

# Construction of an AIoT-based universal emotional state space and evaluation of well-/ill-being states

## Project manager

(selected in 2021)

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## Summary of the project

This project aims to construct an objective and 'universal' emotional state space that transcends animal species, not reliant on subjective self-reports, by integrating AI technology with the IoT measurement (AIoT) of psycho-physiological data in daily life. Furthermore, we aim to establish technology that can detect and monitor mental and physical alterations or diseases, as well as positive states such as happiness and well-being, based on the dynamical properties of state transitions within the constructed emotional state space.

## Milestone by the end of project (year 2024)

- Develop technology with clinical validity that allows for the continuous and objective estimation of emotional states in daily life, based on psycho-physiological data measured by IoT devices (Monitoring emotional states in daily life).
- Construct a universal emotional state space that transcends animal species by integrating AI for animals and AI for humans to develop language-independent emotion estimation technology (Translational research on emotional states).
- Develop technology for detecting and monitoring well-being or ill-being states based on the transition characteristics (dynamical and stochastic properties) within the constructed emotional state space (Detection of well-/ill-being states).
- Develop a translational IoT cloud system capable of measuring human and animal physiological signals in their daily lives (Establishing an infrastructure system for social implementation and scalability).

## Project structure

R&D item 1: Constructing a Human Emotional State Space by AioT  
R&D item 2: Constructing a Universal Emotional State Space

R&D item 3: Establishment of technology to detect favorable and unfavorable mental states

T. Nakamura: Osaka U (1, 2, 3), Y. Yamamoto: U Tokyo (1, 2, 3),  
K. Yoshiuchi: U Tokyo (1), T. Takumi: Kobe U (2)

## Emotional States Estimation/Well-being Detection Based on AIoT

