



NON-ENTERTAINMENT POTENTIAL OF E-SPORTS

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Introduction

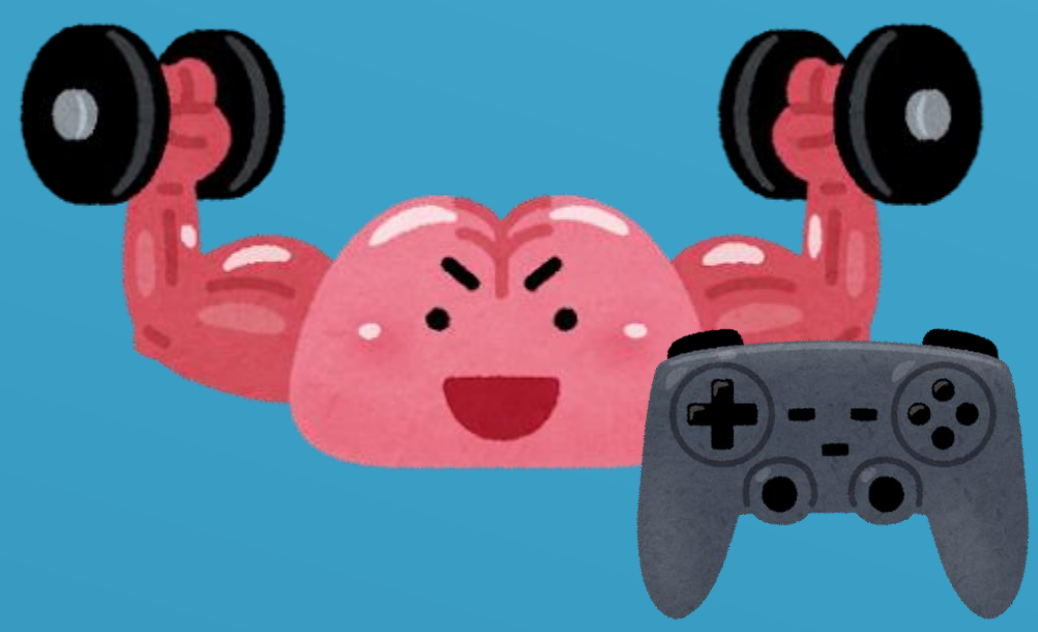
E-sports have become popular worldwide in recent years, but not yet become widespread in Japan. In 2021 we have established the first e-sports club at NIT Hakodate, Hakodate KOSEN e-Sports Enthusiasts Club. Our activities are not doing games just for fun, but aiming to contribute to our society through e-sports event, collaborating with Japanese companies and local governments.

In the present study we introduce our activities and present our work on the brain activities to show that e-sports activities are good to solve the problems of aging society.

PROBLEMS OF AGING SOCIETY

Japan in 2030

30% of the population is over 65 years old,
One in five of them has dementia



In addition to physical health, mental health is necessary. Brain activation improves cognitive function.

Brain activation through e-sports

However, it is difficult for the elderly to operate...

Need something **simple** and **focused**!!



OUR WORK

Welfare activities using e-sports

Currently, our hometown of Hakodate has one of the most rapidly declining and aging populations in Japan. Our goal is to raise the profile of the region by promoting e-sports as one of the attractive cultural aspects of this town.

For the past three years, we have held an annual student-led event, and in the first year we held an e-sports event for 100 people.

Events in the first year →

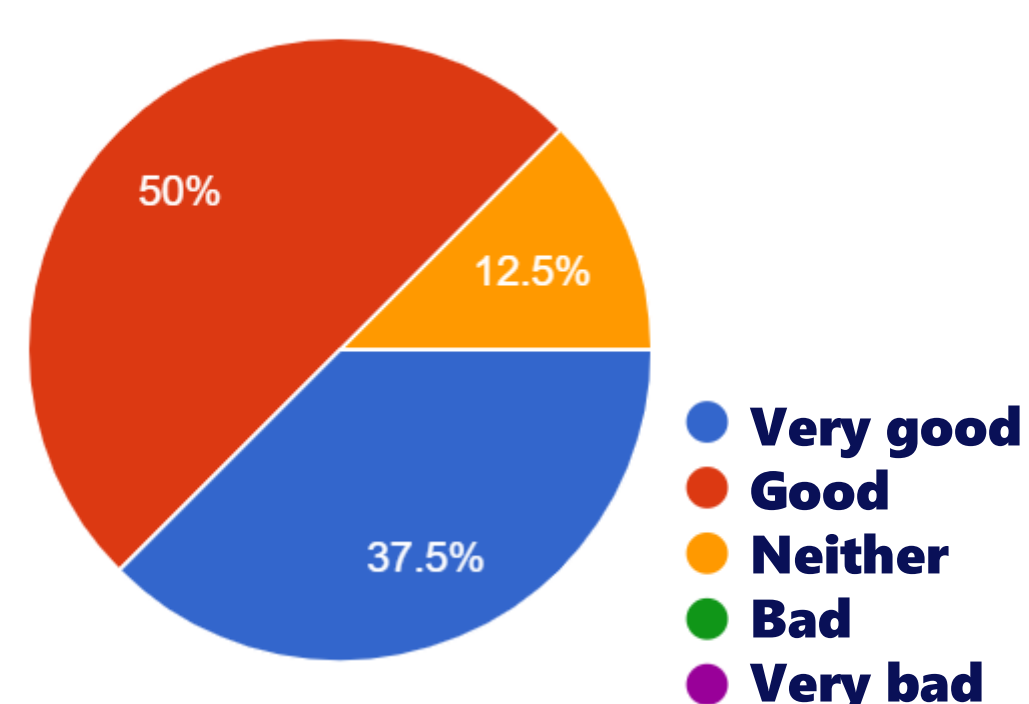
In addition, we have visited senior citizens' facilities on several occasions and interacted with more than 50 senior citizens through games.

Everyone enjoyed the games very much, but many people commented that the controls were complicated and difficult, and that there were too many things to pay attention to and handle.

We, too, had a hard time finding games that were easy and fun to play and that would activate their brains.



Rate the this event on a 5-point scale
0 responses



The public's image of e-sports



Our e-sports activities

Electroencephalography, EEG measurement

0. Examine differences in brain activation by game genre.

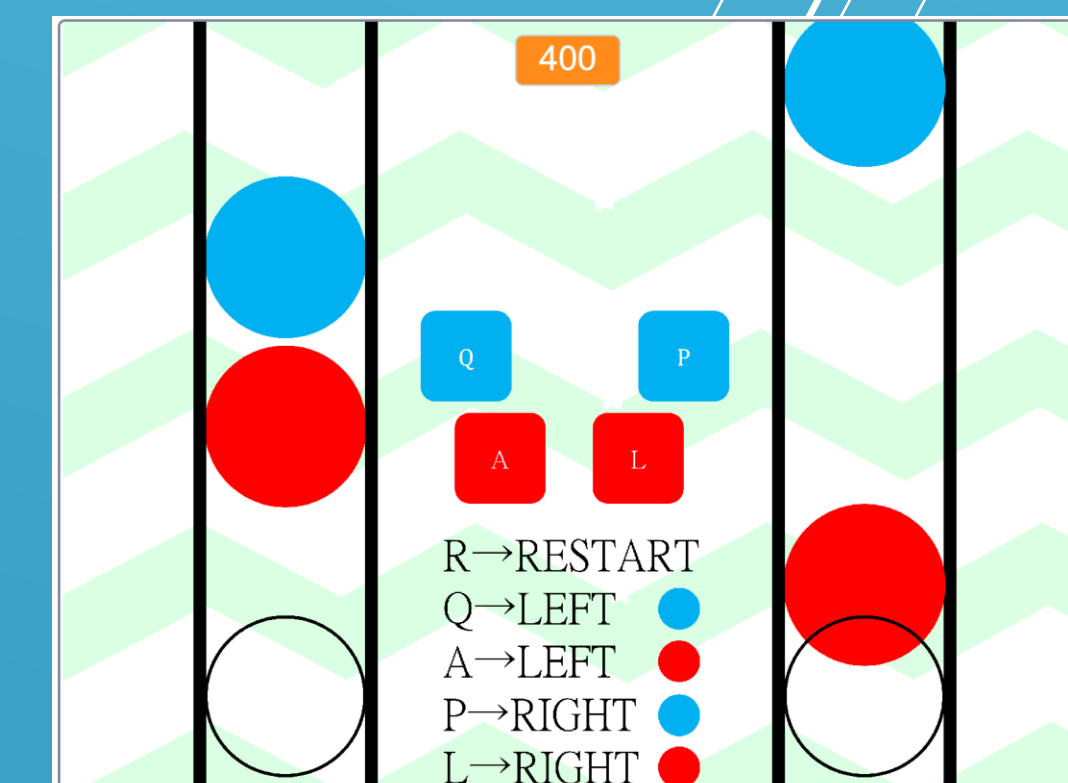
1. Learned how to measure brain waves.

2. Measurements of various genres were made on four subjects.

3. An original game was created based on the results.

BACKYARD BRAINS

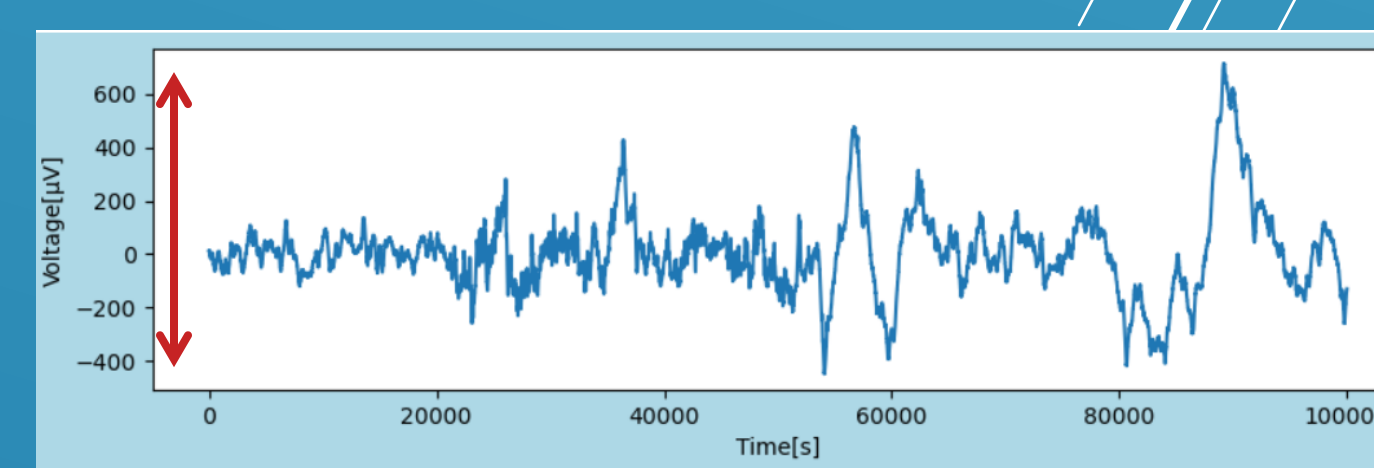
Neuroscience for Everyone!



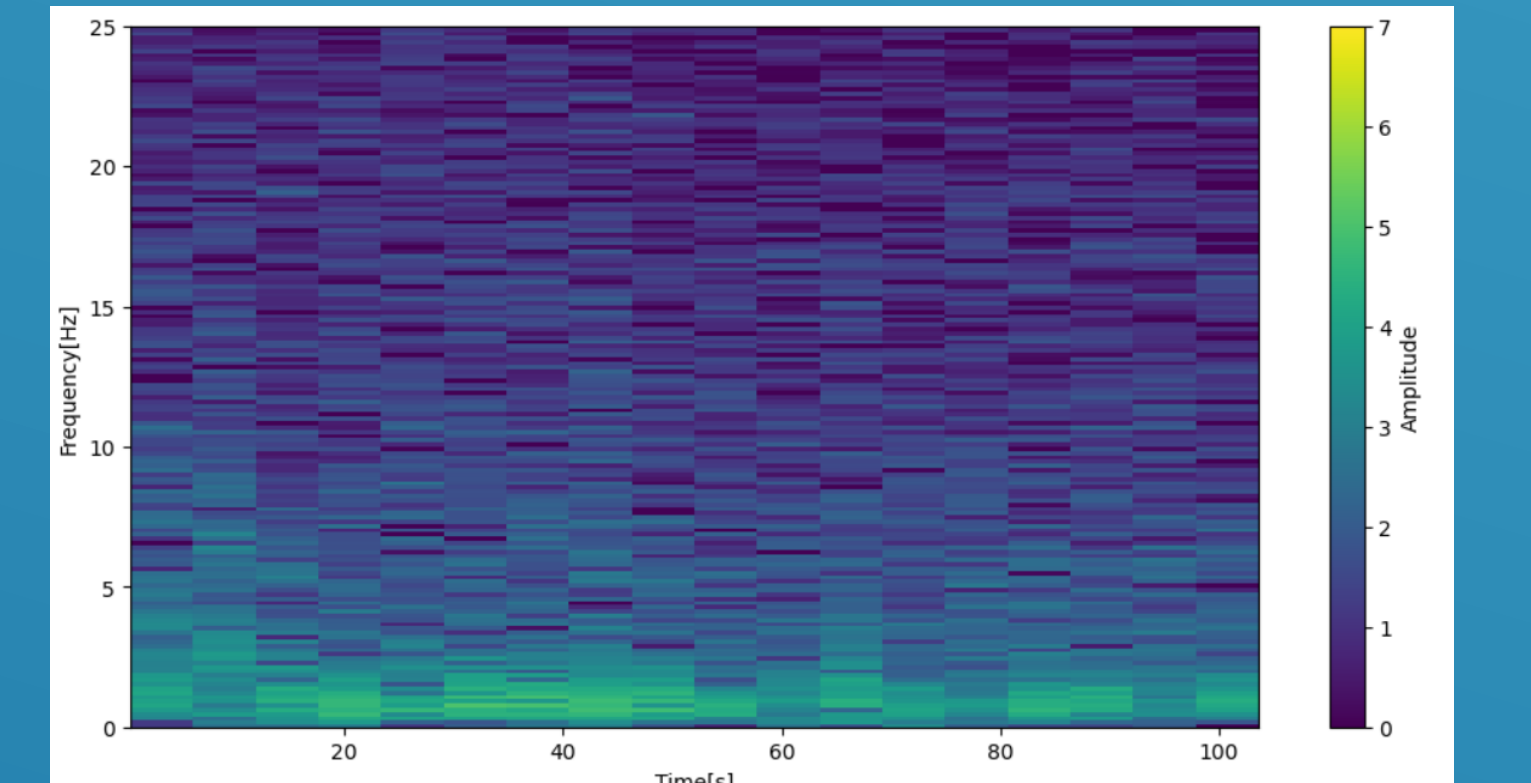
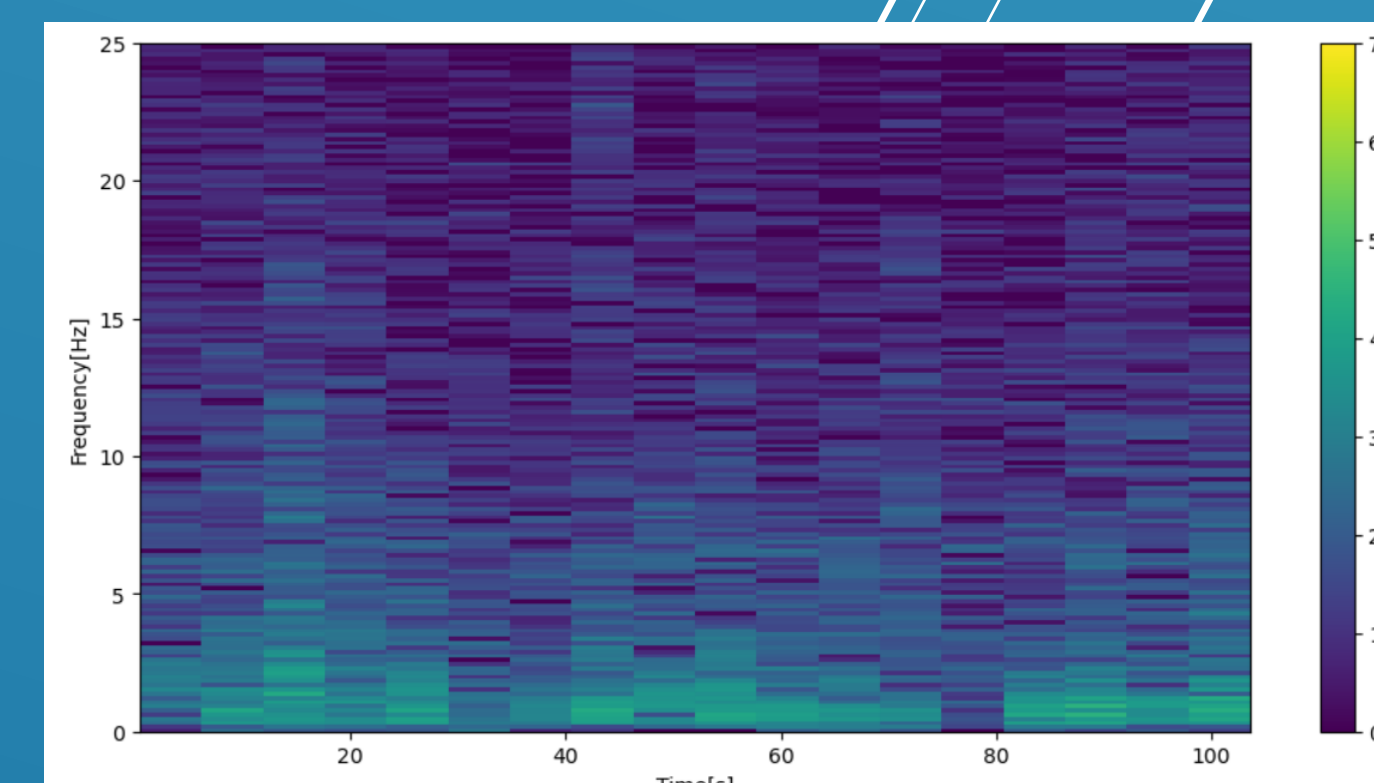
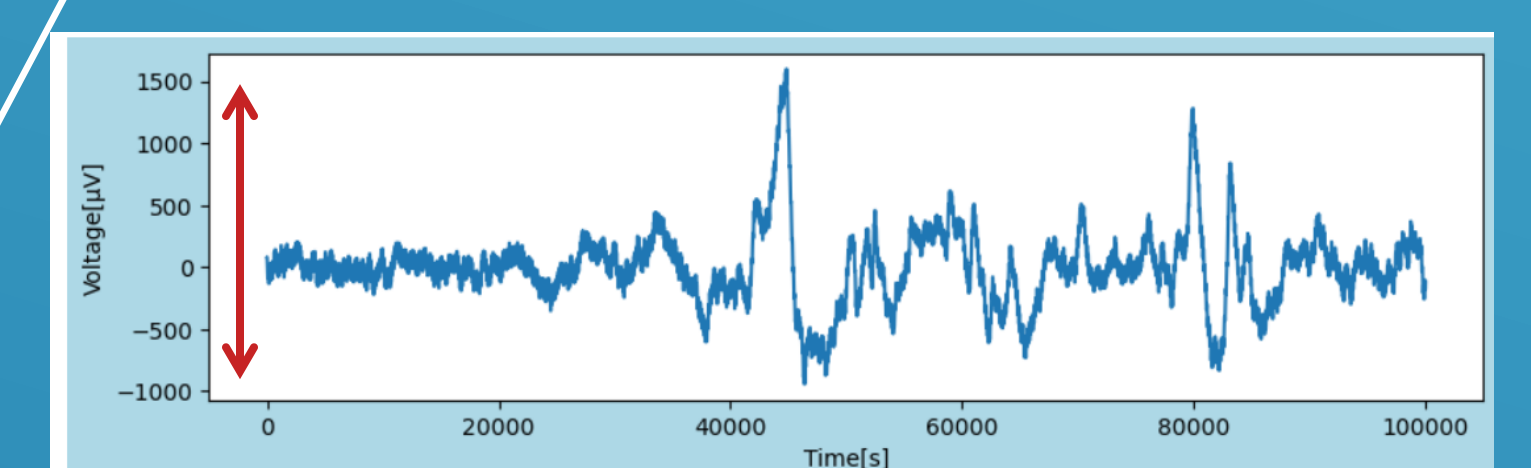
FINDINGS

- Brain waves are more active when playing games than normal brain waves, because the amplitude of brain waves is higher when playing games than normal brain waves. From these facts, it can be said that the brain is more active when playing games than during normal times.
- Among game genres, rhythm games were the most active.

NORMAL



DURING A GAMING



DISCUSSION

The simple sensory handling and ease of understanding the conditions for success. In addition, the fluidity and increased concentration may have resulted in brain activation.

In puzzle games, the game progresses well by thinking ahead, and the brain is activated by the amount of time and thought spent on each operation.

REFERENCES

- [1] backyard brains URL: <https://backyardbrains.com/>
- [2] Kango-roo Brain Waves | Nervous System Functions URL: <https://www.kango-roo.com/learning/2159/>
- [3] scratch URL: <https://scratch.mit.edu/>

We have established the "Hakodate KOSEN e-Sports Enthusiasts Association" to explore the broader potential of e-sports beyond mere entertainment. Our activities include social contributions for the elderly and promotional events in collaboration with various Japanese companies, distinguishing us from the typical image of e-sports.

