Putting Robots to Commercial Use Will Change Society

Interviewer: Yoshihiro KATAOKA

Robots are no longer characters appearing in *anime* and SF films. Gradually, they are beginning to fit steadily into our livelihood by making their presence felt in nursing-care facilities or at the scene of a disaster. Robot designer Tatsuya Matsui, founder and CEO of Flower Robotics, Inc., has been involved in the development and sale of robots, training his sights on bringing them to the commercial stage. What sort of relations are humans and robots going to form from now on? How will our lives change? Matsui discusses these and other issues in an interview with *Japan SPOTLIGHT*.

Tatsuya Matsui

Technology Ends Role Only after Serving Society

Your title "robot designer" does not sound familiar to people. Specifically, what do you do in your work?

Matsui: The word design is misunderstood in Japan as an expression associated with design drawing and molding. However, it originally means planning and laying out something on the drawing board. Therefore, a robot designer puts together a whole aspect of work ranging from research and development, market study and fund procurement to distribution and sales.

However, unlike a car or graphic designer committed to mature industries, a robot designer is a job yet to be established as the robot sector is not yet commercially viable as an industry. Although Japan has the world's top robotic technology, it presently remains enshrined in laboratory offices as no one makes any effort to develop a robot market or engage in sales for robotic industrialization. The technology will not be useful in our livelihood unless it develops into a full-fledged robotic industry. Scientific technology comes to completion only after making a contribution to society. Thus, my task also includes designing a blueprint for robotic industrialization.

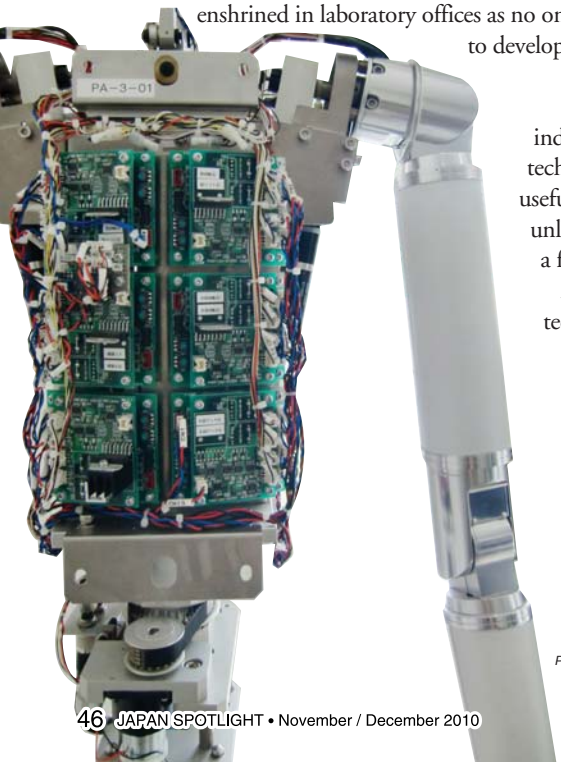

Photo: Flower Robotics, Inc.

Technology in the early period of its commercial application requires entrepreneurs to begin from scratch, working out and nurturing a business model. Apple Inc. founder Steven Jobs and automobile kingpin Henry Ford were engineers, marketers, designers and salespersons.

I conducted research on robots at a national research institute and started up a venture business about 10 years ago. I consider it my biggest role as an entrepreneur to establish robotic technology as a business and enrich people's lives.

Japan holds the largest number of patents on robotics in the world. It maintains a national characteristic of accepting robotic culture. The robotic industry has the potential to become a mainstay Japanese industry that will sustain the nation's future like the auto industry was in the 20th century. I would like to change it to a new global industry.

Mannequins Charm Visitors

Concretely, how are you going to industrialize robots and offer them as merchandise to society?

Matsui: First of all, those of us in the venture business world thought of making use of robotic technology in existing industries, and focused our attention on the fashion industry. And we have developed the mannequin robot *Palette.* It is an autonomous robot that makes subtle changes in postures based on information fed from outside. It does not simply repeat postures programmed in advance. It reflects information from its surrounding environment in its motions and takes in changes in the environs generated by its motions and incorporates these changes into its next behavior.

Palette keeps dozens of postures in memory, automatically changing them in wearing clothes and accessories. Its camera catches a visitor who comes to see it and recognizes that a visitor gazing at it for more than four seconds is interested in its pose. It accumulates such data for several hours, finds out a pattern of behavior itself and poses accordingly. It helps boost the commercial value of the goods concerned by displaying a posture

that captures the greatest attention of visitors.

We began selling *Palette* in June last year after spending seven years on its development. It didn't become a saleable item due to the fixed-asset tax imposed on it in Japan. But as soon as we launched a rental service for its release, we began receiving inquiries from owners of buildings housing major fashion stores as well as department stores.

Palette, taking advantage of its ability to receive information from its camera, will be used in the future for marketing research. For example, should there be a result showing that 70% of people in a market survey took a red bag in their hands, *Palette* may be used to hold such a bag for demonstration. *Palette* may also be put to use for security measures after the store is closed for the day. Stores selling name-brand products on a global scale may keep *Palettes* in their show windows in various cities to let the robots exchange international information among themselves. This means that store windows equipped with the mannequin robots can transform themselves into media by not only sending but also receiving information.

At present, there are few corporations that employ robots in such a way on a commercial footing. An era of one robot in a household will usher in from now on. In addition to *Palette,* we are pressing ahead with the development of other robots with an eye to 10 and 20 years ahead.

Design from Tokyo

Japan is called "an advanced nation in robots" or "a robot powerhouse." What do you think made it possible for Japan to become such a nation?

Matsui: Japan had no natural resources after its defeat in World War II and had no way but to subsist on technologies. I think Japanese people had a strong obsession with developing technologies for mass production of goods for selling at low price. It was perhaps for this reason that robotic technology for factory automation made exceptional progress in Japan. Honda Motor Co. founder Soichiro Honda and Sony Corp. founder Akio Morita went all out to manufacture and sell their products. Japan would have foundered unless they had made frantic efforts to export cars and TVs. The evolution of robotic technology in a way came against the background of a sense of crisis.

And while struggling to get food for daily sustenance, Japanese people placed their dream and hope on the development of scientific technology. I think *"Astro Boy"* symbolized it. As I listen to senior robot developers who spent their childhood during that period, they always end up talking about the *anime* hero and saying, "I wanted to make *Astro Boy."*

However, Japanese industrial strategy will probably shift from making things to creating intellectual property such as inventions and know-how on management. To be called into question will be "Who from where came up with this idea?" rather than "Where was this made?" I suppose an era of "Design from Tokyo" will replace that of "Made in Japan."

Yoshihiro Kataoka is a former reporter/editor at Cultural News Section, Kyodo News.

Photo: Flower Robotics, Inc.

For Humans to Live Like Humans

What sort of future can we imagine as robots are introduced to the market?

Matsui: From now on, a variety of products will be robotized. In other words, robots will study and forecast what will happen to humans and make proposals. In the case of a vehicle driver, a robot will monitor information on his physical condition, predict he will doze off and issue a warning. Regarding a guest at home, a robot adjusts room temperature based on his or her perspiration and offers a beverage. Or a robot calculates stock and foreign exchange fluctuations in order to reflect its assessment on individuals' financial conditions.

Robots will perform all patterns of human behavior that can be systematized, liberating people from sparing time for some troublesome tasks such as unskilled jobs and paperwork that they have been doing to live.

If this happens, humans may become aggressive in trying to live like humans. They may seriously tackle their primary role, which, contrary to expectations, could be primitive behavior such as giving their affection to their family members, loving their neighbors or donating money to the weak. I imagine robots will have a significant role to play in order for humans to genuinely become free.

Originally, I worked in an architectural design firm. An architect and a robot are the same in the sense that they use state-of-the-art technology to design people's lives and that they try to enrich people's livelihood through the wisdom of humankind. I am positive that if French architect Le Corbusier, whom I respect, and Michelangelo, known as an architect in Italy, were alive in the present era, they would absolutely deal with robots.

When people in the 22nd century look back at the 21st century, they would pick robots as the biggest industry in the century, just as cars, telephones and aircraft were among the largest industries in the 20th century. I say "largest" to mean that they "changed the world and a view of the world." Therefore, what we are doing is bound to go into the history of robots as it is. We are grappling with our task with pride and enthusiasm that we are taking part in the making of history for the 22nd century. JS

Mannequin robot "Palette"