

# INLG 2010

Proceedings of the Sixth  
International Natural Language  
Generation Conference

July 7 - 9, 2010

Trim, Co. Meath, Ireland



Programme Chairs: John Kelleher, Brian Mac Namee & Ielka van der Sluis  
Generation Challenge Chairs: Anja Belz, Albert Gatt & Alexander Koller

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Hosted by the University of Dublin, Trinity College and the Dublin Institute of Technology  
Endorsed by the ACL Special Interest Group on Natural Language Generation (SIGGEN)  
Sponsored by the Centre for Next Generation Localisation and Science Foundation Ireland



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## Preface

It gives us great pleasure to introduce the technical program of the Sixth International Natural Language Generation Conference (INLG 2010), the biennial meeting of the ACL Special Interest Group in Natural Language Generation (SIGGEN). The INLG conference provides the premier forum for the discussion, dissemination and archiving of research and results in the field of natural language generation. Previous INLG conferences have been held in the USA, Australia, the UK and Israel. Prior to 2000, INLG meetings were held as international workshops with a history stretching back to 1983. In 2010, on behalf of SIGGEN, INLG is being co-hosted by Trinity College Dublin and the Dublin Institute of Technology; and held in Trim Castle Hotel, Trim, Co. Meath, Ireland.

The INLG 2010 programme consists of presentations of substantial, original, and previously unpublished results on all topics related to natural language generation. This year we received 50 submissions (36 full papers and 14 short papers) from 18 different countries from around the world. As in previous years, each submission was reviewed by at least three members of an international programme committee of leading researchers in the field. Based on these reviews 16 submissions were accepted as full papers and 8 as short papers (4 papers were withdrawn). The accepted papers are of the highest quality and cover all of the major aspects of natural language generation.

This year, the conference programme includes two keynote speakers. Susan E. Brennan, Professor of Psychology at Stony Brook University, will speak on “Adapting Generation to Addressees: What Drives Audience Design?” and Richard Power of The Open University will present a talk entitled “Ontologies and Text: Can NLG Bridge the Gap?”. This year we are also delighted to host the 2010 Generation Challenges organised by Anja Belz, Albert Gatt and Alexander Koller. This is a part of INLG that has been growing in importance over the last number of conferences and is a great addition to the event.

The organising committee would like to offer their thanks to our invited speakers for agreeing to join us, the organisers of INLG 2008 for their enormous help, the SIGGEN board for allowing us host the conference and for their assistance, Priscilla Rasmussen at ACL and Alena Moison at TCD for handling finances, the programme committee for their dedicated work, and, most of all, the authors of all submitted papers. We have also received generous sponsorship from the Centre for Next Generation Localisation and Science Foundation Ireland for which we are extremely grateful.

Finally, we would like to welcome you to Trim and hope that you have an enjoyable and inspiring visit. We will leave you with an Irish proverb in the spirit of INLG: *Tír gan teanga, tír gan anam.*

The INLG 2010 Organising Committee  
John Kelleher, Brian Mac Namee & Ielka van der Sluis



## Conference Organization

### Programme Chairs

John Kelleher, Dublin Institute of Technology, Ireland  
Brian Mac Namee, Dublin Institute of Technology, Ireland  
Ielka van der Sluis, Trinity College Dublin, Ireland

### Generation Challenge Chairs

Anja Belz, University of Brighton, UK  
Albert Gatt, University of Malta, Malta  
Alexander Koller, Universitaet des Saarlandes, Germany

### Programme Committee

John Bateman, University of Bremen, Germany  
Anja Belz, University of Brighton, UK  
Bernd Bohnet, University Stuttgart, Germany  
Stephan Busemann, DFKI GmbH, Germany  
Christian Chiarcos, Universitaet Potsdam, Germany  
Norman Creaney, University of Ulster, UK  
Robert Dale, Macquarie University, Australia  
Kees van Deemter, University of Aberdeen, UK  
David DeVault, USC Institute for Creative Technologies, US  
Barbara Di Eugenio, University of Illinois, US  
Roger Evans, University of Brighton, UK  
Jennifer Foster, Dublin City University, Ireland  
Mary Ellen Foster, Heriot Watt University, Edinburgh, UK  
Claire Gardent, CNRS/LORIA, France  
Albert Gatt, University of Malta, Malta  
Josef van Genabith, Dublin City University, Ireland  
Pablo Gervas, Universidad Complutense de Madrid, Spain  
Markus Guhe, University of Edinburgh, UK  
Svetlana Hensman, Dublin Institute of Technology, Ireland  
Alexander Koller, Universitaet des Saarlandes, Germany  
Alistair Knott, University of Otago, New Zealand  
Emiel Krahmer, Tilburg University, The Netherlands  
Ivana Kruijff-Korbayova, Saarland University, Germany  
Oliver Lemon, Heriot Watt University, Edinburgh, UK  
James Lester, North Carolina State University, US  
Keith Vander Linden, Calvin College, US

Kathleen McCoy, University of Delaware, US  
David McDonald, BBN Technologies, US  
Chris Mellish, University of Aberdeen, UK  
Johanna Moore, University of Edinburgh, UK  
Cecile Paris, CSIRO ICT Centre, Australia  
Paul Piwek, the Open University, UK  
Ehud Reiter, University of Aberdeen, UK  
Graeme Ritchie, University of Aberdeen, UK  
Advaith Siddharthan, University of Aberdeen, UK  
Yaji Sripada, University of Aberdeen, UK  
Matthew Stone, Rutgers, US  
Manfred Stede, Universitaet Potsdam, Germany  
Amanda Stent, AT&T Labs, US  
Kristina Striegnitz, Union College, US  
Michael Strube, EML Research, Germany  
Takenobu Tokunaga, Tokyo Institute of Technology, Japan  
Mariet Theune, University of Twente, The Netherlands  
Sebastian Varges, DISI Trento, Italy  
Carl Vogel, Trinity College Dublin, Ireland  
Michael White, Ohio State University, US  
Sandra Williams, the Open University, UK  
Tiejun Zhao, Harbin Institute of Technology, China

## **Subreviewers**

Virginia Francisco  
Raquel Hervás  
Carlos Leàn  
Mo Yu  
Conghui Zhu

## Wednesday, July 7<sup>th</sup>, 2010

12:00 - 13:30 Buffet lunch and Check-in

### Session 1: Invited Talk

13:30 - 13:45 Opening Remarks

13:45 - 14:45 Ontologies and text: Can NLG bridge the gap? (*Invited Talk*)  
*Richard Power*

14:45 - 15:00 **Break**

### Session 2: Ontology Based Generation

15:00 - 15:30 Using Semantic Web Technology to Support NLG.  
Case study: OWL finds RAGS.  
*Chris Mellish*

15:30 - 16:00 Charting the Potential of Description Logic for the  
Generation of Referring Expressions.  
*Yuan Ren, Kees van Deemter and Jeff Z. Pan*

16:00 - 16:30 Generating and Validating Abstracts of Meeting  
Conversations: a User Study.  
*Gabriel Murray, Giuseppe Carenini and Raymond Ng*

16:30 - 16:45 **Break**

### Session 3: Sentence Level Generation and Machine Learning in NLG

16:45 - 17:15 Complex Lexico-syntactic Reformulation of Sentences  
Using Typed Dependency Representations.  
*Advaith Siddharthan*

17:15 - 17:45 Feature Selection for Fluency Ranking.  
*Daniel de Kok*

17:45 - 18:15 Hierarchical Reinforcement Learning for Adaptive Text Generation.  
*Nina Dethlefs and Heriberto Cuayahuitl*

Evening Banquet and drinks and music at the Hotel Bar

## Thursday, July 8<sup>th</sup>, 2010 (*Morning*)

### Generation Challenges

08:30 - 09:00 Preparation for Generation Challenge Poster Session

#### GC Session 1: Shared Task Reports

*(chaired by Albert Gatt)*

09:00 - 09:10 Introduction (*Albert Gatt*)

09:10 - 09:40 GREC'10 results presentation

*Anja Belz*

09:40 - 10:05 GIVE-2 results presentation

*Alexander Koller*

10:05 - 10:20 Question Generation presentation

*Vasile Rus*

10:20 - 10:50 **GC Poster Session and Tea/Coffee Break**

#### GC Session 2: Invited Talk

10:50 - 11:35 What speakers do and don't do to communicate successfully.

*Victor Ferreira*

#### GC Session 3: New Shared Task Proposals

*(chaired by Anja Belz)*

11:35 - 11:55 Generation Under Uncertainty

*Oliver Lemon*

11:55 - 12:15 Text Improvement

*Robert Dale*

12:15 - 12:35 Surface Realisation

*Mike White*

12: 35 - 13:30 **Lunch**

#### Generation Challenge Working Lunch

Table 1: Generation Under Uncertainty; chair: Oliver Lemon

Table 2: Text Improvement; chair: Robert Dale

Table 3: Surface Realisation; chair: Mike White

## Thursday, July 8<sup>th</sup>, 2010 (*Afternoon/Evening*)

### Session 4: Evaluation in NLG and Poster Introductions

- 13:30 - 14:00 Towards a Programmable Instrumented Generator.  
*Chris Mellish*
- 14:00 - 14:30 Comparing Rating Scales and Preference Judgements  
in Language Evaluation.  
*Anja Belz and Eric Kow*
- 14:30 - 15:00 Textual properties and task-based evaluation: Investigating  
the role of surface properties, structure and content.  
*Albert Gatt and Francois Portet*
- 15:00 - 15:15 Poster Introductions
- 15:15 - 17:15 **Activity break**
- 18:00 - late INLG Poster session with drinks and dinner and music!

## Friday, July 9<sup>th</sup>, 2010

### Session 5: Invited Talk

09:00 - 10:00 Adapting Generation to Addressees: What Drives Audience Design?  
*Susan E. Brennan*

10:00 - 10:15 **Break**

### Session 6: Situated Reference

10:15 - 10:45 Situated Reference in a Hybrid Human-Robot Interaction System.  
*Manuel Giuliani, Mary Ellen Foster, Amy Isard,  
Colin Matheson, Jon Oberlander and Alois Knoll*

10:45 - 11:15 Natural Reference to Objects in a Visual Domain.  
*Margaret Mitchell, Kees van Deemter and Ehud Reiter*

11:15 - 11:45 Generating Referring Expressions with Reference Domain Theory.  
*Alexandre Denis*

11:45 - 12:15 Towards an extrinsic evaluation of referring expressions  
in situated dialogs.  
*Philipp Spanger, Ryu Iida, Takenobu Tokunaga,  
Asuka Terai and Naoko Kuriyama*

12:15 - 13:30 **Lunch**

### Session 7: Discourse/Dialogue Generation

13:30 - 14:00 Harvesting Re-usable High-level Rules for  
Expository Dialogue Generation.  
*Paul Piwek and Svetlana Stoyanchev*

14:00 - 14:30 A Discourse-Aware Graph-Based Content-Selection Framework.  
*Seniz Demir, Sandra Carberry and Kathleen F. McCoy*

14:30 - 15:00 Tense and Aspect Assignment in Narrative Discourse.  
*David Elson and Kathleen McKeown*

15:00 - 15:15 **Closing Remarks**

16:00 **Bus departs for Dublin**



# Keynote Speakers

## Adapting Generation to Addressees: What Drives Audience Design?

Susan E. Brennan

Stony Brook University  
New York, USA  
[susan.brennan@sunysb.edu](mailto:susan.brennan@sunysb.edu)

**Abstract:** Utterances are enormously variable in the forms they take. Although variability is often treated as noise to be normalized or filtered out, some who study spoken dialog probably suspect that this variability is meaningful. In this talk I will present experimental data about partner-specific variability, or audience design. No one disputes that audience design exists, but there is debate about how and why it emerges and whether it matters. After discussing some systematic ways in which speakers adapt their utterances to addressees, I will consider: What drives this adaptation? How does it affect processing by addressees? And what are the implications for natural language generation?

**Bio:** Susan Brennan is Professor of Psychology at Stony Brook University and is also affiliated with the Departments of Linguistics and Computer Science. She received a Ph.D. in Cognitive Psychology from Stanford University with a focus on psycholinguistics; an M.S. from the MIT Media Lab, where she worked on computer-generated caricatures and mediated communication; and a B.A. in cultural anthropology from Cornell University. She uses eyetracking and other behavioral techniques to study language processing by interacting partners.

## Ontologies and Text: Can NLG Bridge the Gap?

Richard Power

The Open University  
Milton Keynes, United Kingdom  
`r.power@open.ac.uk`

**Abstract:** Ontologies are akin to technical documents in that they describe domain knowledge, but they express this content very differently, in formal languages like OWL designed for use by machines, not people. During the last decade, interest has grown in the task of mapping from OWL to controlled fragments of natural language, thus providing a niche for NLG in which we are at last agreed on the formal specification of the input.

The aim of the talk is to compare ontologies and their textual counterparts (e.g., technical dictionaries, encyclopedias) at several linguistic levels. After looking at their usage (pragmatic level), we will consider terminology (roughly, word level), statements (sentence level), and groups of related statements (discourse level). The question is whether we can find similar levels in the organisation of OWL ontologies, thus allowing a mapping from ontologies to texts that can be exploited by NLG systems.

**Bio:** Richard Power has a B.A. in Psychology from the University of Sheffield, and a PhD from the University of Edinburgh for research on generating conversation. From 1975-78 he worked as a postdoc at the University of Sussex, on topics including automatic learning of numeral systems. He then moved to Padua, Italy, where he taught English in the Psychology department for some years, and worked as chief scientist and knowledge engineer for a Milan-based Artificial Intelligence company. In 1993 he returned to the UK and joined the Information Technology Research Centre at the University of Brighton. Since 2005 he has been senior lecturer in the Department of Computing at the Open University.

His research interests since 1993 have focussed on two areas in NLG: applications of Constraint Logic Programming (especially in the ICONOCLAST project), and natural language tools for knowledge editing (the WYSIWYM systems). He is currently working on the development of NLG-based tools for viewing and editing knowledge on the semantic web (SWAT project).