



GLOBAL WELLNESS
SUMMIT 2019

Robot Assisted Activities: Scientific Evidence of Activating Human Communication by Robots

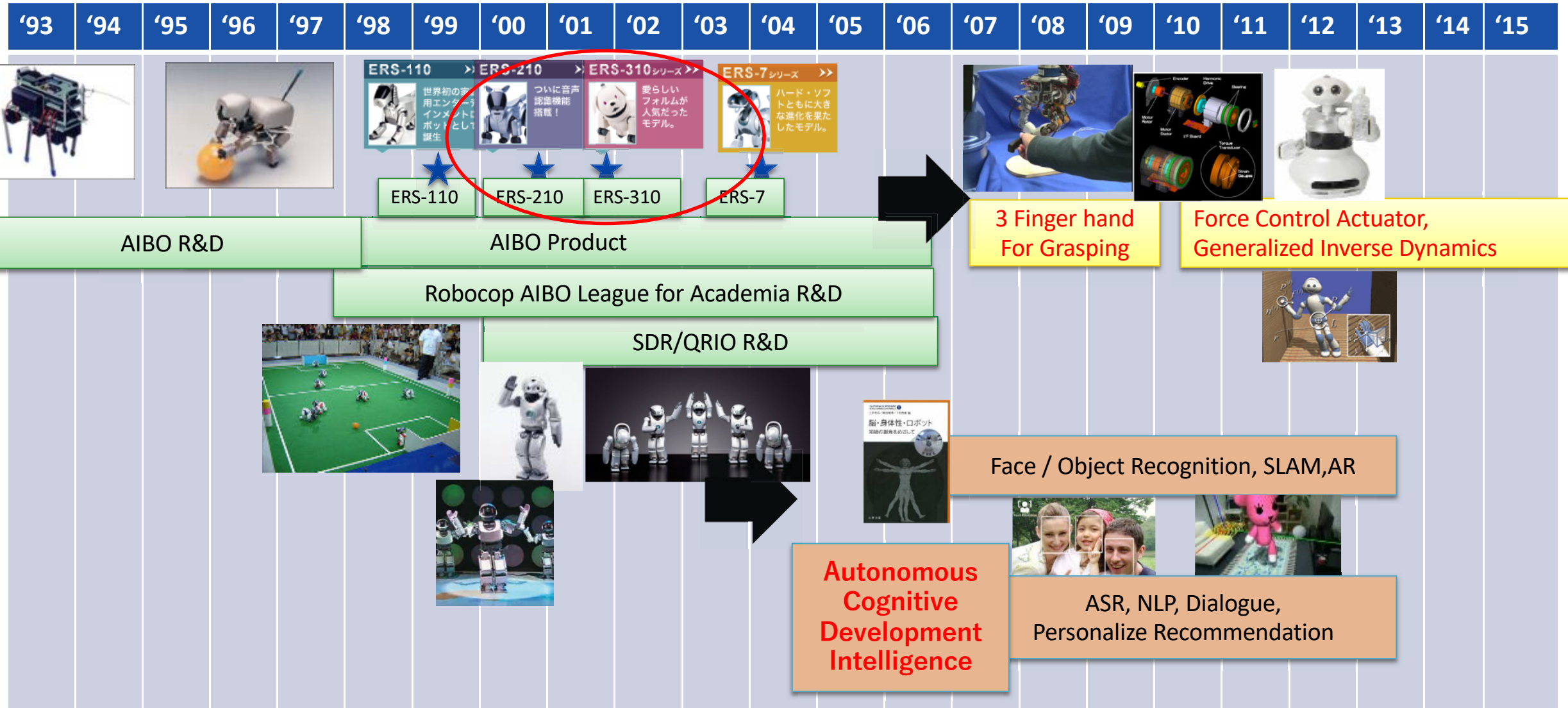
Masahiro Fujita, VP, Senior Chief Researcher, AI
Collaboration Office, Sony Corporation, Japan

aibo

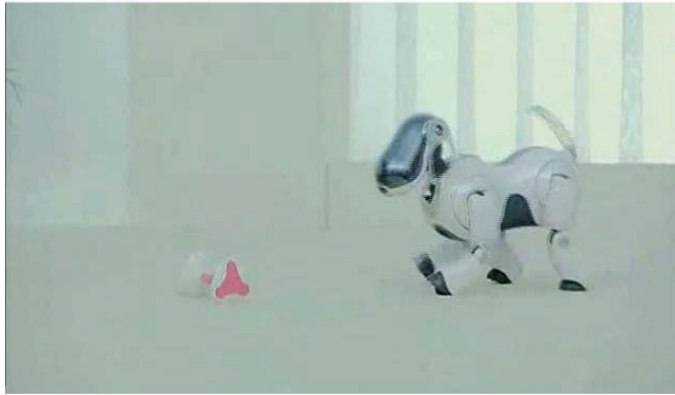
AI x Robotics x Wellness: Robot Assisted Activities

Masahiro Fujita,
VP, Senior Chief Researcher,, AI Collaboration Office
Sony Corporation

History of AI x Robotics R&D in Corporate Lab.



AIBO: The World First Fully Autonomous Robot



Ears Judgement

Eyes

Voice



Instinct/Emotion

Touch

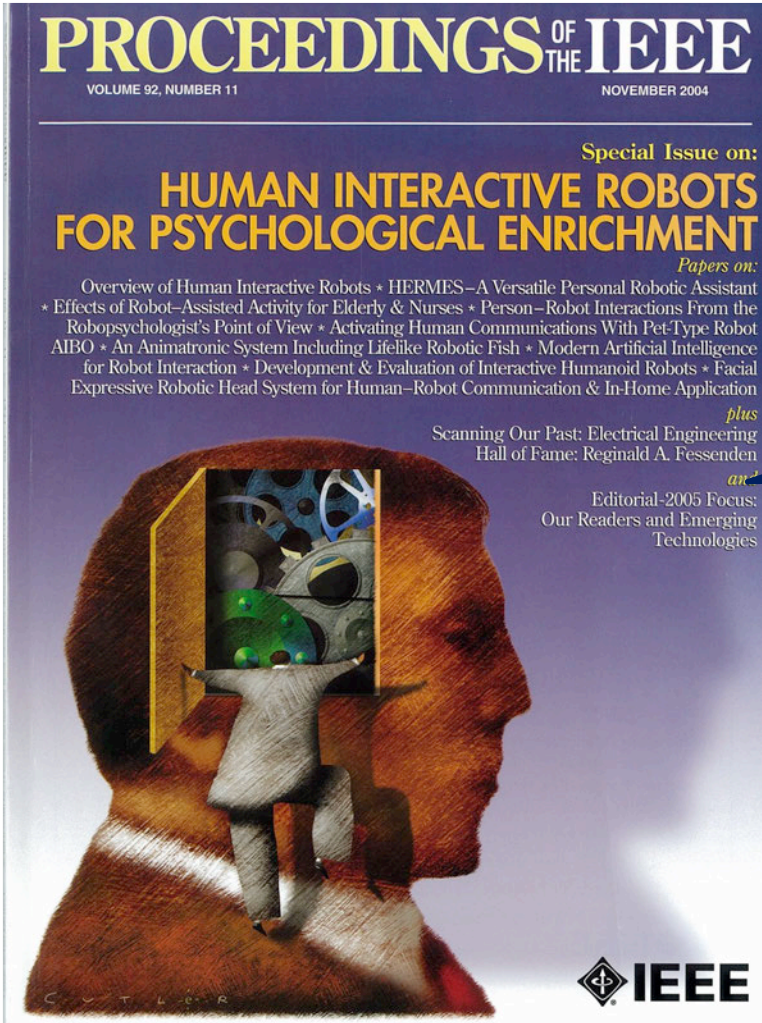


Self Battery Charge

On Activating Human Communications With Pet-Type Robot AIBO

The IEEE Proceedings, Vol.92, No.11. Nov. 2004

MASAHIRO FUJITA, MEMBER, IEEE



Survey papers on psychological effects by Human-Robot Interactions

“On Activating Human Communication with Pet-Type Robot AIBO”

→ Pet-type robots activate human emotional activity effectively.

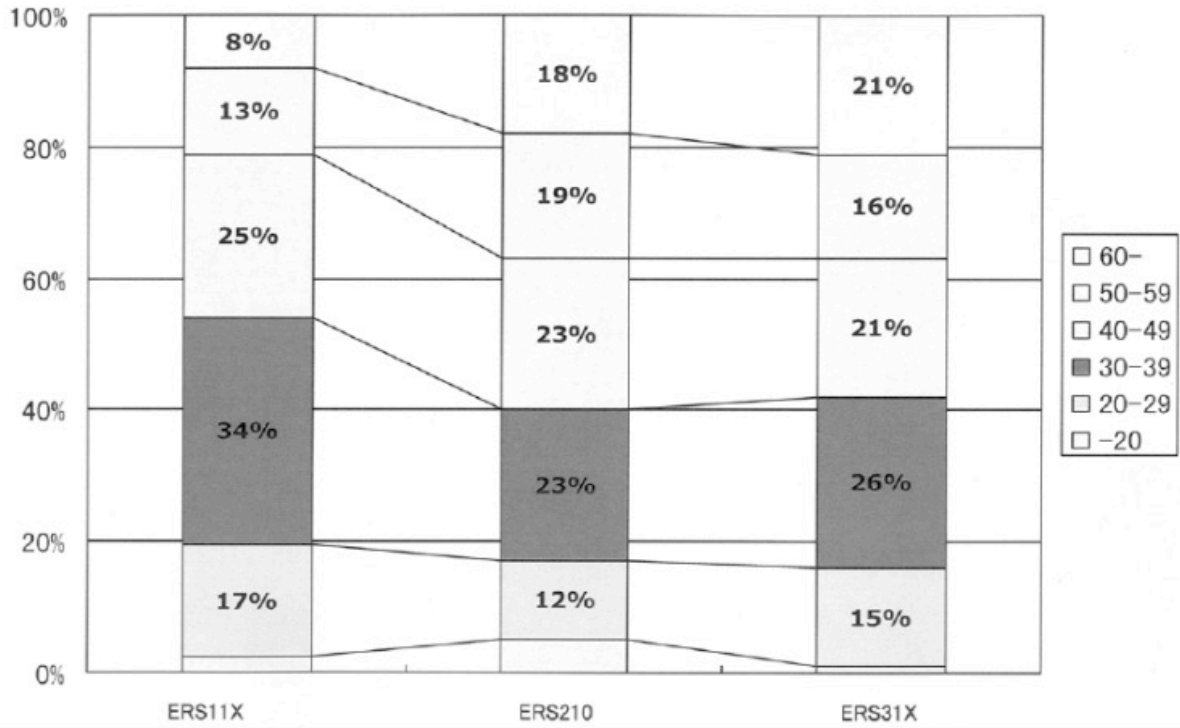
The important references by
A. Yokoyama,
K. Suga, M. Satoh, and K. Hasegawa,
B. Friedman, P. H. Kahn, Jr., and J. Hagman,

On Activating Human Communications With Pet-Type Robot AIBO

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AIBO : Owner Age Distribution



- About 70%–80% users feel a strong attachment to AIBO.
- Furthermore, about 26%–40% users say, they feel strong attachment and they may be at a loss if AIBO is lost.
- This tendency is stronger for ERS-31X owners than for ERS-210 owners.



Note : The statics was for ERS110, 210, 31X. 1999~2002

MASAHIRO FUJITA, MEMBER, IEEE

Some experiments using AIBO (1) *Animal Assisted Therapy (AAT) and Robot Assisted Therapy(RAT)*

- Healing Effect of AAT
 - Physiological Effect : ex) Improve his/her blood pressure
 - Psychological Effect : ex) Improve his/her depression
 - Social Contact Effect :ex) Improve communication with others
- Advantage of RAT
 - Sanitary Condition
 - No Food and no evacuation/no elimination.
 - Safety (not biting)
 - No pet-loss phenomena (but AIBO loss)
 - Programable



MASAHIRO FUJITA, MEMBER, IEEE

Some experiments using AIBO (2): Effect on Immune System

(Suga, et.al, Koireisha-care, Vol.6, No.4, 2002)



Three trials of AIBO interactions for 30 min every other day. Continue for 6 month.

A) 13 elderly people (ave. age ~ 72.0)

- S-IgA : Lower means “Relaxed”.
 - 100 → 175 μ g/ml after 3 trials.
 - 175 → 300 μ g/ml after 2 months

B) 15 patients (5 = Alzheimer dementia, 5 = Senile dementia, 5 = normal)

- HVA(Homovanillic Acid) :
 - HVA density levels of Alzheimer group became the same level of the normal group

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Some experiments using AIBO (2): Effect on Immune System



(Suga, et.al, Koireisha-care, Vol.6, No.4, 2002)

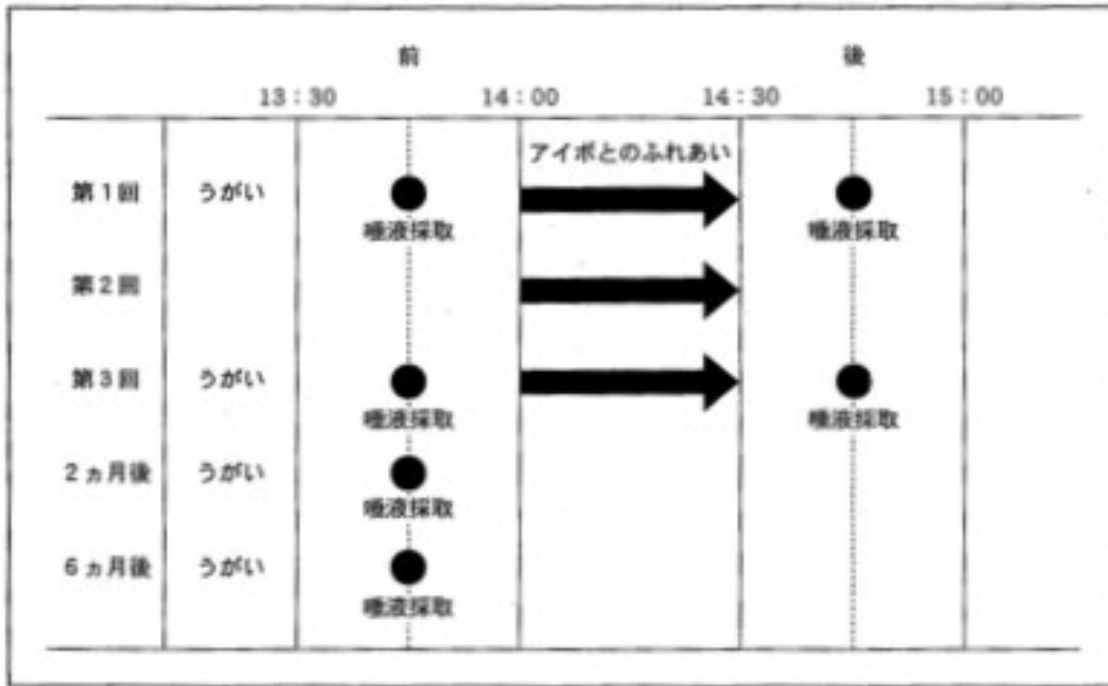


図1 アクティビティと唾液採取の手続き

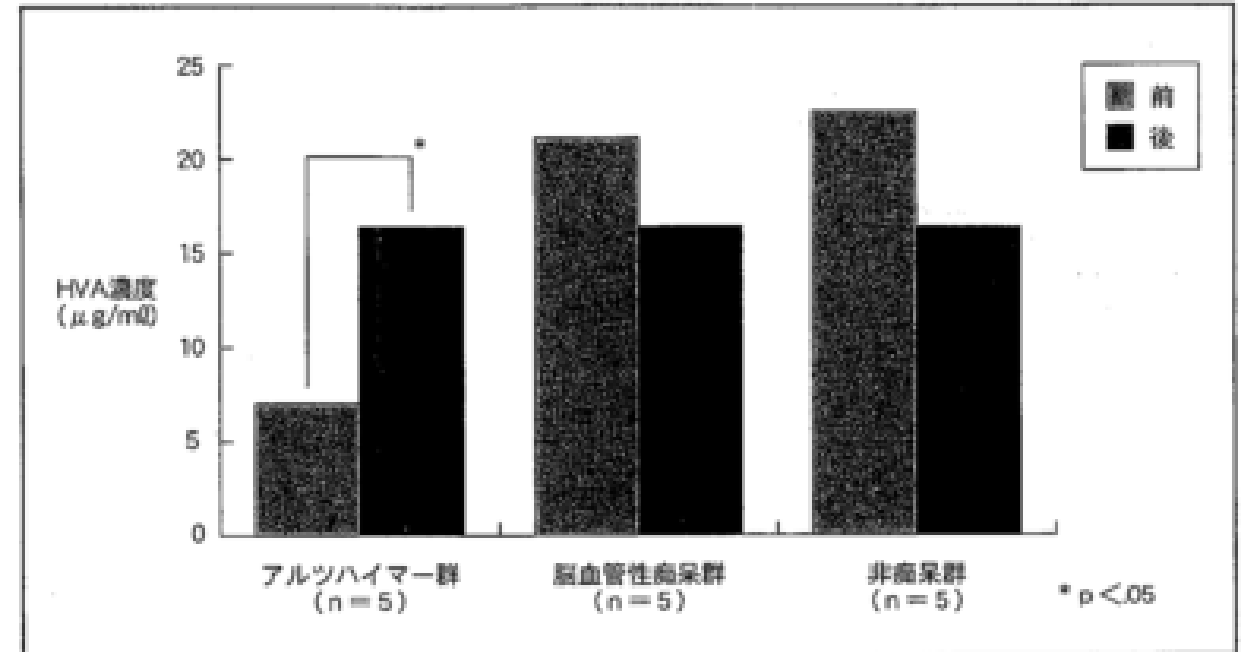
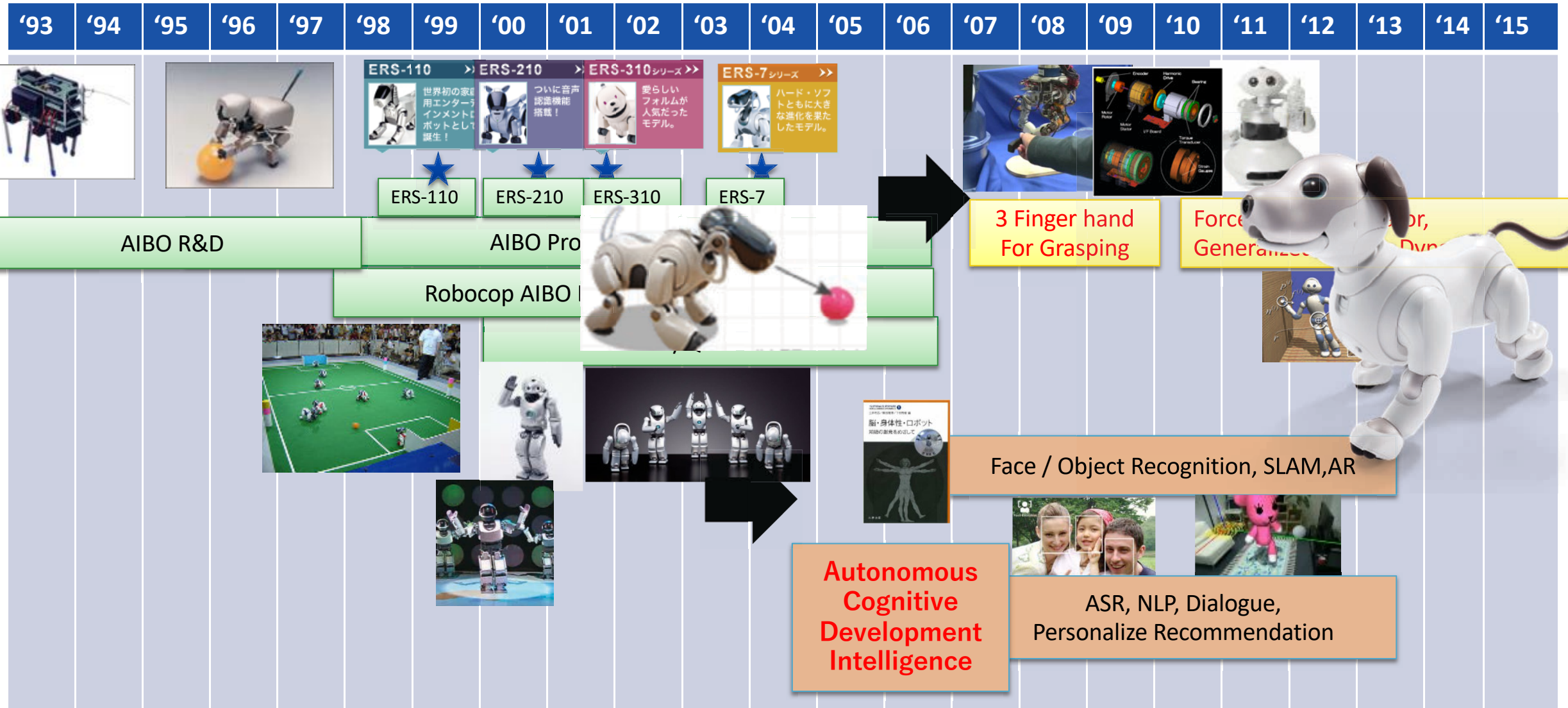


図4 第1回アクティビティ前後のHVA濃度比較

aibo



aibo: Fully Autonomous robot with Cloud



Various Motions



Expression with Eyes



Tactile Interactions



AI-Bone



Ball Handling



Running

Joint Research with National Center for Children Health and Development

Pilot study to research the therapeutic effects of aibo

- Pilot study conducted between April to May of 2018
- Test if periodic play (physical contact) with aibo will improve emotional exchange and change in mood in patients



Overview

Starting from December 2018 for three years, study the qualitative and quantitative therapeutic effects of aibo on the patients and family

Some other trials for Elderly care as well as Children's communication improvement.

aibo in Nursing Home

aibo introduced to Sony Group's retirement home with nursing function

Reinforcing positive emotions through the physical and emotional bond with aibo and bringing a bit of fun and happiness to their lives



Effects

Residents stay in the common space more frequently and longer, enhances communication within the residents

aibo in Nursery School

Experimental introduction of aibo to nursery school Global Kids

Observe the effects of aibo at the nursery school of children aged from 1 to 3 years of age



Results

Improved communication through daily interaction and activities such as naming aibo

Sony AI Cooking

The image shows a Google search page for 'Sony AI Cooking'. The search bar contains the text 'Sony AI Cooking'. Below the search bar, there are navigation options: 'すべて', '画像', 'ショッピング', 'ニュース', '動画', 'もっと見る', '設定', and 'ツール'. The search results show approximately 11,900,000 items in 0.36 seconds. The top result is a video titled 'ソニーグループのAI開発ツール | 【10分で開発体験】デモ動画...' with a link to dl.sony.com. Below this, there is a section for '動画' (Videos) with three video thumbnails. The first video is 'AI x Robotics x Cooking' (4:01) from Sony, uploaded on 2018/11/09. The second video is '#SonyatSXSW | "Can AI x Robotics x Cooking drive a new ..."' (1:09:25) from Sony - Stories, uploaded on 2019/03/11. The third video is 'New Opportunities in "Cooking" with AI and Robotics' (5:12) from Sony - Stories, uploaded on 2019/03/08. At the bottom, there is a link to '「料理」の新しい可能性 AI×Robotics×Cooking - Sony Japan' with the URL https://www.sony.co.jp > brand > stories > our > products_services > cooking.

Sony AI Cooking - Google 検索

google.com/search?q=Sony+AI+Cooking&rlz=1C1CHBD_jaJP842JP842&oq=Sony+AI+&aqs=chrome.0.69i59j69i57j0l2j69i60l2.4716j0j8&sourceid=chrome&ie=UTF-8

Google Sony AI Cooking ログイン

すべて 画像 ショッピング ニュース 動画 もっと見る 設定 ツール

約 11,900,000 件 (0.36 秒)

ソニーグループのAI開発ツール | 【10分で開発体験】デモ動画...
dl.sony.com/ソニーグループ/AI開発・構築
AI構築に不可欠なディープラーニングの開発基盤をご提供。簡単無料登録ですぐに開発スタート。専門知識やスキルがなくても開発可能。使用量に応じた従量課金制だから初期投資を抑えられる。無料トライアル実施中・初期費用を抑えられる・開発事例をご紹介。
AI開発事例・ツールの無料利用枠・従量制の月額料金・ツールの特徴

動画

AI x Robotics x Cooking
4:01
Sony
YouTube - 2018/11/09

#SonyatSXSW | "Can AI x Robotics x Cooking drive a new ..."
1:09:25
Sony - Stories
YouTube - 2019/03/11

New Opportunities in "Cooking" with AI and Robotics
5:12
Sony - Stories
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「料理」の新しい可能性 AI×Robotics×Cooking - Sony Japan
https://www.sony.co.jp > brand > stories > our > products_services > cooking

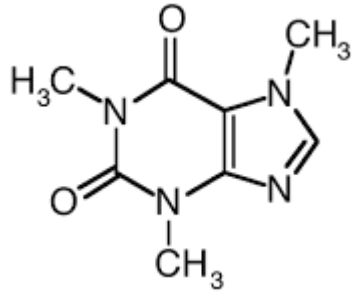
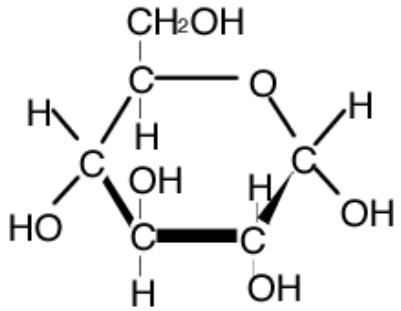
Independent Kitchen : AI x Robotics Augmenting Human



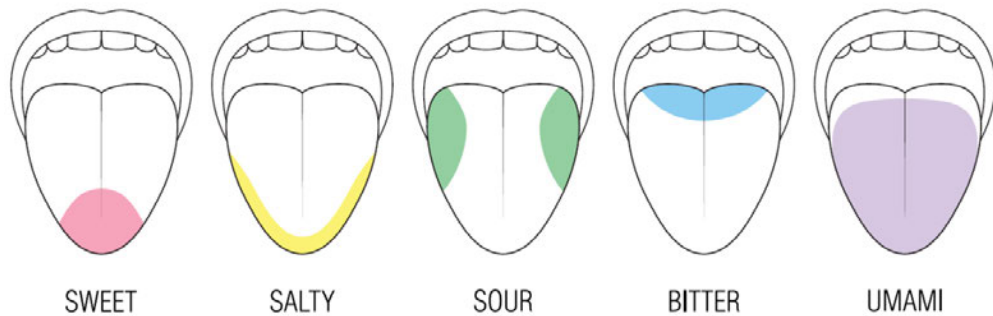
New Opportunities in “Cooking” with AI and Robotics

Scientific Approach to

医食同源



Subjective Judgement



Summary : AI x Robotics x Wellness

- Robotic Assisted Activities
 - Elderly and Children
 - Healing : Scientific Evidences are being found.
 - Programing as Prescription?
- AI x Robotics x Gastronomy
 - AI x Robotics augmenting human
 - Scientific Approach to “医食同源”

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