

SESSION 10: GOVERNMENT PANEL

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ABSTRACT

The Workshop included an extended group of presentations by selected US government agencies and an invited guest from the European Community. These presentations, amplified in the following pages, indicated the importance given to speech and natural language research and development, and the approach of each agency to adapt their philosophy and activities to those aspects which they considered most important to their charter. Reactions from the audience were taken within the time allocated to the presentations.

SUMMARY STATEMENTS

The first presentation was by Calvin Olano of the Department of Defense, where he has been involved over the years in the development and acquisition of spoken language systems. His remarks, while mostly oriented to the ARPA spoken language research efforts, were broadly applicable to other human language technology programs. His presentation emphasized the advantages of tuning the system design to take advantage of the characteristics of the task at hand. He envisioned not only imposing the statistical and architectural constraints of the specific task but also including higher level semantic constraints in specific systems. He proposed an "infinite data" paradigm in which vocabulary limitations on recognition were lifted. Comments from the audience included the need to have general systems and algorithms that did not suffer from task-imposed constraints in their effectiveness.

The second presentation was about the research underway at the Naval Research Laboratory. The speaker was Dr. Helen Gigley, Head of the Human Computer Interaction (HCI) Laboratory at NRL, who covered not only the human language technology (HLT)

research and development in their HCI laboratory but also work at the Navy Center for Applied Research in Artificial Intelligence (NCARAI), both groups housed within the Information Technology Division of NRL. In particular, video-taped demonstrations were shown and the evaluation processes in their investigations of narrow-band speech and multimodal communication were explained, as well as the work on spoken language and graphics interaction at NCARAI. Questions and answers addressed the porting of ARPA supported HLT work (Sphinx II) to new platforms and new applications at NRL.

This presentation was followed by Dr. Melissa Holland of the U.S. Army Research Institute who described their work in the development of educational tools for the use of NLP techniques in the teaching and maintenance of language skills other than English, as driven by Army needs. The products of the exploratory development work are sufficiently well-developed prototypes that they are used in language labs and evaluation research environments. Languages covered included German, Arabic and Spanish, often using tools developed in the ARPA Planning program such as the KB and discourse tracker, with a deliberate orientation towards dual use of the developed technology. The Q&A period included an exchange relating to the near future orientation and work done by the language program within the ARI.

The presentation by Dr. Y. T. Chien, Director of the Information, Robotics, and Intelligent Systems Division at NSF, focused on the National Information Infrastructure (NII) related committees in which he participates. Three areas were singled out: the Task Group which he, representing NSF, co-chairs with an ARPA representative on the new HPCC component called Information Infrastructure Technology and Applications (IITA); the work, co-chaired with NASA on Virtual Reality; and finally, the NII Technology Policy Group chaired by ARPA. All these groups

cover multimodal activities involving speech. In particular, Q&As addressed the NSF/ARPA initiative on HLT, which had just been awarded, and the broad range of aspects covered.

The final presentation was made by Dr. Nino Varile, Scientific Technical Manager of the Linguistic Research and Engineering (LRE) Programme of the European Union. The programme described involves application projects, tools and resources, standardization and applied research. Particular projects singled out were the development of a common software platform and consensus building approaches for encoding. Additionally, an international collaborative project with NSF to carry out a survey of the state-of-the-art in NLP and speech, was mentioned. Questions were related to the industrial collaborative orientation of the programme which was acknowledged by the speaker.

FINAL DISCUSSION

A lively discussion followed in which approaches to standardization, testing, and user input versus leadership by imaginative technology managers were contrasted, in particular with regards to the ARPA program and that of the European Union. After some interesting arguments it was agreed that, while looking at the needs of the users is a necessary part of the development process, the user is often not the best judge of the potential ways in which the technology to solve the user's problems can be applied to expanded benefits. Both sides of the Atlantic agreed that a combination of user input with enlightened technology leadership is the best approach and that rather similar approaches were used in both continents.