

WYKŁAD

Polscy doktoranci z poza Poznania (w pierwszej kolejności z SSDNM, ale także inni) mogą otrzymać wsparcie finansowe (na koszty podróży i zakwaterowania) – w tym celu należy wysłać prośbę wraz z rzetelnym szacunkiem kosztów do p. E. Skrzypczak (epskrzyp@amu.edu.pl) do 1 lipca 2011.

Temat: *Extracting, Representing and Reasoning about Time and Space in Texts and Discourse*

Wykładowca: **prof. dr Gérard Ligozat** (Uniwersytet w Paryżu)

Wymiar godzin: **24 godz.**

Termin: **27.11 – 02.12.2011**

Rozkład godzin:

niedziela	2 godz.
poniedziałek	5 godz.
wtorek	5 godz.
środa	5 godz.
czwartek	5 godz.
piątek	2 godz.

Miejsce: **Wydział Matematyki i Informatyki UAM**
Poznań, ul. Umultowska 87

Biogram wykładowcy:

Gérard Ligozat was born in France in 1944. He is a full professor (now Emeritus) of computer science at Paris-Sud University, Orsay, France and an associate researcher at CRG (Centre de Recherches en Géomatique), Université Laval, Québec, Canada. His current interest includes representing and reasoning about spatial and temporal knowledge, natural language processing, temporal and modal logics, mathematical aspects of knowledge representation, and modelling cognitive processes.

He has been educated at the École Normale Supérieure in Paris, France, and at Paris University, Ph. D. at Paris-Sud University.

He has worked at CNRS in computer science. Since 1989 he has been a professor at Paris-Sud University. He has been responsible for the research on spatial and temporal reasoning at the LIMSI laboratory. His teaching experience includes courses in mathematics, logics, computational linguistics, algorithms and data structures, databases, Artificial Intelligence and logic programming. He has been director of the graduate program “Cognitive Science” from 1991 to 2001.

His current activity aims at devising tools for integrating various types of spatial and temporal information in unified formalisms, and on the formalization of cognitive processes. His range of interest includes the study of the theoretical and computational properties of the formalisms as well as their use in application domains such as natural language processing and geographic information systems.

His publications include work in mathematics, computational linguistics and AI. He has

published two books and over eighty scientific articles in international conferences and journals, and has supervised fourteen doctoral theses since 1989.

He also has had an advising activity at the international level: in the United States, in Canada, and in Poland.

He has co-organized a series of workshops in the major Artificial Intelligence conferences (IJCAI-97, AAAI-97, ECAI-98, AAAI-98, IJCAI-99, AAAI-2000, ECAI-2000, IJCAI-2001). He also has been a member of the the European SPACENET network and has participated in the Canadian GEOIDE network (Geomatics for Informed Decisions).

His collaborations include joint work with researchers from the United States (D. Mitra, F. Anger, R. Rodriguez, R. Morris), Canada (Edwards, G., B. Moulin), Germany (B. Nebel, Renz, J.), Poland (Z. Vetulani, J. Martinek).

He has been a reviewer for several international conferences (including the IJCAI and ECAI Conferences, the TIME-97, TIME-98, TIME-99 workshops, the IEA/AIE conference, and the KR conference), as well as for several international journals (the AI Journal, Applied Intelligence, the Journal for AI Research, Spatial Cognition and Computation, and Revue Internationale de Géomatique).

He is a member of the Société Mathématique de France, the American Mathematical Society, the American Association for Artificial Intelligence, AFCET and Association Française pour l' Intelligence Artificielle (AFIA).

Published books :

H. Bestougeff et Gérard Ligozat, Outils logiques pour le traitement du temps: de la linguistique à l'intelligence artificielle, (278p.), Masson, 1989, collection: "Études et recherches en informatique"

H. Bestougeff and Gérard Ligozat, Logical Tools for Temporal Knowledge Representation, Ellis Horwood Series in Artificial Intelligence, 1992 (an English version of the previous book).

Gérard Ligozat, Représentation des connaissances linguistiques, Armand Colin, 1994.

Gérard Ligozat, Raisonnement qualitatif sur le temps et l'espace, Hermès/Lavoisier, Paris, décembre 2010 (560 pages) (www.decitre.fr/livres/Raisonnement-qualitatif-sur-le-temps-et-l-espace.aspx/9782746231177).

Opis wykładu:

Introduction

"Once upon a time, in a distant kingdom ...": Temporal and spatial information is ubiquitous in texts and discourse. In the standard introduction to fairy tales, it helps build a fantastic world, out of connection with the here and now; more frequently, it provides a backbone upon which the reader / listener can elaborate his understanding of the time structure and spatial locations involved.

Contents of the course

This crash course is an introduction to the domain of the extraction, representation and processing of temporal and spatial information in natural language, and to the formalisms and tools for using this information for specific purposes such as knowledge base querying, question answering and information mining.

We will deal with the following topics:

Time and space in natural language:

- tense, aspect, temporal adverbials;
- calendars, recurring and periodical events;
- temporal named entities;
- spatial prepositions
- spatial named entities
- verbs of motion.

Theoretical frameworks for time and space:

- modes of process, Aktionsart (Reichenbach, Vendler)
- models of time (Ter Meulen, Mourelatos, Gosselin)
- processing time in the DRT (Discourse Representation Theory)

Annotating texts for time and space

- TimeML
- spatial annotation

Representing qualitative temporal and spatial information

- qualitative calculi
- Allen's calculus, generalized intervals
- topological, directional, orientation calculi
- reasoning: consistency, preferences

Using software tools for temporal and spatial reasoning

- software tools: QAT, SparQ, GQR
- specifying and using calculi

Alternative approaches to temporal and spatial representation and reasoning

- hybrid reasoning
- fuzzy temporal / spatial reasoning

Organization of the course

- A ***general overview*** of the course will be given as an invited talk at the 5th Language & Technology Conference in Poznan;

- The ***main component*** of the course is organized as a 4 1/2 -day course:

– Monday to Thursday:

9:00 – 11:15 morning session

13:00 – 14:30 afternoon session

in each session, the methods described in the lectures will be illustrated using open source software tools;

– Friday morning:

9:00 -10:30 wrapping-up session and conclusions

Evaluation

– Individual evaluation may be provided based on project assignments.