WORKSHOP PROGRAMME

IMMI-1

First International Workshop on Intelligence and Multimodality in Multimedia Interfaces: Research and Applications

Human Communication Research Centre
and
EdCAAD, Dept. of Architecture
University of Edinburgh
Edinburgh, Scotland
Thursday 13th – Friday 14th July 1995

Arranged on behalf of:

UK Dept. of Trade and Industry (DTI) Intelligent Systems Integration Programme:
Special Interest Group on Intelligent Interfaces (IISIG)

In cooperation with the AAAI

and in association with The HCI Group (a specialist group of the BCS)

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Programme Summary

Thursday 13th July 1995

0900-0930	Registration & Coffee
0930-1100	Session 1: Language and Learning
1100-1130	Break
1130-1300	Session 2: Speech and Retrieval
1300-1400	Lunch
1400-1530	Session 3: Intelligence in Presentation
1530-1600	Break
1600-1730	Session 4: Software and Interaction Design

Friday 14th July 1995

0900-0930	Coffee
0930-1100	Session 5: The Relevance of Formal Theory
1100-1130	Break
1130-1300	Session 6: Cognitive Design and Evaluation 1
1300-1400	Lunch
1400-1530	Session 7: Cognitive Design and Evaluation 2
1530-1600	Break
1600- 1630	Wrap-up session

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Programme Details

The intention is that in each session there are about four presentations, which should be short and focussed on issues that it would be useful to discuss. Some suggestions for issues are given below. In assigning papers to the session groups, there is the inevitable difficulty that many (or even most) of the papers would fit into more than one group. However, since all the sessions are plenary, there is plenty of scope for people to involve themselves in discussion wherever they have a contribution to make. Each session is 90 mins, where the idea is that presentations should take up 40-60 minutes – no more than that, i.e. 10-15 mins each – allowing at least 30 mins for discussion. In the few cases where papers have been accepted but the author is unable to attend the workshop, the papers will be in any case included in the pre-proceedings to inform discussion in the relevant sessions (such cases are denoted below by an asterisk [*]).

Session 1: Language and Learning

The papers in this group begin with Natural Language based multimodal interfaces, then shift topic via explanation to multimedia in learning. Pursuit of the relation between language and other information resources will be a common theme through many of the sessions.

- Reference interpretation in a multimodal environment combining speech and gesture
  Nadia Bellalem & Laurent Romary
  CRIN-CNRS & INRIA Lorraine, France.

- Producing coordinated natural language and graphical explanations in the context of a geometric problem-solving task
  Sergio Santana & Luis A Pineda
  IIE, Cuernavaca, Mexico.

- Natural language interaction as a vehicle for learning in a hypermedia environment
  Gavin Long, Mark Edwards, Heather Powell, & Dominic Palmer-Brown.
  Nottingham Trent University, England, UK.

- Providing educational resources through the internet
  Arthur C Huntley
  University of California, Davis, CA, USA.

- Dimensions of learner control: A reappraisal of interactive multimedia instruction.
  R Sims & J Hedberg
  University of Technology, Sydney & University of Wollongong, Australia.

Session 2: Speech and Retrieval

This group has considerable overlap of interest with the previous one, but here a major topic is the relative merits of language and other means for describing information one wishes to retrieve from database systems, as well as wider usability issues for speech interfaces.

- Oral and gestural activities of the users in the GEORAL system
  J Siroux, M Guyomard, Multon, & C Remondeau
  IUT-IRISA, Lannion, France.

- Applying a cognitive model of the user to the design of a multimodal speech interface
  John Dowell, Yael Shmueli & Ian Salter
  University College, London, UK.

- Video mail retrieval by voice: Towards intelligent retrieval and browsing of multimedia documents
  J T Foote, M G Brown, G J F Jones, K Sparck Jones, & S J Young
  Cambridge University & Olivetti Research Ltd. Cambridge, UK.

- Structuring indexes for video clips
  Eric A Domeshek & Andrew S Gordon
  Northwestern University, Evanston, IL, USA.

Session 3: Intelligence in Multimodal Presentation

Various kinds of rules, guidelines and strategies have been proposed for deciding how to present information, making the best use of multimodal options. This session opens the issues (which will also recur later) of how to define good theory in this area, and then how to relate it to practical approaches to the problem.

- Rule-based multimodal interface design
  Niels Ole Bernsen
  Roskilde University, Denmark.

- Media/Modalities allocation in intelligent multimedia user interfaces: Towards a theory of media and modalities

Charalampos Karagiannidis, Adamantios Koumpis & Constantine Stephanidis
Foundation for Research & Technology, Crete, Greece.

- Intent-based layout in interactive multimedia communication.
  Winfried H Graf
  German Research Center for AI (DFKI), Saarbruecken, Germany.

- Intelligent presentation of information retrieved from heterogeneous multimedia databases
  M Harel, A Doubleday, I Bennett & M Ryan
  City University, London, UK.

Session 4: Software and Interaction Design Techniques

- Multimodal systems demand innovative approaches in terms both of software architectures and of interactive techniques and devices. The papers in this session all address some of the technical problems and possibilities that arise.

- Multifeature systems: From HCI properties to software design
  Laurence Nigay & Joelle Coutaz
  LGI-IMAG, Grenoble, France.

- M: An architecture of integrated agents
  Doug Riecken
  AT&T Bell Laboratories, Holmdel, NJ, USA.

- Toward engineering for multimodal interactive systems
  Hans-W Gellersen
  University of Karlsruhe, Germany.

- Expectation-based user interaction
  F L Engel & Reinder Haakma
  Philips Research Laboratories, New York, USA.

Session 5: The Relevance of Formal Theory

Those who use, and even many of those who create multimodal systems, are often unaware of the formal techniques that can be applied to deepen our understanding of how representation works, how it can support reasoning, etc. A natural topic for discussion in this session is what these techniques can contribute to practical system dvelopment.

- Architectures for heterogeneous reasoning
  Dave Barker-Plummer & Mark Greaves
  Stanford University, USA.

- Reasoning on multimodal interactive systems
  Fabio Paterno & Menica Mezzanotte
  CNUCE-CNR, Pisa, Italy.

- Minimal sorts for interpreting pictures
  Henk Zeevat & Dejuan Wang
  University of Amsterdam, Netherlands.

- Sublanguages in text and graphics
  Ehud Reiter
  CoGenTex Inc, Ithaca, NY, USA.

Session 6: Cognitive Design and Evaluation 1

The final two sessions concentrate on various aspects of the application of cognitive theories to the design and/or evaluation of multimodal or multimedia systems. This is what is becoming known as "Cognitive Engineering", but a central discussion point is how much we can say clearly about the cognitive underpinnings of multimodal communication, and how this can help us with e.g. predicting usability, user modelling or task-oriented interaction in practical contexts. In this session, general considerations about diverse modalities are addressed.

- Graphs and sentences: distinguishing semantic from perceptual explanations of their usability
  Keith Stenning
  University of Edinburgh, Scotland, UK.

- Multimodal interfaces based on types and goals of cooperation between modalities
  Jean-Claude Martin & Dominique Beroule
  LIMSI-CNRS, France.

- The effect of interactive multimedia interfaces upon representation selection
  Richard Cox, Keith Stenning, & Jon Oberlander
  University of Edinburgh, Scotland, UK.

- Automatic composition of intention-based music for multimedia interfaces
  Detlev Zimmerman
  German Research Center for AI (DFKI), Saarbruecken, Germany.

Session 7: Cognitive Design and Evaluation 2

The issues of the previous session are taken up again with particular attention to evaluation, user-modelling and hypertext.

- Evaluating multimedia presentations
  Peter Faraday & Alistair Sutcliffe
  City University, London, UK.

- External Cognition as an alternative framework for evaluating single, multi and virtual media
  Yvonne Rogers & Mike Scaife
  University of Sussex, Brighton, UK.

- A glass box intelligent help interface
  Kristina Hook, Jussi Karlgren & Annika Waern
  SICS, Sweden.

- Intelligent support for navigation in hypermedia: discourse structure and the Web
  Robert Inder, Jon Oberlander & Richard Tobin
  University of Edinburgh, Scotland, UK.

- Towards the generation of hypermedia structure
  Lynda Hardman & Dick C A Bulterman
  CWI, Amsterdam, Netherlands.

For registration forms, details of accommodation, or any additional information, contact:

John Lee
Human Communication Research Centre
University of Edinburgh
2 Buccleuch Place
Edinburgh EH8 9LW
Scotland, UK.

Email: J.Lee@ed.ac.uk
Tel: +44 131 650 4420
Fax: +44 131 650 4587