Fujikko Fukuchan

AI-Assisted Caregiving

～Challenge for Humans and Robots～

Fuji Computer's AI Technology Research Institute in Namie Town is developing an AI-assisted caregiving robot named "Fukuchan." The name is inspired by Fukushima Prefecture's "Fuku." Fukuchan serves as a conversational companion for the elderly, helping alleviate the burden on caregiving staff in welfare facilities. This development seems promising for addressing the challenges of our aging society.

Fukuchan and the computer inside

The institute in Namie Town was established by a company based in Hyogo. This move was initiated by the national project known as the "Fukushima Innovation Coast Promotion Organization (FIPO)." This initiative aims to support the revitalization of the Coastal Region, which suffered damage in the disaster. Additionally, President Kazuaki Mori, experienced the Great Hanshin-Awaji Earthquake, and empathizes with the hardships of the situations. His strong sense of empathy is motivating him to provide support.

Japan is facing the challenge of an aging population and declining birth rates. The depopulation of the Coastal Region has intensified due to the disaster. With a growing shortage of personnel in the caregiving sector, there is an increasing need to alleviate the burden on caregivers.

One crucial aspect of the caregiver's role is effective communication with the service users. Due to a decrease in human interaction, there is a rise in social withdrawal and an increase in individuals with conditions like dementia. This is where "Fukuchan" proves valuable. By taking inspiration from animal therapy, it adopts the form of an adorable dog, a common household pet. Capable of speaking over 5,000 words, it utilizes the internet to formulate responses. "Fukuchan" comes equipped with exercise support, singing, and gaming functionalities. Through WiFi connection, its features are regularly and automatically updated. Remote control is possible using a tablet, and it can be connected to a television via HDMI for an enhanced experience.

Additionally, the technology of motion capture is employed. Using "Fukuchan" as a motif, videos are created featuring 3D computer-generated characters performing activities such as swallowing prevention exercises (Patakara exercises), radio exercises, and cognitive exercises for dementia prevention (CogniSize).

With the increasing trend of dual-income households and the challenges of providing care at home, there is a growing demand for caregiving facilities. However, the caregiving sector faces a negative image such as high physical demand, low hygiene conditions, workplace hazards, low wage, and unfavorable for marriage. Caregivers aim to shift this perception towards a positive image of curiosity, observation, initiative, humility, and a desire for improvement. The support of the research institute becomes crucial in achieving this transformation.

While grappling with the challenge of the "3-month robot abandonment syndrome," efforts are ongoing to introduce and test "Fukuchan" in facilities. The robot is continually being improved. The goal is for "Fukuchan" to become a robot supporting the future of caregiving, overcoming the hurdle of losing interest after three months and making a lasting impact in care facilities.

Revitalizing Namie through Manufacturing

The Only Company in Town Using a 3D Printer

Creating a product using a 3D printer.

The Fuji Computer AI Technology Research Institute uses a 3D printer to create goods such as the local character "Ukedon" in Namie Town, which are then sold at the Michi-no-Eki Namie. The initiative began when the factory manager, Mr. Arakawa, noticed the absence of companies using 3D printers to create items in the vicinity of Namie Town. This led to his idea of "trying something unique and different."

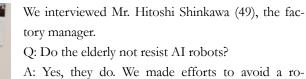At Fuji Computer, there are three box-shaped 3D printers, all of which are black. The manufacturing process begins with creating 3D data on a computer. Environmentally friendly white "PLA resin," made from corn, is set on the rollers located on the side of the 3D printer. The resin melts from the tip of a needle inside the machine and forms the product by layering it multiple times.

Next, a special tool is used to manually sand and smooth the surface. Fine painting is done using a dedicated ink and a slender brush. Finally, the product is secured with fasteners, left to dry, and the process is complete.

By selling the finished goods to tourists and promoting them through social media, it becomes possible to convey the charm of Namie Town to a broader audience.

Editor's Note:

As the population ages, I believe that interpersonal connections are crucial. There was initial resistance to AI robots in the context of caregiving. The most pressing problem, however, is the shortage of caregiving personnel. The potential savior of the caregiving industry, which often carries a negative image, is "Fukuchan." I felt a great deal of potential in this regard. The aspiration to create an impressive robot quickly stems from a newcomer's eagerness in the field of manufacturing. The enthusiasm was palpable. I was also greatly assisted by the team members who provided different perspectives, questions, doubts, and opinions. Through the process of reporting and editing, I came to realize the challenges of effective information dissemination. (Mamiko Yusa, team leader)

Interview with Mr. Shinkawa!!

Mr. Shinkawa is providing answers during the interview.

We interviewed Mr. Hitoshi Shinkawa (49), the factory manager.

Q: Do the elderly not resist AI robots?
A: Yes, they do. We made efforts to avoid a robot-like appearance, such as not emitting light.

Q: Do you have any dreams or goals for the future?
A: My goal is to create something that is widely recognized in society.

Q: When was the company established?
A: The headquarters in Hyogo Prefecture was established approximately 40 years ago. Initially, it operated under the name "Mifuji Sangyo." The AI Technology Research Institute in Namie Town was established in May 2021.

Q: What kind of people work at your company?
A: We have a diverse group of individuals. As a company policy, we prioritize a person's abilities over their educational background.

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The two individuals in the back row on the left are from Fuji Computer.