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FACULTY OF MEDIA AND
KNOWLEDGE SCIENCES

Cognitive Science Spring Seminars

26th and 27th March 2012

organized by the
Department of Cognitive Science
Faculty of Media and Knowledge Sciences

in collaboration with the
School of Knowledge Science
Japan Advanced Institute of Science and Technology

Program

Monday 26th March

14:00 *Sharing Tacit Knowledge: a Cognitive and Engineering Perspective*
Professor Tsutomu Fujinami

16:00 *Word learning in social interaction*
Professor Shohei Hidaka

Tuesday 27th March

14:00 *Evolutionary Viewpoint on Knowledge Science*
Professor Takashi Hashimoto

16:00 *Theoretical Aspect of SECI Model and Knowledge Management*
Professor Taketoshi Yoshida

Venue: IT Services Building – room to be announced.

Entrance is free but prior reservation should be made by sending an email to:
clive.zammit@um.edu.mt

Abstracts and Speaker bios

Monday 26th March 14:00 - Professor Tsutomu Fujinami

Sharing Tacit Knowledge: a Cognitive and Engineering Perspective

The notion of tacit knowledge implies that we may know more than we think we know or that we sometimes cannot explain our own knowledge fully. It is a surprise that one can do something very well and still not be able to explain how to do it reasonably well. This may be true for excellent drivers, great chefs, fascinating dancers, and experienced craftsmen. They have acquired their skills through long, hard, and intensive training supervised by their masters. Masters transfer their skills to their pupils, but how is this transfer possible if their knowledge cannot be explained with language? In this talk we will go through several examples of skills to identify essentials enabling dexterity and examine what makes it difficult to transfer them. We also discuss what technology may facilitate this process and how.

Tsutomu Fujinami studied Philosophy at Waseda University. He worked for Hitachi after graduation and was involved in projects related to Artificial Intelligence. He left the company to study Cognitive Science at Centre for Cognitive Science, University of Edinburgh, and was awarded a Ph.D. Thereafter he worked for the Institute of Computational Linguistics, University of Stuttgart, and joined the School of Knowledge Science, Japan Advanced Institute of Science and Technology in 1998. His research interests include Skill Science and assistive technology for dementia care.

Monday 26th March 16:00 - Professor Shohei Hidaka

Word learning in social interaction

Our learning is intrinsically active: a learner can implicitly or explicitly ask his/her teacher, and the teacher may or may not answer. In this social learning, dynamic coordination (e.g., attention and timing) between learner and teacher plays a crucial role in the success of learning. How do we solve this dynamic coordination problem? We have studied it in the context of children's naturalistic learning of novel words with their caregivers. In our experiment, a child and caregiver were asked to play with a set of unfamiliar toys which each have a novel name. During the toy play, their visual and motor behaviours were simultaneously recorded by sensor devices. Our analysis of the behavioural dynamics revealed informational network between child and caregiver - relatively large amount of information is exchanged while naming of novel words. The results suggest that parental naming coordinates social interaction in word learning contexts.

Shohei Hidaka studied Biology in Kyushu University where he received a B.A., and went on to study Informatics (Cognitive Science) in Kyoto University and received a Ph.D. He worked as a post-doctoral research fellow in Psychological and Brain Sciences, Indiana University in the US for two years and later joined the School of Knowledge Science, Japan Advanced Institute of Science and Technology in 2010. His research interests include cognitive development, machine learning, and time series analysis.

Tuesday 27th March 14:00 – Professor Takashi Hashimoto

Evolutionary Viewpoint of Knowledge Science

It is often said that our society in the 21st century is a knowledge society in which continuing to produce/create knowledge is the most important activity. In the School of Knowledge Science in JAIST, we develop people who will take active parts in the knowledge society through research on the analysis, design, and management of the processes of creation, sharing, and utilization of knowledge. In my group, we are carrying out research on language, communication, and social institutions which are relevant to creativity and sociality of humans from an evolutionary viewpoint. In our study, the evolutionary viewpoint is a perspective of knowledge science to clarify the relationship of language, communication, and institutions in knowledge creation, sharing and utilization by studying how they emerge and how they evolve. In this talk we introduce the evolutionary viewpoint and discuss its relevance to knowledge science by showing several examples of studies on evolutionary linguistics and evolutionary economics.

Takashi Hashimoto studied physics at Kobe University at undergraduate and masters level and went on to study complex systems at the University of Tokyo. He received his Ph.D. in 1996, studying constructive modelling of the evolution of grammar systems and the evolution of autocatalytic networks. He worked for the Brain Science Institute, RIKEN as a post-doctoral researcher from 1996 to 1999 and later joined the School of Knowledge Science, Japan Advanced Institute of Science and Technology (JAIST) as an associate professor, and was promoted to a professor in 2009. Professor Hashimoto spent a year as a visiting researcher at the Language Evolution and Computation Research Unit, University of Edinburgh in 2001-2002. His research interests are the dynamics of language and communication, and the formation and design of social institutions. He studies them from the viewpoint of complex and evolutionary systems.

Tuesday 27th March 16:00 – Professor Taketoshi Yoshida

Theoretical Aspect of the SECI Model and Knowledge Management

Organizational knowledge-creating processes rely on tacit abilities of knowing and the creativity of organization members. This talk proposes the use of a systems methodology for cultivating and spreading such abilities among an organization. For this purpose, the SECI model of organizational knowledge-creating processes is outlined, and then the soft systems methodology is compared with the SECI model, and is updated accordingly. An application process for this systems methodology is presented, which can be formally seen as an organizational knowledge-creating process. Finally, it is shown that this kind of systems methodology may be utilized for spreading the tacit abilities of talented persons to other organization members.

Taketoshi, Yoshida received his B.E. in 1979 and M.E. in 1981, both from the Department of Mechanical Engineering at Kogakuin University, and a Ph.D. in 1984 from the Department of Systems Engineering at Case Western Reserve University, USA. After working for IBM Japan, he joined the School of Knowledge Science at Japan Advanced Institute of Science and Technology in 1997 where he is now a professor.