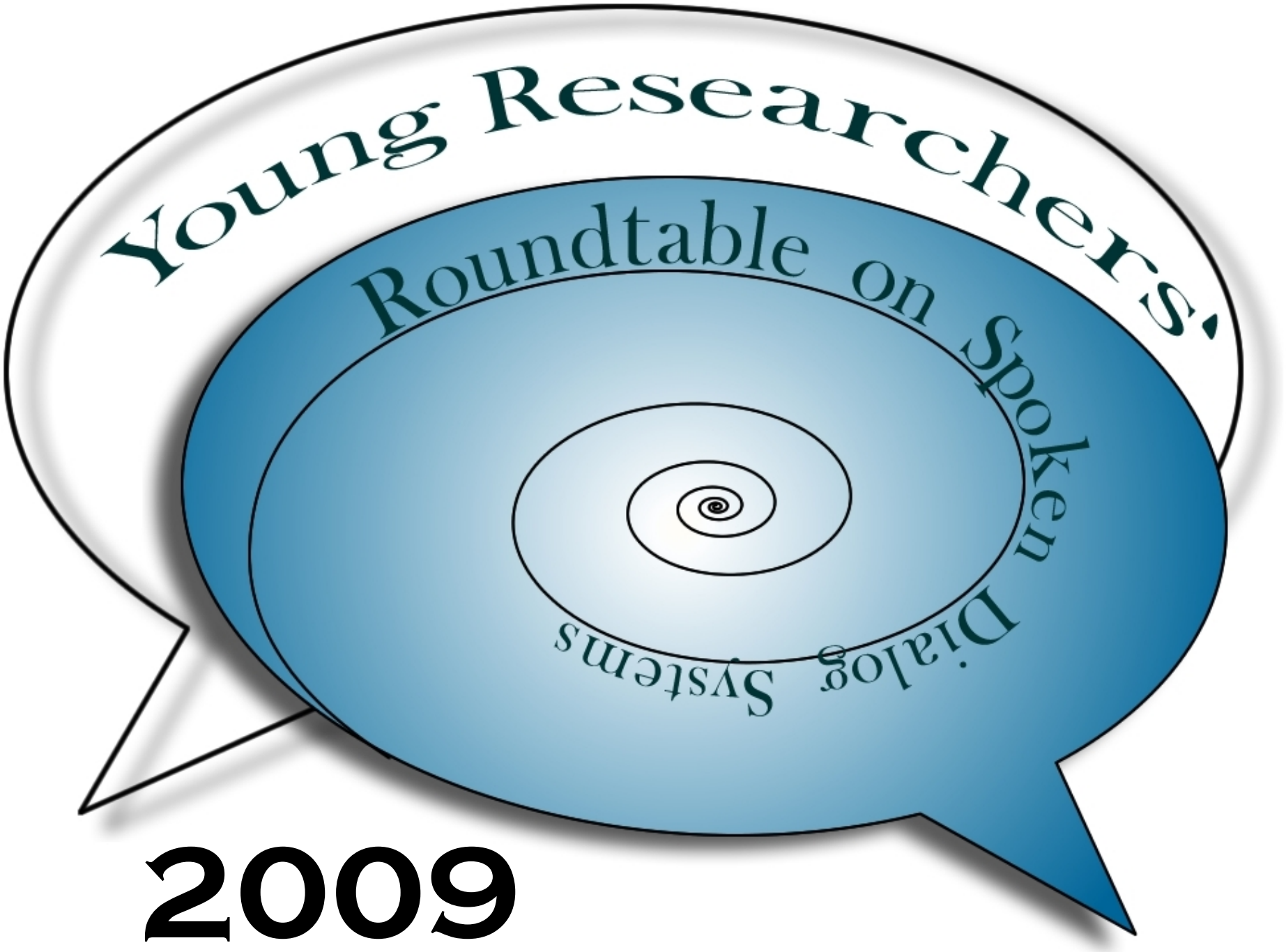

Young Researchers'
Roundtable on Spoken
Dialog Systems
2009

Morning Schedule

09:00 Reception session

09:30 Discussion session I

- Data collection, quality and availability
- Adaptable dialogue systems
- Human-Robot Interaction

11:30 Summaries & discussion

12:00 Industry/Company talks

- Philippe Bretier, Orange
- Tim Paek, Microsoft Research
- Sebastian Möller, DE Telecom

13:00 Lunch break

Afternoon Schedule

14:00 Discussion session II

- Multimodal
- Learning from data
- Multi-Language, Multi-Domain

15:30 Summaries & discussion

16:00 Tea break

16:30 Industry & Academic Panel

- Alan Black, CMU
- Michael McTear, University of Ulster
- Jason Williams, AT&T

18:30 Dinner

Discussion Topics

Discussion session I

- Data collection, quality and availability
- Adaptable dialogue systems
- Human-Robot Interaction

Discussion session II

- Multimodal
- Learning from data
- Multi-Language, Multi-Domain

Evaluation

- Error handling, detection and prevention
- Metrics and standards
- Real user satisfaction on the real world

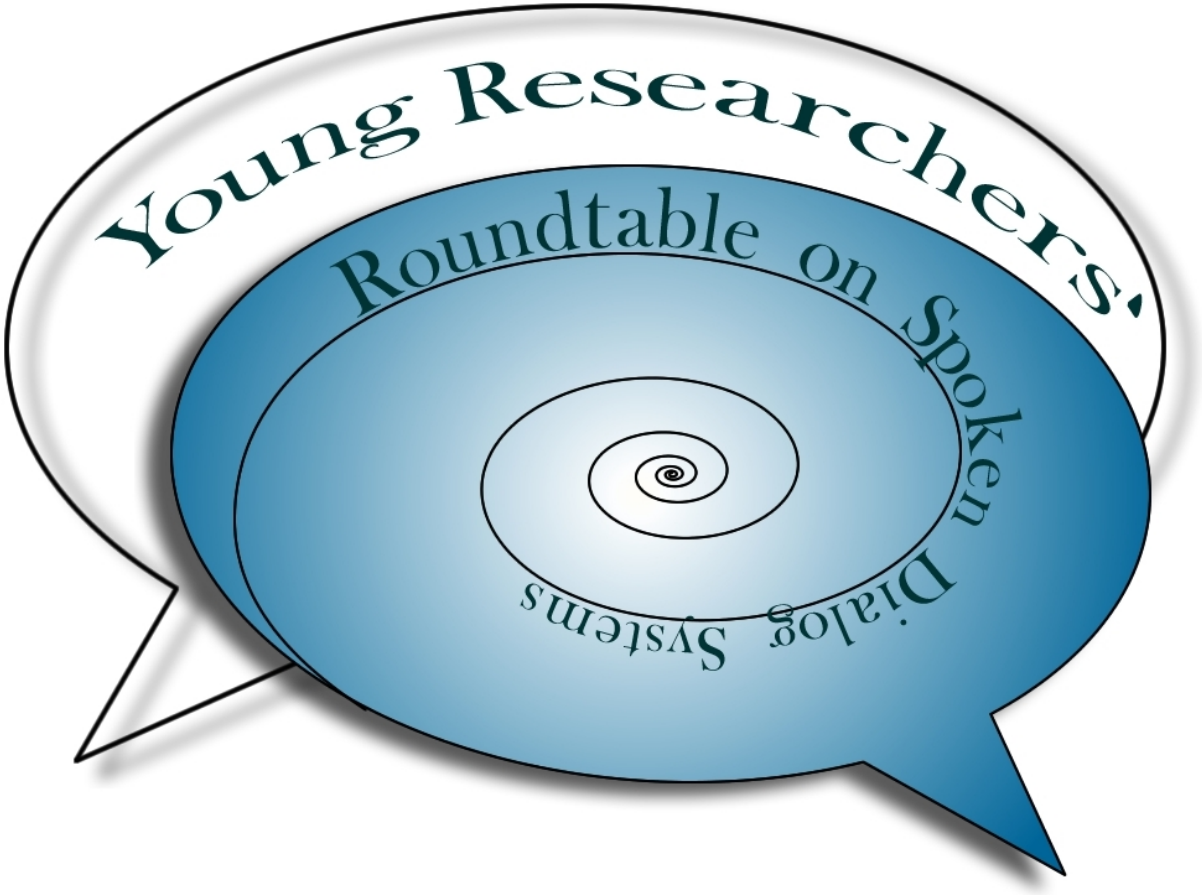
1st YRR @ Lisbon, Portugal, 2005



2nd YRR @ Pittsburgh, PA, USA, 2006

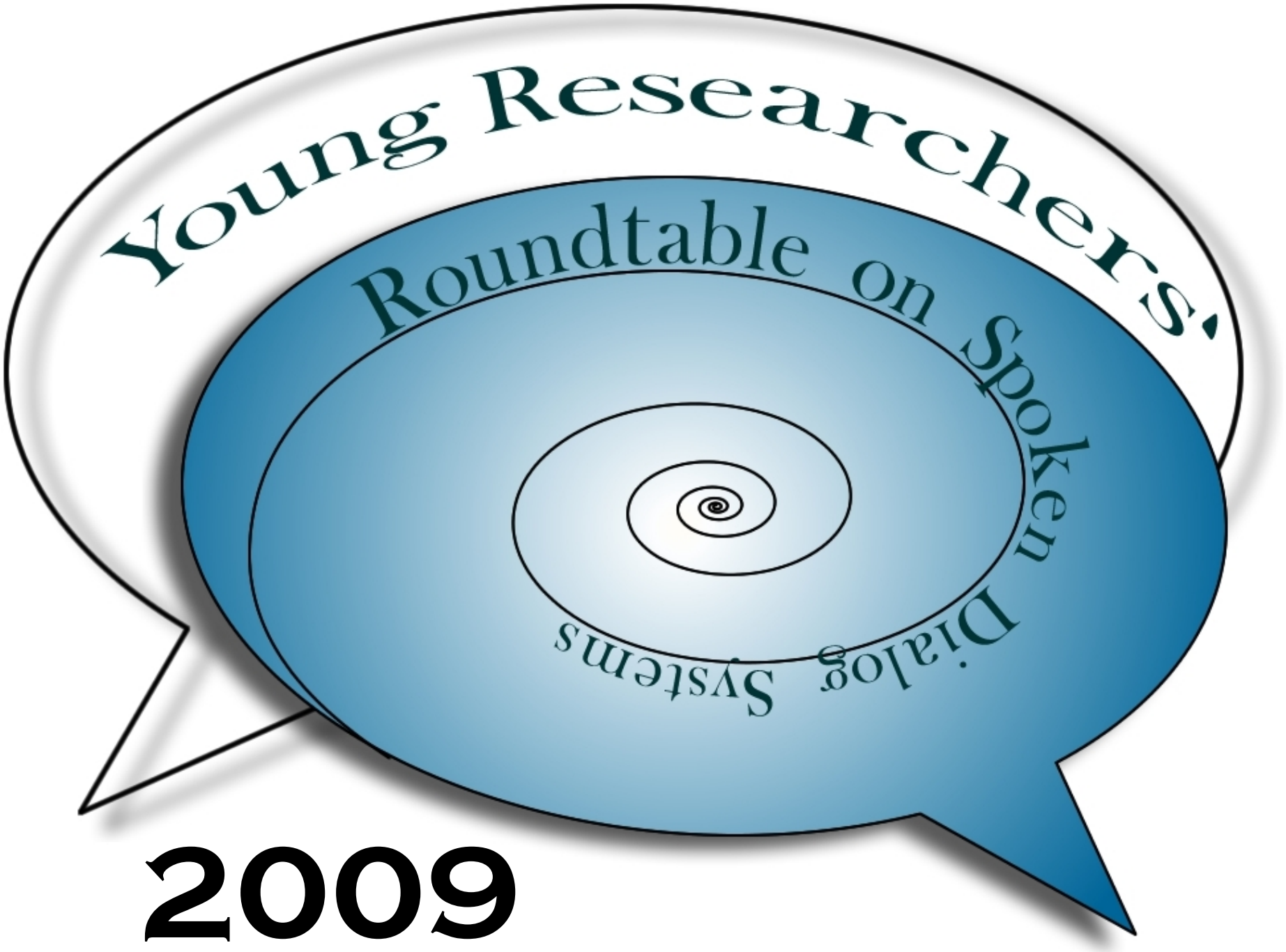


3rd YRR @ Antwerp, Belgium, 2007



4th YRR @ Columbus, OH, USA, 2008




Young Researchers'
Roundtable on Spoken
Dialog Systems
2009

Timo Baumann

- U Potsdam, PhD student and research assistant
- scientific interests:
  - incremental SDS
  - ASR for SDS
  - prosody processing
- timo@ling.uni-potsdam.de
www.ling.uni-potsdam.de/~timo

Luciana BENOTTI

Me

I am in the 3rd of my PhD at **INRIA Nancy**, in France

I studied computer science and computational logic

SASO



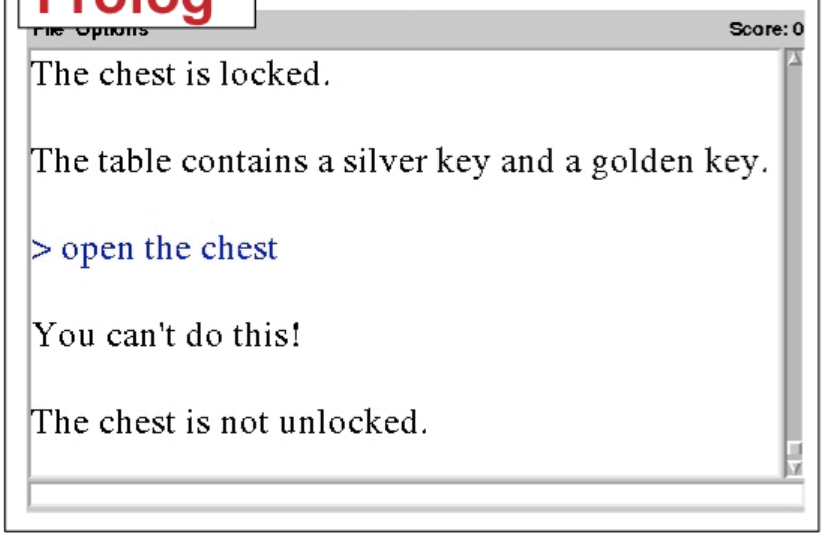
My work

I use **means-ends inference** tools (e.g. IA planners)

In order to infer the **conversational implicatures** during a dialogue

I've worked on two dialogue systems: **Frolog** and **SASO**

Frolog



Jose Luis Blanco

UNIVERSIDAD POLITÉCNICA DE MADRID
Signal Processing Applications Group



PhD Student
UPM Research Scholar

e-mail
jlblanco@gaps.ssr.upm.es

Skype
jlblanco_gaps

Coming from the Signal Processing in Audio and Speech…

Now focusing on:

1. Representation:
   interaction + **situation** + **extra knowledge**
2. Dialogue adaptation and management when **additional information** is available.
   Adapt: **policies** + **strategies** + **actions**
3. Developing tests to correlate interaction flow and context
   Scenario: **in-vehicle interaction**



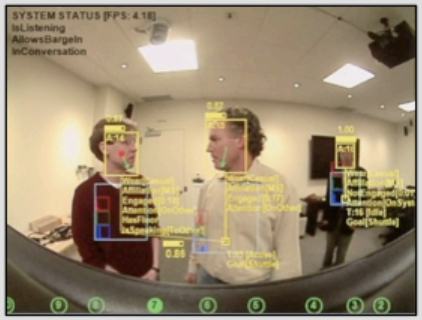
Dan Bohus | dbohus@microsoft.com
Researcher

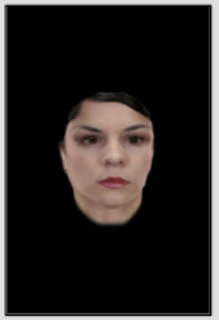
Adaptive Systems and Interaction
Microsoft Research
Redmond, WA, 98052

research: situated interaction and open-world dialog

challenges of developing spoken language interactive systems that can operate fluidly in open, dynamic, relatively unconstrained environments

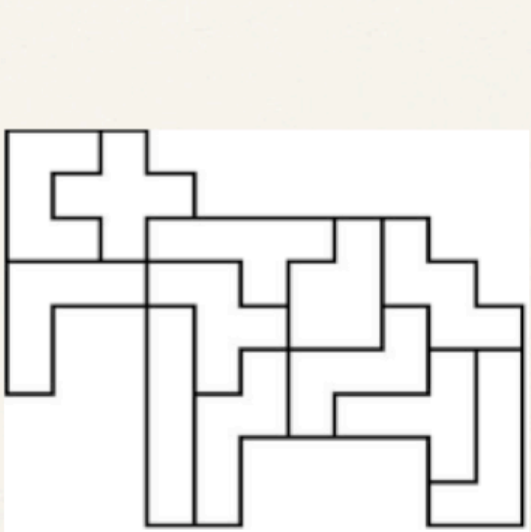
topics: situational awareness, conversational scene analysis
mixed-initiative, multi-party interaction
situated grounding
engagement, attention, floor control models
life-long learning and adaptation



Okko Buss & InPro SDS

- Okko
  - B.A. Linguistics / M.A. Cognitive Science
  - Worked as Speech Scientist for speech technology companies.
  - Currently at Potsdam University.
- InPro SDS
  - Project research focussed on incrementality in spoken interaction.
  - Funded by Federal "Emmy Noether" Fund.
  - Have implemented incremental ASR, NLU and Dialog Management components based on formal IU-Theory.







Caroline Clemens

(Science of Communication, Linguistics)

Focus:

Usability and Adaptivity of SDS

Previous:

Mundwerk AG
Siemens AG
Graduate School *prometei*

Now:

Deutsche Telekom Laboratories
Technical University Berlin

Apps for call center service:

Support call routing
Enable call-backs

Klaus-Peter Engelbrecht

- From: Berlin, Germany
- Ph.D. Student at Deutsche Telekom Laboratories, TU-Berlin
- Research activities
  - User simulation
    - User errors and consequences
  - Prediction of judgments
    - Generalization of PARADISE models
    - Impact of user characteristics
    - New approach with HMMs

Arash Eshghi



Milica Gašić



- Mathematics and Computer Science at University of Belgrade
- MPhil in Computer Speech, Text and Internet Technology, University of Cambridge
  - ASR, Question Answering, TTS …



- PhD candidate in Dialogue Modelling, Dialogue Systems Group, University of Cambridge
  - POMDP approach to Spoken Dialogue Systems
  - Dealing with uncertainty in dialogue
  - Machine learning methods
  - Knowledge representation in dialogue

Florian Gödde
Quality and Usability Lab
Deutsche Telekom Laboratories
Berlin Institute of Technology



- Research Topics
  - Usability of Spoken Dialogue Systems
  - User groups for SDSs
  - Automatic Evaluation of SDSs
  - User simulation for automatic evaluation of SDSs

Christine Howes



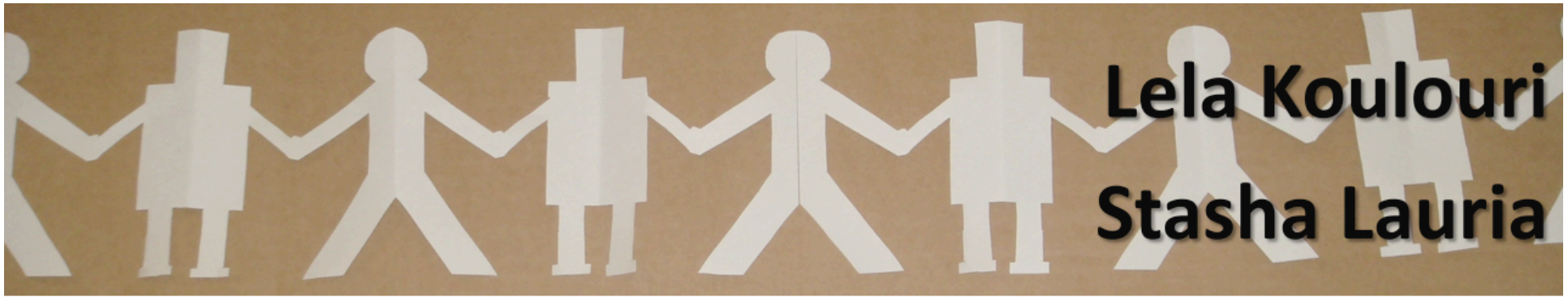


Srini Janarthanam

Ph.D student in Informatics

- How can dialogue systems adapt to different kinds of users (experts, novices, etc.) in domains like troubleshooting by using different referring expressions for different users?

- Reinforcement Learning, Referring Expression Generation, Spoken Dialogue Systems



Lela Koulouri
Stasha Lauria

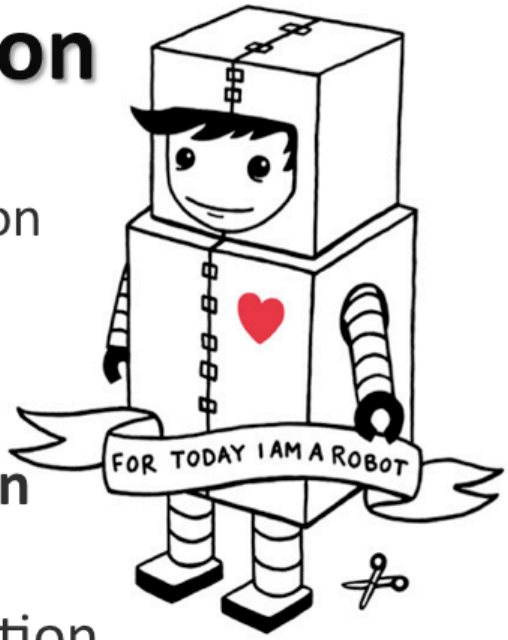
Miscommunication in Human-Robot Interaction



•Platform: Robot capable of executing and learning by means of natural language

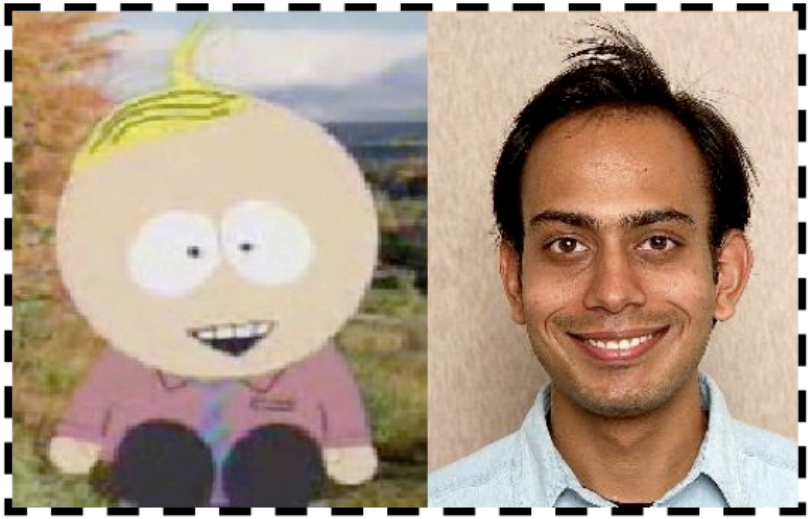
•Aim: Natural communication through natural miscommunication management

•Approach:
- •Human-Robot **Collaboration**
- •Explore what **Humans** do...
- •...In **Dialogue**-Based navigation
- •Enrich DM of robot with human-inspired strategies



Brunel
UNIVERSITY
WEST LONDON

Rohit Kumar



Ph.D. Student
Language Technologies Institute
Carnegie Mellon University

Advisor: **Carolyn P. Rosé**

rohitk @ cs.cmu.edu
www.rohitkumar.net

Research (chronologically)

- Text to Speech Systems
- Tutorial Dialog Systems (CycleTalk)
- Spoken Dialog Systems (ConQuest)

- (Conversational) Social Behavior for Shaping user behavior in multi-user task domains

Career Brief

- 1999-2003, Bachelor of Engineering (CSE)
  Punjab Engineering College,
  Chandigarh, India

- 2003-2005, Research Scientist
  Language Technologies Research Center,
  International Institute of Information Technology,
  Hyderabad, India

- 2005-2007, Masters in Language Technologies
  Language Technologies Institute,
  Carnegie Mellon University,
  Pittsburgh, PA

- 2007-..., Ph.D. in Language Technologies
  Language Technologies Institute,
  Carnegie Mellon University,
  Pittsburgh, PA

Prosody and Dialogue (from a linguist's perspective)

Questions:

- What's the interaction of prosody, semantics and pragmatics in dialogue. What bits are linguistic?
- How can we models/detect of speaker affect and attitude?
- How do we know when a dialogue is going well?

Current Work:

- Cue words: *really, right,...*
- Types: *backchannels, questions,...*
- Prosody and attitude: *surprise! uncertainty,...*

Catherine Lai
laic@babel.ling.upenn.edu
Department of Linguistics, University of Pennsylvania

Penn
University of Pennsylvania

Marianne Laurent

Myself

- 1rst year PhD student at Orange Labs, France
- Natural Dialogue Agent Lab (Lannion, France)



orange™

TELECOM Bretagne

Background :

- Business School
- Telecom Engineer

My Work

Dialogue design methodologies integrating knowledge on both :

- Technical components,
- Typology of services,
- User's practices.

Service evaluation

- Identify problems,
- Compare iterative versions of a service,
- and Validate best practices applicable to the design of future services.

Beatriz L. Mencía

UNIVERSIDAD POLITÉCNICA DE MADRID
Signal Processing Applications Group



PhD Student

UPM Research Scholar

e-mail

beatriz@gaps.ssr.upm.es



- Usability **Evaluation** of Multimodal Interfaces with **Embodied Conversational Agents** (ECAs).
- Minimizing interaction errors for improving user experience: ECA visual communicative channel to **improve robustness** in Spoken Dialogue Systems.
- **Metrics** for evaluating Spoken Dialogue Systems with a nonverbal communicative channel.
- Exploiting ECA **social abilities** to reinforce the learning of emotions in disabled children (with cerebral palsy and autism).

Syaheerah Lutfi

- **Interest**

  Human-Machine Interaction in general and specifically **Affective Computing .**

- **Previous work**

  - *Emotional prosody modeling for a Malay TTS – Malaysia (with MIMOS Limited)*
  - *Culture-sensitive TTS – Malaysia*
  - *Emotion Identifications in Speech – Madrid, Spain*

- **Current work**

  I am involved in a project for **modeling affect in a robotic agent** for domestic purposes. In a smaller scope, I am interested in researching and developing **culture-sensitive emotive interfaces**. This is motivated by the fact that perception and expression of emotions vary among people from different cultures, and therefore designs of emotive computer interfaces should be tailored to conform to the different needs according to cultural background.

- **Other stuff**

  Mummy for Waheedah (5) & Mash'al (3) , love reading , travelling and watching comedies.

François Mairesse

- 2004-2008: Ph.D. thesis at the University of Sheffield
  - Data-driven methods for **recognising the user's personality**
  - Stylistic language generation to **control the personality of the system**



- 2008-2011: University of Cambridge, Dialogue Systems Group
  - European Union CLASSiC project
  - Online Tourist Information System for Cambridge
  - Data-driven semantic parsing
    - Modeling uncertainty throughout the dialogue cycle
      - E.g. ASR n-best list can improve understanding
  - Stylistic natural language generation combined with expressive speech synthesis



Lluís Mas Manchón
Grad. Publicidad y RRPP
PhD. Audiovisual Communication
(Universitat Autònoma de Barcelona)

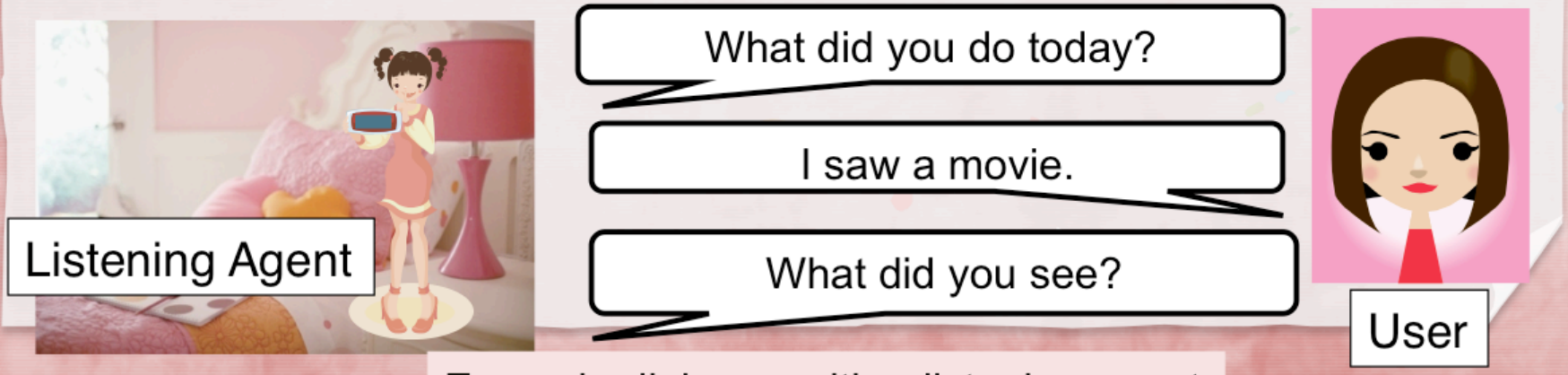
- Member of the *Laicom* (Análisi Instrumental de la Comunicació; http://laicom.uab.es):
  - Approach (e.g.):

Intention of emitter ⇨ *Acoustics of Voice* ⇦ Attention of Receiver

- Dissertation: 1000 keywords to classify pieces of news into topics.
- Thesis: prosody parameters to segment pieces of news.
- Future Interests: be part of interdisciplinary groups.
- Expertise: definition of key variables in the message where we know the intention of emitter was placed, the attention of receiver focuses and the general conditions of the process allow it to happen.

Toyomi Meguro

- NTT Communication Science Laboratories
  Kyoto, Japan
- Research topic
  - Building Listening Agents (SIGDial2009)
    - Attentively listens to the user to satisfy his/her desire to speak and have himself/herself heard
    - Currently analyzing listening-oriented dialogues



Example dialogue with a listening agent

Gregory Mills

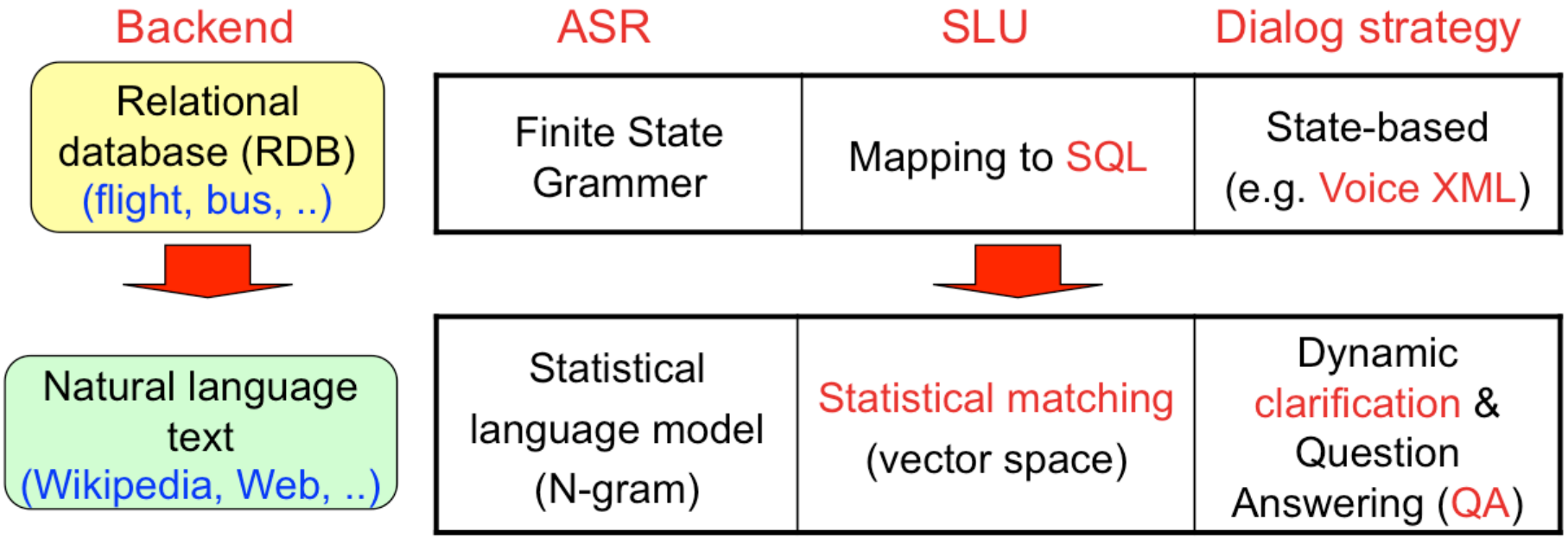


Teruhisa Misu

MASTAR Project, National Institute
of Information Communication Technology (NICT), Japan

- Previous work in Kyoto University

  SDS based on document retrieval and QA



- Current work in NICT
  - Construction of proactive dialogue system
  - Ultimate goal: Tourist concierge (consult & recommend)



Joana Paulo Pardal

PhD student

IST – Technical University of Lisbon, Portugal
University of Rochester

Researcher

L²F - Spoken Language Systems Laboratory

http://www.l2f.inesc-id.pt/~joana/





Nuno J. Mamede
H. Sofia Pinto
James F. Allen



Apple
real-time
publically available
practical dialogues
(semi) automatic term acquisition
ThinkGeek
(spoken) dialogue systems
coaching systems
machine translation
artificial intelligence
continuous understanding
tutoring systems
machine learning
ontologies
natural language processing
semantic web
web services
computer science
knowledge representation
autonomous agents
distributed systems
design patterns
software engineering
(Thanks!)
multi-agent systems
ISCA
ACL
AAAI
object-oriented programming
Lisp
Java
C++
emotions
xo-laptop (G1G1)
Lego Mindstorm
Perl
PHP
MySQL

http://www.redborg.net

David Díaz Pardo de Vera



Signal Processing Applications Group
Universidad Politécnica de Madrid
Prof. Luis Hernández Gómez

Main lines of research:

Nonverbal channels of communication (ECAs)

- Multimodal, context-sensitive communication act generation.
- Gesture validation
- Findings: Appropriately designed gestures can make dialogue more *efficient* and *enjoyable*. However, *privacy concerns* also rise.

User-centred quality evaluation

- "Objective" and "subjective" parameters
- Questionnaire design: ITU-T P.851, SASSI, plus questions about ECA, security and emotions
- *Quality indicator*: user acceptance (satisfaction & inclination to use)
- Layered class structure of acceptability parameters
- Exploration of quantitative and qualitative analysis methods.

Florian Pinault

University of Avignon, France.

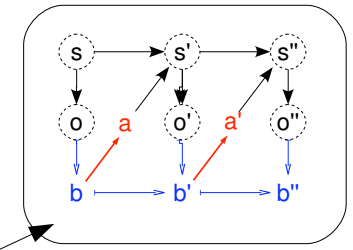
florian.pinault@univ-avignon.fr



Background

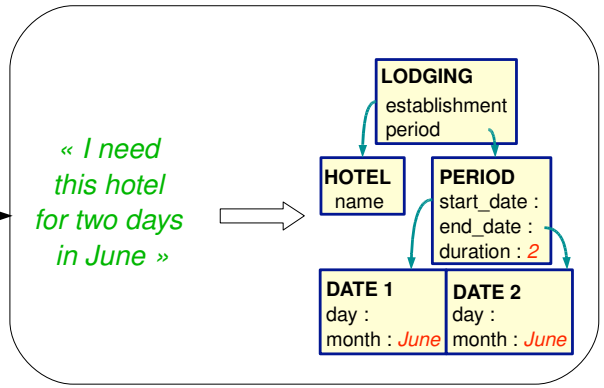
- Statistics and mathematics (Master)
- Engineering consulting
- PhD in completion (2nd year)

Research Interests in Human-Machine dialogue management.



- Statistical modeling (POMDP).

- Rich semantic and pragmatics modeling.



- LUNA european project.

annotated corpus ~ 18k user utterances.
tourist information domain.
mixed-initiative.



Denise Kluge is a Professor of Applied Linguistics at the Federal University of Paraná, Brazil particularly interested in English Phonetics and Phonology learning. She received her PhD and her MA in the same field in 2009 and 2004, respectively. Her BA is in Portuguese and English Teaching in 2000. In 2007 she completed part of her PhD studies at University of Amsterdam under the supervision of Prof. Paul Boersma.

Mara Reis is a 4th year PhD student in Second Language Acquisition at Federal University of Santa Catariana, Brazil, particularly interested in English Phonetics and Phonology learning. She received her MA in the same field in 2006, her BA in Visual Arts in 2003, and her BA in Dentistry in 1995. Last summer she completed part of her PhD studies at University College London under the supervision of Prof. Valerie Hazan.

Sylvie Saget





Nur Hana Samsudin
School of Computer Science,
University of Birmingham
Dr Mark Lee (Supervisor)

Research: Polyglot Speech Synthesis

- Information sharing & reuse for cross languages
- Based on multilingual knowledge to construct a polyglot speech synthesis
- Current research focus on linguistic modelling of speech: on phonetic and phonology

What is expected by attending this meeting:

- To have discussions on progress in speech processing and current approaches in speech processing components
- To discuss with experts in the domain regarding issues in my research
- To establish academic relationship for future research

Alexander Schmitt

- 3rd year PhD at Ulm University, Germany
  - supported by SpeechCycle, Inc.
- Topics
  - Predicting problematic dialogue situations in SDS
    - Aiming to predict task completion
    - Based on log data
    - Pattern recognition approach, supervised learning
  - Anger detection based on acoustic and context information
  - Speaker classification



Niels

- Name: Niels Schütte
- Position: PhD Student, 1st year
- Institute: Dublin Institute of Technology (DIT)
- Degree: Diplom (Computer Science)
  Universität Bremen, Germany
- Project: LOK8 (since February)
  Multimodal Situated Dialogue System

LOK8
PERSONALISED LOCATION-BASED SERVICES

DUBLIN INSTITUTE OF TECHNOLOGY
D·I·T
INSTITIÚID TEICNEOLAÍOCHTA ÁTHA CLIATH

Alvaro Sigüenza

UNIVERSIDAD POLITÉCNICA DE MADRID
Signal Processing Applications Group



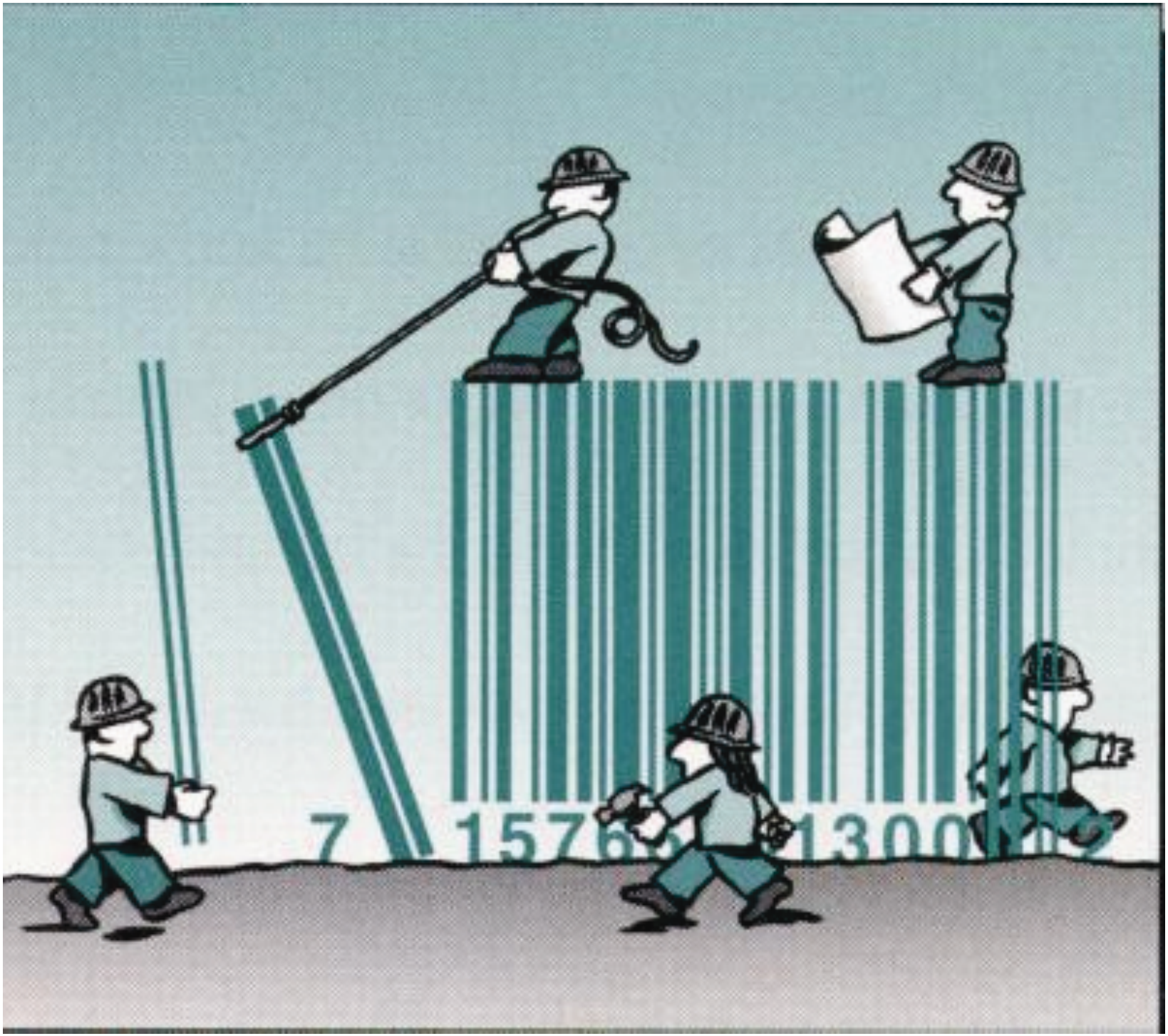
PhD Student
UPM Research Scholar

e-mail
alvaro.siguenza
@gaps.ssr.upm.es

1. My research interests:
    1. Spoken dialogue systems in multitask environment, focusing on the driving scenario.
    2. Incorporation of contextual information with the aim of adapting in-vehicle spoken dialogue systems to the circumstances of the driving.
    3. Workload management in the HMI interaction to selecting the right mode to interact with the user.

Ina Wechsung

- Multimodal interfaces
  - Development of new evaluations methods for multimodal systems
    - Validity and consistency across and within different data types
    - Influence of test situation (task oriented vs. non-task oriented setting)
    - Relationship between quality of single modalities and multimodal system
  - Underlying cognitive processes
    - Modality selection strategies
- Development of methods for User Experience (UX) evaluation
  - Relationship between Usability and UX


7

Discussion Topics

Discussion session I

- Data collection, quality and availability
- Adaptable dialogue systems
- Human-Robot Interaction

Discussion session II

- Multimodal
- Learning from data
- Multi-Language, Multi-Domain

Evaluation

- Error handling, detection and prevention
- Metrics and standards
- Real user satisfaction on the real world