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# WISH TIMES





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# SI: ROBOTICS

*Akrom*

Some dreams you pursue, some find you by themselves. For me it was a distant dream coming knocking when I saw an announcement about an SI program about robotics last month. It most probably won't be a mistake to say that everyone while being a child watching their favorite tv-shows was fascinated by big, shiny mechanical machines made of steel, fighting monsters the size of mountains, or by robocat from the future that takes you on zillions of adventures, or by a little automated trash compactor who teaches humans how to be humans again. Robots have been a source of inspiration for a considerable amount of time now, but we sometimes forget that robots are not merely a product of our imagination about the far away future, but a real and quite substantial part of our lives.

At the end of October, an associate professor from the School of Creative Science and Engineering, Hiroyuki Ishii, came to WISH to open a window into the world of real robotics and allowed us to take a glimpse at its current achievements and role in modern society. Also, he specifically talked about development of robots in Waseda University, which, as you must have already guessed, has considerably flourished since its onset.

Now, robotics' primary purpose is making mechanisms which can get a job done. Yes, it is that simple. Unless it is not. Robotics is an interdisciplinary field which encompasses mechanical engineering, electronic engineering, computer science, even bioscience, and who knows how many other subjects. To make a workable robot one needs to solve number of problems in multitude of distinct fields, from writing a code to designing its physical modules, missing



out of even a single one of which could sabotage the whole endeavor. Robots are required to do things which humans cannot do, and to do them much more efficiently. Either of tasks is tremendously difficult to achieve and requires extensive research and designing. Throw into the mix that there are some robots which are meant to work autonomously, without human intervention, or even those that must have a capacity to make their own decisions, and you will begin to understand how challenging the act of making robots is.

Still, there are people who are not afraid of a challenge. Did you know that Waseda University played a very special role in development of robotics? In fact, the world's very first full-scale humanoid robot was developed in Waseda University in 1972 by a team lead by the most celebrated roboticist in Japanese history – Ichiro Kato and was called WABOT-1.



It was an anthropomorphic intelligent robot with the calculated mental capacity of a 1.5 year old child and was developed to be as close to a human being as possible: it could communicate with a person through artificial mouth, measure distances and analyze its surroundings through artificial ears and eyes, walk with his feet and feel and grab objects with its hands – everything you would expect your average Terminator to do; except, maybe, travelling to the past to kill Sarah Connors (mainly because the “past” from Terminator hadn’t even begun yet). It was revolutionary for its time and you can still find it and its younger brother – the pianist WABOT-2 displayed in Building 63 at the Nishi-Waseda Campus.

But Waseda University didn’t end its work with robots at this stage, says professor Ishii, who also takes part in this work. There are many more projects currently under development. For example, there are small rovers designed to penetrate deep into mountains and forests regardless of the complex terrain to monitor environment, or a much bigger “robo-octopus” with several manipulators which can accomplish multiple tasks simultaneously and which is potentially usable at rescue operations, or even small “robo-worms” which can access places beyond our reach, in pipes deep underground, for instance. Most notably, professor Ishii described a mouse-like robot, which was created

in such a fashion that its actions emulated the behavior of real mice. After a series of trials and errors, calculations, hypotheses, programming and more trials and errors, developers were able to make real mice believe that the robot was a real deal and play with it as with one of its own. This last example not only shows the process of development of a robot, but also shows that knowledge in bioscience plays a special role in the task of creating productive robots, notes professor Ishii. According to him, nature has lots of useful things already figured out and many advances in the field of robotics were inspired by it.

After that, professor Ishii caught the audience off guard by suddenly asking them to become inventors for a moment and think of any kind of robot they would like to have in real life and describe it to everyone, no matter how ridiculous the idea could be. The task of coming up with new robots was surprisingly difficult and it took 10 minutes of brainstorming in groups to come up with some remotely original ideas. The proposals were delightfully silly and numerous: from medical nanobots to a robot designed to specifically pull up your pants in the morning. Female students were especially fiery-eyed when hearing about a robot which would put on makeup for them. After hearing about all these ideas, many of which were downright jokes and obviously undoable, professor Ishii just smiled and gave what I think was among the most valuable pieces of advice I ever heard: “Now what is left is the easier part – to DO it.”

At that moment, it hit me hard. Honestly, the words “Just do it” themselves are not so unique and are rather mediocre. However, the context here was really important. After thinking about something that doesn’t exist for a brief moment, we were told that it will exist if we make it exist. It makes you realize that all that stands between the world you imagine and the real world is this one simple act of “doing it”. Maybe, this is the spirit of robotics, the study which makes dreams come true.



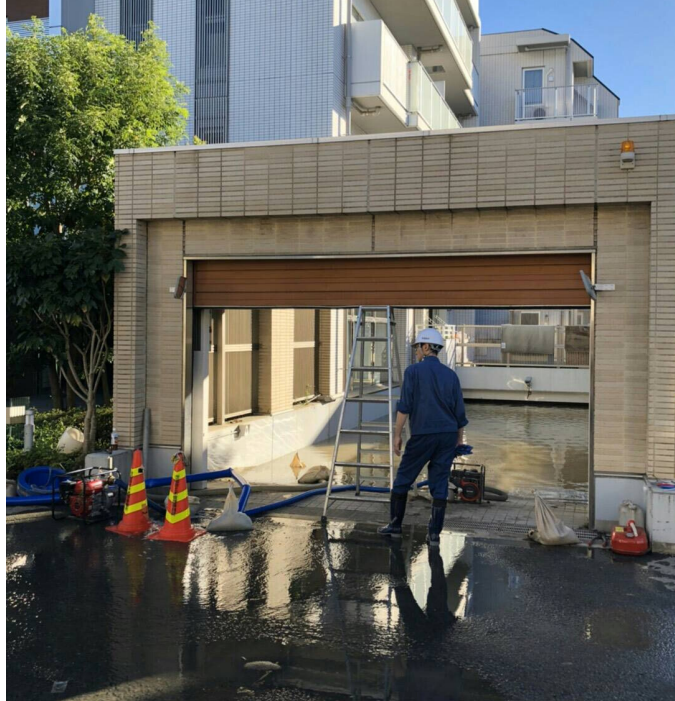
# DISASTERS IN JAPAN

By Shin Shirakami

Translated by Moeka Tsuji

Have you ever prepared for any disasters? Typhoon Hagibis hit Japan in early October 2019. I wrote this article as a lesson for the future disasters after experiencing the typhoon.

At the peak of the typhoon, I was safe staying in WISH, so I was not exposed to any danger. My family, however, had a hard time at my hometown. Many rivers in Tokyo were flooded because of the typhoon. Tamagawa River was one of them. My hometown is just in front of the Tamagawa River, and my family had to evacuate to a local secondary school after hearing the official evacuation advisory. Fortunately, there was no major damage to my house, but my friends' houses and many places where I used to go frequently were flooded heavily. The images below show the pavement of my house and the underground that was destroyed. The typhoon ruined our peaceful life and I thus learned about the ferocity of nature.



When I witnessed the actual disaster, I was terrified by the infinite uncertainties about the safety of my family and my household, and about how long the disaster would last. In order to relieve such negative thoughts, it is important to be prepared beforehand. I recommend that you always carry an “emergency bag”. Prepare a bag that includes some disaster prevention goods such as heat insulation sheets, mobile batteries, portable food like candies and jelly drinks in advance. If you bring along this bag with your regular bag, you will be able to cope with the disaster anytime. My family who evacuated during this typhoon were greatly aided by this in-advance preparation as well.

During an emergency, you must protect yourself. At that time, the kind of preparations you usually make, and your thoughts will be reflected. Japan is considered a “disastrous country”. Although it is not a pleasant experience to have many disasters, there are many lessons that can be learned because it is such a country. In my opinion, thinking about how to face disasters while living our daily lives is an opportunity for learning. Not only to those people who have lived in Japan since they were young, but everyone who wishes to start a new life in Japan should have various and up to date notions about disasters.

# Choosing How to Think



Misato

Life is a series of choices. For example, we have the choice of what to buy, talk or eat. Sometimes we may have regrets but eventually we get over it for things we have decided ourselves. Then, what about things that have already been decided or the choices that have been made by others? These “uncontrollable” things are difficult to change by oneself, and tend to be negatively recognized as being determined unilaterally by external factors. However, when I started college life, I realized that it is important to have a positive way of thinking, even when the situation is against my own wishes. I personally believe thinking positively about anything will have a big impact on your future life.

It is difficult to define “positive thinking”, but in this case I would say it means to “open your mind”. This means having a wide field of view rather than a narrow viewpoint based on your own uncertain assumptions. For example, for unavoidable things which make you feel like, “This will go badly” or “I don't want to do this”, instead try thinking “What will this lead me to?” Depending on your way of thinking, your view of “uncontrollable” things may change.

You are bound to face many “uncontrollable” events in life, all of which are inevitably occurring with their own connections and meanings. Although these events cannot always be changed intentionally, at the end they are likely to have a positive influence on your life, because everything happens for a reason. It is up to you whether you notice this and whether you take this process negatively or incorporate a “positive way of thinking”.

Now, what I have said may be unrealistic and I do not know if it is the right thought process for everyone. I don't mean to say that you have to think this way or that you should force yourself to think positively when you really are going through a hard time. But, this is what I have realized in past two months since I entered university. When I don't know how to react to certain things happening to me, I simply don't wish to indulge in negativity. Therefore, I will continue to take “positive way of thinking” when making decisions in my life. I hope this article would give you an opportunity to think about your way of thinking as well.

