

March 7, 2019

## Instructions of IRH 2019 Study Report

### 1. Procedure of the study report

The study report is an educational program to learn fundamental robotics and robot design philosophy that must be optimized for the purposes and applied environments.

Procedure of this study report is as follows.

1) Theme selection:

Please select one theme for your study from four themes shown in section 3.

Please reply your selection of the study theme to **secretary@rsj.or.jp** by Friday, November 15, 2019.

2) Preliminary study:

Please complete main part of your study report before IRH2019.

3) Onsite Survey:

Please investigate real robot technologies concerning your study theme at International Robot Exhibition (iREX) 2019 site on the Day One of IRH2019.

4) Guide Line for Summarizing Your Study:

Please summarize your preliminary study and survey on site with considering following points.

a) Please consider following three points for your study and presentation.

These points will be evaluated in the selection of the Best Study Report Award.

I) Preliminary study based on your selected theme

II) Survey at the iREX 2019

III) Discussion on new knowledge that you could get from comparing the result of I) and II)

b) In the step of I), please survey and analyze conventional status corresponding to the selected theme.

c) In the step of II), please find out what is new and changed with respect to the conventional technology or the way of using the robot found in the preliminary study.

d) In the final step of III), please consider the new knowledge, and state how the robot technology development is progressing or how the using of robots is changing.

e) Moreover, please state your opinion that you got from this study.

How current robotics must be improved, how robot systems will be changed by the new robotics, and how our society will be changed by the new robots.

Hint :

For a description of the changing the society, there is a way to discuss changes in the views of the site, the ways how people works, changes in lifestyle, changes in the common sense.

Sample:

Now, we got new actuators that can react flexibly against disturbance force and new control technologies that can control the flexible actuators stably and precisely, we will be able to build up very safety robots against contact between human and robot using the new robotics, and we will be able to realize safety and efficiency collaboration works between human and robot.

5) Presentation:

Please present your study on the Day Two.

6) Awarding:

Excellent studies will be honored in the awards ceremony.

## **2. Conditions**

1) Unit of study and presentation:

Each school can present just one study report.

2) Presentation time limit:

Presentation time will be from 10 to 15 minutes. Please consider amount of presentation material to keep time limit. We will decide final presentation time based on participation conditions and inform you the final presentation time in end of November.

3) Presentation material:

- Please make the presentation material using “Power Point”.
- Number of pages is free, however, please consider keeping the presentation time limit.
- Evaluation of the award will place importance on clarity and comprehensibility of your presentation. Please describe your material by simple phrase and use large font. Moreover, please make your material easy to understand using effective pictures and photos.
- Format of the presentation materials are followings.

+ First title page:

- Group (your group number that will give your team after closing application)
- Name of your school
- ○Name of speaker, name of other study members, teacher’s name

- Study theme number selected by your school
- + Body
- Number of pages is free.
  - Construction of the presentation is free. However, please be sure to clearly show the following items I), II), and III) . Especially, II) and III) are an important part of this research and please explain fully these parts.
    - I) Current status found by preliminary study and survey
    - II) Result of survey at iREX
    - III) Discussion on new knowledge that you could get from comparing the result of I) and II)
- 4) Language of the presentation:
- Language of the presentation and its material is English. We will prepare a simultaneous interpreter service between English and Japanese for the presentation.
- 5) Uploading the presentation data:
- We would be grateful if you could approve our publication of presentation data on the official web site of IRH2019 after IRH2019.
- If it is difficult to publish your all or part of presentation data, please consult us.
- 6) Survey at IRH2019 site:
- Time zone of survey at the site is from 10:00 to 17:00 on the Day One. We will prepare a photo license card for your survey at the site. Please ask booth staffs before taking picture of robots.
- 7) Working space:
- You will be able to use the conference room 605 and 606 until 19:00 on the Day One as your working space to finish your presentation material.
- 8) PCs for presentation and working, digital cameras for survey:
- Please prepare own working and presentation PCs for each school. If your PC doesn't have a VGA terminal, please prepare some signal converting cable for to connect a VGA terminal, because an input terminal type of a projector for presentation will be only VGA.
- Please prepare digital cameras that are used for survey at IREX 2017 for each school . We will prepare a monochrome A4 printer and a PC for printing in the conference room 605 and 606 for your working support.
- 9) Check of projection before the presentation:
- Please check connection between your PC and a projector whose input terminal type is VGA at the meeting room on the Day One.

### 3. Selection of study theme

#### **Theme 1: Advances in technology of industrial robots for manufacturing use**

Please survey what is new and advanced with respect to conventional technology.

#### **Theme 2: Changes in how industrial robots are used**

Please survey what is new ways of using with respect to conventional methods of use.

For example, recently, robots that handle food, robots that work in coexistence with people are attracting attention.

#### **Theme 3: Advances in technology of non-industrial robots**

Please survey what is new and advanced with respect to conventional technology.

#### **Theme 4: New business and market using non-industrial robots**

Currently, most robots on business are industrial robots used for manufacturing. On the other hand, most non-industrial robots are on developing stage, and aren't on actual business and their market is small.

Please survey the new robot business project proposed in this exhibition.

If they aren't already on the path of commercialization, please survey their future business concept and market.

#### **< Annotation >**

- The industrial robots referred in the theme 1 and 2 are robots used for automating the manufacturing industry and mean various manipulators, in-plant transport systems, chip mounters, etc.
- The non-industrial robots referred in the theme 3 and 4 mean robots used in industries other than manufacturing industries, including many fields such as logistics, nursing care, cleaning, information service, home use, and so on. In survey, please arbitrarily select a field where robots are utilized.
- In the theme 1 and 3, please arbitrarily select a view point for evaluating technology advancement.

For example, there are the following.

- Construction of robot
- Function of robot
- Motion performance of robot
- Sensor technology

- Mechanical elements (actuator, reducer, mechanism, material, system)
- Control technology (including intelligent control etc.)
- Technology for using robots (safety technology and system integration technology)
- System design including robots and its working environment