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（For JSPS Fellow）

Form B-5

Date（日付）
9/9/2016 （Date/Month/Year：日/月/年）

Activity Report -Science Dialogue Program-
（サイエンス・ダイアログ事業　実施報告書）

- Fellow's name（講師氏名）: DIVESH KANU LALA （ID No. P15049 ）

- Participating school（学校名）: Tezukayama Junior and Senior High School

- Date （実施日時）: 7/9/2016 （Date/Month/Year:日/月/年）

- Lecture title（講演題目）: Making robots act like people

人間のようなロボットの作り方

- Lecture summary（講演概要）: Please summary your lecture 200-500 words.

I started by introducing myself and a little bit about my home country New Zealand. Then I gave an overview of the types of robots that researchers have built up until now. We can see that many robots are humanoid and this is important for social behavior with humans.

I then described androids, which are robots which look very close to humans. Some examples are robots by the famous professor Hiroshi Ishiguro. Although androids look realisitic, their behavior is not so real so my job is to make them behave in a natural way. I then show the android we have in our lab, named ERICA. She can control her face, upper body and head. She can also speak Japanese using a generated voice, so we do not need to use recorded voices for her.

There are three main things to do when making ERICA act like a human. She has to be able to hear people, see people and behave. For hearing people, I explained how a human voice can be converted into a digital sound signal which can be split up into separate sounds. This means that a computer can read the sound signal and know what we are saying. For seeing people, I showed the students the Kinect camera and how it can track people's bodies. This acts as the eyes of ERICA.

To make ERICA behave, there are many things to consider. Firstly, I explained how we use natural language processing to make ERICA understand what the human is saying, although this is still very difficult. There are also other behaviors ERICA should react to, such as smiling or displaying interest. ERICA also has to use backchanneling and gaze behavior to make her more realistic.

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I then conducted a demonstration which involved me talking with a virtual ERICA, by using a handheld microphone and the Kinect. I demonstrated that the system could recognize my voice and see my actions.

The remainder of the lecture was explaining my life in the lab – some activities which I do every day. Then I concluded by reommending what students should consider if they want to work in the field of robotics.

- Language used（使用言語）: English

- Lecture format（講演形式）:

◆Lecture time（講演時間） 45 min（分）, Q&A time（質疑応答時間） 10 min（分）

◆Lecture style（ex.: used projector, conducted experiments）
（講演方法（例:プロジェクター使用による講演、実験・実習の有無など））
Presentation using projector, short demonstration of technology

◆Interpretation（ex.: assistance by accompanied person, provided Japanese explanation by yourself）（通訳（例:同行者によるサポート、講師本人による日本語説明））
Assistance by accompanied person

◆Name and title of accompanied person（同行者 職・氏名）
Mr. Koji Inoue, Kyoto University Graduate School of Informatics, Doctoral candidate

◆Other note worthy information（その他特筆すべき事項）:

- Impressions and opinions from accompanied person（同行者の方から、本事業に対する意見・感想等がありましたら、お願いいたします。）:

高校生から多くの質問が寄せられ，また多くが英語で質問をしていました.
高校生の非常に高い意欲を感じました.
高校生にとっては科学について英語で触れる良い機会だと思います.
また発表者（研究者）は，高校生でもわかるように丁寧かつ簡単な英語で説明をするように工夫するなど，アウトリーチ活動を充実させるためのスキルを身につける良い機会だと思います.