

Form B-2
(FY2022)
Must be typed

Date (日付)

(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): Benjamin Fortune (ID No. P21781)

- Name and title of the lecture assistant (講義補助者の職・氏名)

- Participating school (学校名): Hyogo Prefectural Kawanishi Midoridai Senior High School

- Date (実施日時): 13/07/2022 (Date/Month/Year: 日/月/年)

- Lecture title (講義題目): Reducing Electrical Noise in Signals Recorded from Humans

- Lecture format (講義形式):

◆ Onsite ・ Online (Please choose one.)(対面 ・ オンライン(どちらか選択ください。))

◆ Lecture time (講義時間) 50 min (分), Q&A time (質疑応答時間) 15 min (分)

◆ Lecture style (ex.: used projector, conducted experiments)

(講義方法 (例: プロジェクター使用による講義、実験・実習の有無など))

Used projector

- Lecture summary (講義概要): Please summarize your lecture within 200-500 words.

The lecture was broken into two main sections: my home country (New Zealand) and my PhD research. To begin with, I talked about New Zealand, comparing the area of New Zealand and Japan, and the difference in population and temperature. New Zealand is a similar size to Japan, but the population of New Zealand is far smaller. Continuing on with background information about New Zealand, I introduced common activities performed in New Zealand, this included: mountain biking, snowboarding, hiking, camping and spending time at New Zealand's amazing beaches and lakes. After an introduction about New Zealand, I presented background information about myself and how I got into engineering, describing my initial move into automotive, then studying Mechatronics Engineering at the University of Canterbury, followed by completing a PhD in Biomedical Engineering, before working at Taska Prosthetics, then moving to Japan to do research at Osaka University.

After providing background about New Zealand and myself, I presented information about my PhD research, reducing electrical noise in signals recorded from humans. An introduction to stroke, assistive robotics and electromyography (EMG – the method of recording contracting muscle signals from the human body) was presented. In addition, the issues with recording

signals on the human body was presented. I then presented my methods for mitigating these issues, which involved measuring the impedance of the electrode-skin interface and applying a compensatory method to reduce electrical interference in these recordings. I showed figures of multiple results to help aid the student's understanding, and also images of the hardware I had developed during my PhD. To assist non-native English speakers in understanding my research, I used simpler terms, and spoke slowly. At the end of my lecture there was a Q&A session. I asked the students a couple of questions and also received a few questions from the students, which highlighted their interest and understanding of my lecture.

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

- Impressions and comments from the lecture assistant (講義補助者の方から、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。):