

## Smart Robot that is Close to One Person for a Lifetime

### Project manager

(selected in 2020)

**SUGANO Shigeki**

Professor, Faculty of Science and Engineering, Waseda University



### Leader's institution

Waseda University

### R&D institutions

- Waseda University
- Meijo University
- National Institute of Advanced Industrial Science and Technology (AIST)
- National Center of Neurology and Psychiatry (NCNP)
- Japan Advanced Institute of Science and Technology (JAIST)
- The University of Edinburgh
- HITACHI, Ltd.
- Kobe University
- Tokyo Women's Medical University
- The University of Tokyo
- Tokyo Denki University

### Summary of the project

This project aims to establish robot evolution technology that combines flexible machine hardware and unique AI that can understand many kinds of tasks. Our final goal is to build a human-robot symbiotic society by introducing a general-purpose AI robot that can work with people not only in housework and customer service but also in welfare and medical fields where human resources will be in short supply by 2050.



Invasive medical work



Nursing care including emotional communication

### Milestone by 2030

We will develop smart robots equipped with emotional interaction functions that enable them to serve customers, perform housework such as cooking and wipe cleaning, nursing care such as walking assistance and buttocks wiping, and some medical services such as nursing and ultrasound diagnosis. As a result, we will realize smart robots that assist humans by using AI to perform multiple tasks with a high degree of difficulty in public facilities, general residences, nursing homes and hospitals.



Non-invasive medical work



Assistance with human contact

### Milestone by 2025

We will develop smart robots that closely resemble human bodies such as the circulatory system and muscles, equipped with assistance functions of laundry work such as folding clothes, cooking work such as stirring with kitchen tools, transfer work between wheelchair and bed, and health monitoring work with emotional communication that gives people peace of mind.



Cooking Assistance



Laundry Assistance

### Project structure

