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国籍: Nationality:	インドネシア Indonesia
日本留学時の滞在期間: Period of Stay During	2001年 10月 5日 ~ 2006年 4月 5日 Oct 5, 2001 - Apr 5, 2006
日本留学時の大学: Educational Background In Japan:	埼玉大学 大学院理工学研究科情報数理学専攻(博士後期課程) Saitama University
専攻分野: Major Field:	情報工学
現在の所属/職位: Present Institution / Status:	Andalas University / Senior Lecturer



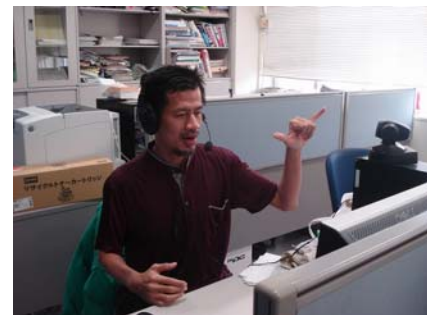
<研究報告 Follow up Reserch Fellowship>

受入研究者氏名: Research Adviser:	久野義徳教授 Professor Yoshinori Kuno
受入れ期間: Reserching Period:	2010年9月1日~2010年11月29日 Sep 1,2010 - Nov 29, 2010
研究課題: Theme of Research:	ロボット支援のための手話と言語を通じたヒューマンコンピュータインタラクション Human Computer Interaction through Sign Language and Verbal Cues

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■研究概要 Outline of Research

The proposed research is especially concerned with recognizing a subset of sign language gestures used for human robot interaction. Current robots may have limited knowledge about object names such as "apple", "orange", "ball" etc. They may know objects by their features. They learn all of object features by using a fuzzy system. When the user mentions an object name, the robot process this verbal information by using speech recognition based on Hidden Markov Models and the integral projection method. After the object name is declared, the user commands the robot (such as, "bring me", "put over there", "take", etc) through sign language, which is recognized by the Estimation of HMM Topology method.



音声認識実験の様子
 Speech processing experiment

■研究成果 Results of Research



音声と指文字の統合利用の実験
 Finger speling experiment

We first examined the performance of our voice recognition system by using 20 participants. Each participant pronounced object colors such as red, blue, green or orange three times. The system recognized the users' utterances with an accuracy of 90%. To command the robot, the user can use finger spelling as a simple sign language. We then examined this performance. The experimental result shows that the system can recognize 86% of total finger spellings. Errors occurred when the finger positions of two spelling symbols are adjacent. Instructions to the robot consist of two components: a target object part and an action part. We can use speech or gesture to specify these two components. Thus, we have four combinations to instruct the robot. Through careful consideration of pros and cons of input modes, we conclude that the best way is to use speech for a target object part and gesture for an action part.

■日本留学の思い出 Memories of Studying in Japan

At the first time I arrived, the host professor was very welcome and provided everything I needed in his laboratory. He had time to discuss about various problems I faced. I also communicated with Dr. Mayumi Bono who is an interpreter of sign language for deaf people.. Unfortunately, she was in pregnancy now therefore we discussed for a few times only. On October 14 and October 15, 2010 I visited Ritsumeikan University and Osaka University. In Ritsumeikan University, I met Professor Yoshiaki Shirai and his students. I learned about new recognition method for hand gesture called HMM Topology. In Osaka University, I discussed with Prof. Ishiguro about my research plan. I also visited the laboratories of Prof. Yagi, Prof. Asada and Prof. Hosoda. I got so much new experiences from those laboratories. I was served friendly and very well during my 2 days trip by the entire members of those laboratories. Greeting from the fellows in the host professor's laboratory was excellent. They were always helpful in every difficulty that I encountered. I really enjoyed my research activities in Japan. Ninety days have passed so fast. I h



アンドロイドロボットと
(大阪大学石黒研究室)
With android robot
(in Ishiguro's lab, Osaka University)



久野研究室のメンバーと
With Kuno's lab members



足跡認識のデモ(大阪大学八木研究室)
Footstep detection demonstration (in Yagi's
lab, Osaka University)