people about whether they are older or younger than the estimator. In this task, the different in the actual age between the estimator and the rating value of the person are measured. We plot the results on a two-dimensional plane with the x-axis as the relative age and the y-axis is the estimation result. Thus, the distribution with the plotted points of upper-right directions is obtained, which is approximated by a logistic function. The zero crossing point in the approximation curve with the x-axis is defined as the shift value in the subjective age. 57 total estimators, including 28 males and 29 females from 25 to 44 years old participated in this experiment. As a result, the subjective age using speech sounds tended to be older than using facial images. The tendency was also more remarkably visible in the male groups than in the female group. However, variance was relatively higher in the male young-middle (35-44) and the female young (25-34) groups than using facial images, which indicated that the subjective age varies according to the profile of estimators, such as age and gender.

**Keywords** subjective age perception, non-linear regression analysis, face-to-face communication, affective computing