

SESSION 9: GOVERNMENT PANEL

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1. ABSTRACT

The purpose of the Government Panel session is to inform the research community about Human Language Technology research sponsored by the individual Government agencies that the panelists represent. The researchers gain a better understanding of the potential market beyond ARPA, for their research skills and product. Government agencies who may need what the researchers can offer benefit when the informed researchers contact the agencies. In the climate of declining Government funding for the Defense Department, the Session Chair noted that the contracts will be fewer and go to the contractors who are most knowledgeable about the research that is going on Government-wide and to those who are knowledgeable about how their skills and products can meet Government user needs. The Government Panel session was moved closer to the middle of the agenda this year to facilitate continued discussion among the panelists and other Government representatives present, with the research community, before the Workshop ended.

2. PANEL STATEMENTS

Dr. Helen Gigley, Head of the Human-Computer Interaction Laboratory at the Naval Research Laboratory, Washington, D.C., described Government-wide Human Language Technology needs and the role of researchers in meeting them. She specifically addressed Government Human Language Technology in terms of business uses and needs, military uses, and education/training needs. She pointed out that introducing technology does not necessarily increase effectiveness, arguing that we need to consider the impact of adopting technology before rather than after it is put in place. She cited the military need of real time and accurate speech processing performance and the lack of military commanders' trust of technology that might contain or produce errors. Lastly, she argued that researchers need to consider their contribution not only as a basic scientific result but as a result within society having social and moral implications.

Dr. Joseph Kielman, Chief Scientist at the Federal Bureau of Investigation (FBI), Washington, D.C., indicated that in the past the FBI had focussed significant resources on the intercept of spoken language and written text, with the first

priority being to increase the efficiency or effectiveness of collection and distribution of data. He reported, however, that the situation was changing, identifying the following Human Language Technology capabilities to be of current interest to the FBI: 1) speech detection, 2) speaker and language recognition, 3) speech understanding, 4) text understanding and 5) machine translation. He reported that these technologies would be used to process language data in the domains of counter intelligence, terrorism and white collar crime, by FBI's personnel at headquarters, four regional data centers, 56 field offices, 400 resident agencies, permanent monitoring plants and temporary lookouts.

Dr. Susan Chipman, a Program Manager at the Office of Naval Research (ONR) in Arlington, Virginia, described the Cognitive Science Program research sponsored by ONR. She defined the ONR mission as one of improving naval training for its personnel. Two clusters of language-related research currently underway include tutorial discourse and improving the readability of instructional texts and documentation. She attributed the interest in emulating the effectiveness of human tutors with artificially intelligent computerized instructional systems, to the reported effectiveness of one-on-one tutorial instruction by human tutors. The need to improve text readability stems from the fact that the military services and their contractors produce enormous amounts of text, system documentation and training materials for the personnel who will operate and maintain those systems, and which must be readable and comprehensible by ONR personnel.

Dr. Jesse Fussell, Chief of the Communications Sciences Division, at the Department of Defense, Fort Meade, Maryland, identified both technical and nontechnical problems in technology transfer as well as making recommendations to the research community about how to stimulate the technology transfer process. He believes that insufficient study of the process of converting an algorithm from one domain, that is supported by a well defined and documented corpus, to a different operational domain, which may have little or no pre-marked training or testing data, is a technical problem that researchers still need to overcome. Nontechnical problems he believes still need to be overcome to achieve technology transfer include the researcher's lack of under-

standing of the customer's needs and operating procedures. He challenged the researchers to broaden their research efforts by producing prototype systems for extended evaluation in an operational setting.

Dr. Y. T. Chien, Director of the Information, Robotics and Intelligent Systems Division, at the National Science Foundation (NSF), Washington, D.C., defined NSF's mission as that of maintaining the health of the U.S. science and technology base. He contrasted NSF with ARPA, saying that NSF supports more and smaller projects, resulting in NSF being more broad-based than ARPA. He discussed the Clinton administration's technology policies, particularly the creation of a national information infrastructure which he noted will create societal needs in knowledge intensive activities. He encouraged researchers to add value to this national information infrastructure. He also encouraged them to act like researchers in the larger sciences and to define an aggressive research agenda for Human Language Technology.

3. AUDIENCE REACTIONS

The first question was if any of the panelists knew whether the Clinton administration planned to invest as much money in advanced technologies as has been invested by large companies in the past. Jess Fussell responded that only 7% of DoD's research and development budget was for research, in contrast to 93% for development. He said it was necessary for researchers to convince the developers that research is worthwhile. Joe Kielman stated that the FBI's budget had little research and development money but that he felt that by cooperation and collaboration among Government agencies, a worthwhile Government research effort could be continued. A Government representative in the audience from the National Institute of Standards and Technology (NIST) stated that the Department of Commerce may receive funding for high risk-high payoff "opportunistic" research.

One of the foreign visitors responded by stating she believed it was a government's responsibility to market technological research results. A discussion then ensued regarding the cost of deploying technology in the form of a product in the workplace. One researcher stated that technology could be sold more successfully to the Government if it were presented in the form of a visionary idea. Another researcher defined the customer as the person that can convince someone to take a risk and can provide the researchers access to real problems. In response to this latter comment, Joe Kielman responded that management is often loathe to take a risk without seeing a demonstration capability first.

The discussion then turned to an inquiry about collaboration between U.S. and foreign researchers in performing Human Language Technology research with a pedagogical emphasis. Y.T. Chien responded that based on his experi-

ence at NSF, there were many occasions when researchers declined to participate in an international exchange because they did not want to take a year off from their present endeavors.

The discussion period ended with a researcher's observation that the research community did not have access to real problems, and thus he called for better communication between researchers and users. Another researcher responded by citing the "dual use" principle advocated by the Clinton administration, as a way for researchers to lower the cost of technology transfer and to open the door for better researcher - user communication.