



**CLASS Natural and Multimodal Interactivity
Deliverable D1.4**

**Workshops on
natural and multimodal interactivity**

2001-2002

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Introduction

This document contains material on CLASS workshops on natural interactivity and multimodality.

ISLE/CLASS workshop on natural interactivity and multimodal data resources, coding schemes and annotation tools

This workshop which was open to CLASS related projects, was held on 19-20 April 2001 in Stuttgart, Germany.

Agenda for the ISLE workshop 19-20 April 2001

Venue: Waldhotel Degerloch, Stuttgart.

Thursday 19 April 2001

9:30-9:45 Welcome and introduction (NISLab).

9:45-12:30 Natural interactivity and multimodal (NIMM) data resources

9:45-10:00 Facial expression and speech resources (NISLab).

10:00-10:45 Gesture and speech resources (LIMSI).

10:45-11:15 Break

11:15-12:30 Discussion of user needs, markets, guidelines for NIMM data resources, and standardisation issues.

12:30-14:00 Lunch

14:00-17:30 NIMM coding schemes

14:00-14:45 Facial expression coding schemes (UROME).

14:45-15:30 Gesture coding schemes (gesture group).

15:30-16:00 Break

16:00-17:30 Discussion of user needs, best practice and standardisation issues.

19:00 Dinner

Friday 20 April 2001

9:30-12:30 NIMM annotation tools

9:30-10:00 WInPitch Corpus, a tool for text alignment and acoustic analysis of large speech corpora (Philippe Martin and Massimo Moneglia)

10:00-10:45 Presentation of annotation tools reviewed in ISLE (NISLab plus other D11.1 participants)

10:45-11:15 Break

11:15-12:30 Discussion of NIMM annotation tools: user needs, requirements, and best practice

12:30-14:00 Lunch

14:00-15:30 Metadata issues (group discussion)

15:30-16:00 Planning ahead

16:00 End of workshop

Presentations from the workshop are available at <http://isle.nis.sdu.dk/>

CLASS Workshop on Information Presentation and Natural Multimodal Dialogue

This workshop was held in Verona on 15-16 December 2001 jointly with the i3p cluster and is reported in the CLASS deliverable D3.4.

CLASS workshop on Natural, Intelligent and Effective Interaction in Multimodal Dialogue Systems

Call for papers

Venue: Copenhagen, Denmark, 28-29 June 2002.

Detailed and more up-to-date information may be found at the workshop webpage:

http://www.class-tech.org/events/NMI_workshop2.html

Invited Speakers/Contributors

Tim Bickmore and Justine Cassell (MIT Media Lab)

Phil Cohen (Oregon Graduate Institute)

Ronald Cole (University of Colorado at Boulder)

Bjoern Granstroem (KTH, Stockholm)

Dominic Massaro (UCSC)

Candy Sidner (MERL, Cambridge, MA)

Oliviero Stock (ITC-IRST)

General Description

Following up on the CLASS workshop in Verona (Italy, 14-15 December 2001), this workshop concentrates on innovative and challenging approaches on natural, intelligent and effective interaction in multimodal dialogue systems. The aim of the workshop is to bring together theoretically and practically oriented researchers from both academia and industry with the purpose of having a thorough, fruitful and representative discussion of the topic area in an international setting.

CLASS Sponsorship

The workshop is sponsored by the European CLASS project (<http://www.class-tech.org/>) which was initiated on the request of the European Commission with the purpose of supporting and stimulating collaboration within and among Human Language Technology (HLT) projects, as well as between HLT projects and relevant projects outside Europe. Currently, CLASS comprises 42 projects and 220 registered members.

Topics of Interest

We welcome papers describing theoretical or practical research on multimodal dialogue systems. The focus of the workshop is on natural, intelligent and effective multimodal interaction. Topics of interest include:

* *Multimodal Signal Processing*

Models for multimodal signal recognition and synthesis, including combinations of speech (emotional speech and meaningful intonation for speech), text, graphics, music, gesture, face and facial expression, and (embodied) animated or anthropomorphic conversational agents.

* *Multimodal Communication Management*

Dialogue management models for mixed initiative conversational and user-adaptive natural and multimodal interaction, including models for collaboration and multi-party conversation.

* *Multimodal Miscommunication Management*

Multimodal strategies for handling or preventing miscommunication, in particular multimodal repair and correction strategies, clarification strategies for ambiguous or conflicting multimodal information, and multimodal grounding and feedback strategies.

* *Multimodal Interpretation and Response Planning*

Interpretation and response planning on the basis of multimodal dialogue context, including (context-semantic) models for the common representation of multimodal content, as well as innovative concepts/technologies on the relation between multimodal interpretation and generation.

** Reasoning in Intelligent Multimodal Dialogue Systems*

Non-monotonic reasoning techniques required for intelligent interaction in various types of multimodal dialogue systems, including techniques needed for multimodal input interpretation, for reasoning about the user(s), and for the coordination and integration of multimodal input and output.

** Choice and Coordination of Media and Modalities*

Diagnostic tools and technologies for choosing the appropriate media and input and output modalities for the application and task under consideration, as well as theories and technologies for natural and effective multimodal response presentation.

** Multimodal Corpora, Tools and Schemes*

Training corpora, testsuites and benchmarks for multimodal dialogue systems, including corpus tools and schemes for multilevel and multimodal coding and annotation.

** Architectures for Multimodal Dialogue Systems*

New architectures for multimodal interpretation and response planning, including issues of reusability and portability, as well as architectures for the next generation of multi-party conversational interfaces to distributed information.

** Evaluation of Multimodal Dialogue Systems*

Current practice and problematic issues in the standardisation of subjective and objective multimodal evaluation metrics, including evaluation models allowing for adequate task fulfilment measurements, comparative judgements across different domain tasks, as well as models showing how evaluation translates into targeted, component-wise improvements of systems and aspects.

Workshop Format

Although the workshop has an open character implying that plenty of room is available for the presentation of papers from researchers from all over the world, the workshop will contain invited contributions from a group of 10 specially qualified researchers with a balanced composition of workshop-relevant expertise. Part of the group is selected from the broad CLASS community; part of them are internationally leading researchers from outside CLASS. Invited contributors will also participate in the panel session organized by the co-chairs of the workshop program committee.

Submission of full papers and short papers

In addition to papers for full plenary presentation, we encourage the submission of short papers in combination with a very short presentation in the plenary session followed by a poster presentation. Full papers must be no longer than 10 pages, including references, examples, algorithms, graphical representations, etc. Short papers should be 4 pages maximally.

Full and short papers should be sent electronically to the e-mail address classworkshop2002@ims.uni-stuttgart.de and must be received no later than 31 March 2002.

Stylefiles are available at the workshop webpage:

http://www.class-tech.org/events/NMI_workshop2.html.

Papers should be submitted in pdf or postscript format.

The title page should include the following information (no separate title page is needed):

- Title
- Authors' names, affiliations, and email addresses
- Abstract (up to 15 lines)
- List of relevant keywords

Important Dates

Submission of full and short papers: 31 March 2002

Notification of acceptance: 30 April 2002
Final submissions: 31 May 2002
Workshop: 28-29 June 2002

Workshop Publications

Full papers and short papers will be published in the workshop proceedings.

In addition to the group of invited contributors, authors of a selected number of papers accepted for the workshop proceedings will be asked to send in an extended and updated version of their paper for publication in a book that will be published by Kluwer Academic Publishers (TLTB book series). In order to guarantee full coherence of the book, we might invite some workshop-external researchers to contribute a chapter to the book as well.

Panel Sessions

In addition to the presentation of full and short papers in the plenary session, we will organise a panel discussion on the main theme of the workshop:

Natural Multimodal Interaction: Current Practice and Future Research.

Members of the panel session will be invited contributors. Panelists will be asked to send in a short position abstract before the workshop. After the workshop, a written summary of this panel session will be available at the CLASS sub-website on Natural and Multimodal Interactivity (<http://www.class-tech.org/nmi/>). We intend to make available a video or audio recording as well.

Further, we strongly encourage proposals for a second panel session related to the main topic of the workshop or some special subtopic. The deadline for panel session proposals is 30 April 2002. Proposals can also be sent to the workshop e-mail address (classworkshop2002@ims.uni-stuttgart.de) and should contain the following information:

- title of the proposed panel session
- a brief description of the suggested topic of the panel session, including an explanation of why this topic is relevant for the field
- a list of suggested panellists

Questions on panel session proposals may be directed to the chairs of the workshop program committee at classworkshop2002@ims.uni-stuttgart.de

Programme Committee

Co-Chairs

Niels Ole Bernsen (NISLab, Odense University)

Jan van Kuppevelt (University of Stuttgart)

Reviewers

* Elisabeth André (University of Augsburg)

* Tim Bickmore (MIT Media Lab)

* Louis Boves (Nijmegen University)

* Justine Cassell (MIT Media Lab)

* Phil Cohen (Oregon Graduate Institute)

* Ronald Cole (University of Colorado at Boulder)

* John Dowding (RIACS)

* Laila Dybkjaer (NISLab, Odense University)

* Bjoern Granstroem (KTH, Stockholm),

* Jean-Claude Martin (LIMSI-CNRS)

* Dominic Massaro (UCSC)

* Catherine Pelachaud (University of Rome "La Sapienza")

* Thomas Rist (DFKI)

- * Candy Sidner (MERL, Cambridge, MA)
- * Mark Steedman (University of Edinburgh)
- * William Swartout (ICT, USC)
- * Oliviero Stock (ITC-IRST)
- * Wolfgang Wahlster (DFKI)
- * Yorick Wilks (University of Sheffield)

Organising Committee

Niels Ole Bernsen, Laila Dybkjaer, Jan van Kuppevelt.

Contact Information

Questions about submission and review process

Jan van Kuppevelt <kuppevelt@ims.uni-stuttgart.de>

Questions about local issues

Laila Dybkjaer <laila@nis.sdu.dk>

Miscellaneous

Niels Ole Bernsen <nob@nis.sdu.dk>

Workshop Program

FRIDAY June 28

08.00 - 08.45 Registration

08.45 - 09.00 Opening

09.00 - 09.50 Invited Speaker: Phil Cohen

On the Relationships Among Speech, Gestures, and Object Manipulation in Virtual Environments: Initial Evidence

09.50 - 10.15 Nicole Beringer, Sebastian Hans, Katerina Louka and Jie Tang

How to Relate User Satisfaction and System Performance in Multimodal Dialogue Systems? - A Graphical Approach

10.15 - 10.45 Coffee break

10.45 - 11.35 Invited Speaker: Oliviero Stock

Intelligent Interactive Information Presentation for Cultural Tourism

11.35 - 12.00 Jan-Torsten Milde

Creating Multimodal, Multilevel Annotated Corpora with TASX

12.00 - 12.40 Short paper presentation session 1

1. Luis Almeida, Ingunn Amdal, Nuno Beires, Malek Boualem, Lou Boves, Els den Os, Pascal Filoche, Rui Gomes, Jan Eikeset Knudsen, Knut Kvale, John Rugelbak, Claude Talleg, Narada Warakagoda

Implementing and Evaluating a Multimodal Tourist Guide

2. Sorin Dusan and James Flanagan
An Adaptive Dialogue System Using Multimodal Language Acquisition
3. Carl Burke, Lisa Harper and Dan Loehr
A Dialogue Architecture for Multimodal Control of Robots

12.40 - 14.00 Lunch break and poster visit

- Poster visit from 13.30 to 14.00 -

14.00 - 14.50 Invited Speaker: Tim Bickmore
Phone vs. Face-to-Face with Virtual Persons

14.50 - 15.15 Noelle Carbonell and Suzanne Kieffer
Do Oral Messages Help Visual Exploration?

15.15 - 15.45 Tea break

15.45 - 16.35 Invited Speaker: Candy Sidner
Engagement between Humans and Robots for Hosting Activities

16.35 - 17.00 Patrick G.T. Healey and Mike Thirlwell
Analysing Multi-Modal Communication: Repair-Based Measures of Communicative Co-ordination

18.30 - 19.30 Reception

SATURDAY June 29

09.00 - 09.50 Invited Speaker: Ron Cole
Perceptive Animated Interfaces: The Next Generation of Interactive Learning Tools

09.50 - 10.15 T. Darrell, J. Fisher and K. Wilson
Geometric and Statistical Approaches to Audiovisual Segmentation for Untethered Interaction

10.15 - 10.45 Coffee break

10.45 - 11.35 Invited Speaker: Björn Granström
Effective Interaction with Talking Animated Agents in Dialogue Systems

11.35 - 12.00 Dirk Heylen, Ivo van Es, Anton Nijholt, Betsy van Dijk
Experimenting with the Gaze of a Conversational Agent

12.00 - 12.40 Short paper presentation session 2

1. Brady Clark, Elisabeth Owen Bratt, Stanley Peters, Heather Pon-Barry, Zack Thomsen-Gray and Pucktada Treeratpituk

A General Purpose Architecture for Intelligent Tutoring Systems

2. Dave Raggett

Task-Based Multimodal Dialogs

3. Norbert Reithinger, Christoph Lauer, and Laurent Romary

MIAMM - Multidimensional Information Access using Multiple Modalities

12.40 - 14.00 Lunch break and poster visit

- Poster visit from 13.30 to 14.00 -

14.00 - 14.50 Invited Speaker: Dominic Massaro

The Psychology and Technology of Talking Heads in Human-Machine Interaction

14.50 - 15.15 Tea break

15.15 - 16.45 Panel discussion

Co-chairs: Niels Ole Bernsen and Oliviero Stock

Panellists: Tim Bickmore, Phil Cohen, Ron Cole, Björn Granström, Dominic Massaro, Candy Sidner

16.45 - 17.00 Closing

Conclusions

The proceedings contain 21 contributions. An online version of the proceedings can be found on the workshop web page (http://www.class-tech.org/events/NMI_workshop2). In addition to 7 invited contributions we received 21 paper submissions of which 14 were selected for presentation at the workshop.

Approximately 40 people participated in the event. Several participants regretted that they were not able to participate. However, several other events relevant to sub-sections of the same community were held in June and July 2002, and some colleagues had already committed themselves to other workshops and were not able to attend the CLASS workshop.

The workshop included paper presentations, demos and posters. Towards the end of the workshop, a panel discussion was held with participation from invited speakers. The panel discussion was recorded on video (see DVD). Conclusions from the workshop form part of Deliverable D1.5+6 which also references the other workshop contributions.