



Human Olfactory Interface

Intelligent Information Processing Research Core, Laboratory for Future Interdisciplinary Research of Science and Technology

http://silvia.mn.ee.titech.ac.jp/English/MNL_index.htm

- Olfactory display
- Exploration of odor components
- Prediction of odor impression using deep learning
- Odor sensing system

■ Olfactory display

It is possible to blend many components at any mixture composition. Moreover, its composition can be dynamically changed.

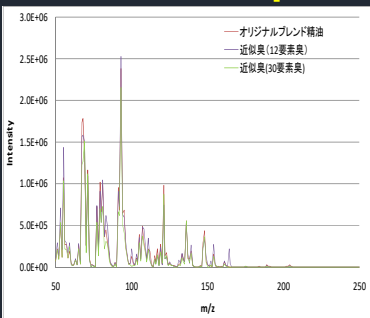
Desktop olfactory display using high-speed switching of solenoid valve



Game using wearable olfactory display



■ Exploration of odor components



Various odors are reproduced using odor basis vectors.

Mass spectrum of reproduced odor

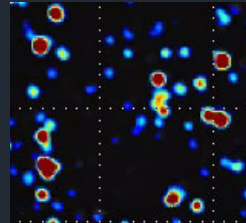
$$[V] = [W] \times [H]$$

Data matrix = Coefficient matrix × Set of odor basis vectors

■ Odor sensing system



Quartz-resonator sensor



Odor biosensor using cells expressing OR

Pattern recognition of multiple sensors with multivariate analysis or deep learning

