Psychocomputational Models of Human Language Acquisition
(PsychoCompLA-2009)

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Workshop Topic

The workshop is devoted to psychologically-motivated computational models of language acquisition. That is, models which are compatible with research in psycholinguistics, developmental psychology and linguistics.

Invited Speakers

* Hinrich Schütze, University of Stuttgart

Workshop History

This is the fifth meeting of the Psychocomputational Models of Human Language Acquisition workshop following PsychoCompLA-2004, held in Geneva, Switzerland as part of the 20th International Conference on Computational Linguistics (COLING-2004), PsychoCompLA-2005 as part of the 43rd Annual Meeting of the Association for Computational Linguistics (ACL-2005) held in Ann Arbor, Michigan where the workshop shared a joint session with the Ninth Conference on Computational Natural Language Learning (CoNLL-2005), PsychoCompLA-2007 held in Nashville, Tennessee as part of the 29th meeting of the Cognitive Science Society (CogSci-2007), and PsychoCompLA-2008 held in Washington D.C., as part of the 30th meeting of the Cognitive Science Society (CogSci-2008). This year the workshop will take place on July 29th 2009 directly before the main conference of the 31st meeting of the Cognitive Science Society (CogSci-2009).

Workshop Description

The workshop will present research and foster discussion centered around psychologically-motivated computational models of language acquisition, with an emphasis on the acquisition of syntax. In recent decades there has been a thriving research agenda that applies computational learning techniques to emerging natural language technologies and many meetings, conferences and workshops in which to present such research. However, there have been only a few (but growing number of) venues in which psycho-computational models of how humans acquire their native language(s) are the primary focus. Psychocomputational models of language acquisition are of particular interest in light of recent results in developmental psychology that suggest that very young infants are adept at detecting statistical patterns in an audible input stream. Though, how children might plausibly apply statistical 'machinery' to the task of grammar acquisition, with or without an innate language component, remains an open and important question. One effective line of investigation is to computationally model the acquisition process and determine interrelationships between a model and linguistic or psycholinguistic theory, and/or correlations between a model's performance and data from linguistic environments that children are exposed to.

Topics and Goals

Short papers that present research on (but not necessarily limited to) the following topics are welcome:
* Models that address the acquisition of word-order;
* Models that combine parsing and learning;
* Formal learning-theoretic and grammar induction models that incorporate psychologically plausible constraints;
* Comparative surveys that critique previously reported studies;
* Models that have a cross-linguistic or bilingual perspective;
* Models that address learning bias in terms of innate linguistic knowledge versus statistical regularity in input;
* Models that employ language modeling techniques from corpus linguistics;
* Models that employ techniques from machine learning;
* Models of language change and its effect on language acquisition or vice versa;
* Models that employ statistical/probabilistic grammars;
* Computational models that can be used to evaluate existing linguistic or developmental theories (e.g., principles & parameters, optimality theory, construction grammar)
* Empirical models that make use of child-directed corpora such as CHILDES.

Submission details

Authors are invited to submit short papers of (maximally) 2 pages of narrative plus 2 pages for data, references and other supplementary materials. Papers should be anonymous, clearly titled and the narrative section should be no more than 1400 words in length. Either PDF, or MS Word formats are acceptable. Please include a cover sheet (as a separate attachment) containing the title of your submission, your name, contact details and affiliation. Send your submission electronically to

Email: Psycho.Comp@hunter.cuny.edu.
with PsychoCompLA-2009 Submission somewhere in the subject line.

Publication

The accepted papers will appear in the online workshop proceedings. Full papers of accepted short papers will be considered in Fall 2009 for inclusion in an issue of the new Cognitive Science Society Journal - topiCS - whose focus will be psychocomputational modeling of human language acquisition.

Submission deadline: May 15, 2009

Contact: Psycho.Comp@hunter.cuny.edu
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Workshop Organizers

Rens Bod, University of Amsterdam (rens.bod@uva.nl)
William Gregory Sakas, City University of New York (sakas@hunter.cuny.edu)

Workshop Co-Organizer

Taylor Cassidy, City University of New York (Pyshco.Comp@hunter.cuny.edu)

Schedule (July 29th 2009)

9:00-9:10: Welcome and Introduction

9:10-9:40: *Input Evidence for Language Acquisition: The Discovery of Basic Word Order*
Jos de Bruin, Jacqueline van Kampen

9:40-10:10: *Online Learning Mechanisms for Bayesian Models of Word Segmentation*
Sharon Goldwater, Lisa Pearl, Mark Steyvers

10:10-10:40: *Lexical Category Acquisition as an Incremental Process*
Afra Alishahi, Grzegorz Chrupala

10:40-11:00: Coffee break

11:00-11:30: *Word Segmentation as General Chunking*
Daniel Hewlett, Paul Cohen

11:30-12:00: *Modeling the Effect of Animacy on Human Sentence Comprehension*
Bram Vandekerckhove, Dominiek Sandra, Walter Daelemans

12:00-12:30: *Modeling Acquisition of Word Structure with Lexicalized Grammar Learning*
Çağrı Çöltekin

12:30-13:30: Lunch

13:30-14:15: **Invited talk** by Hinrich Schütze, *Acquisition of Segments in Exemplar Theory*

14:15-14:45: *Acquisition of Abstract Slot-Filler Schemas: Computational Evaluation*
Sheli Kol, Bracha Nir, Shuly Wintner

14:45-15:15: *A Computational Model for Vocabulary Acquisition from Auditory Input*
Hugo Van Hamme

15:15-15:30: Coffee break

15:30-16:00: *The Emergence of Words: Modelling Language Acquisition by an End-toEnd Computational Model*
Louis ten Bosch, Lou Boves

16:00-16:30: *Computational Grammar Acquisition from CHILDES Data Using a Probabilistic Parsing Model*
Tom Kwiatkowski, Sharon Goldwater, Mark Steedman

16:30-17:00: General discussion session