

Catherine Lai

2124 Walnut St 2R, Philadelphia, PA 19103
(267) 773-2822, laic@ling.upenn.edu
<http://www.ling.upenn.edu/~laic>

Education

- *PhD Candidate in Linguistics, University of Pennsylvania* (2005-current)
 - **Dissertation Title:** Dialogue Glue: Prosody in the Interpretation of Discourse
Expected Completion: May 2012.
 - **Research areas:** Automated extraction and statistical analysis of prosodic and discourse features from large speech corpora, experimental investigations on perception of speaker attitude, prosodic meaning and dialogue/information structure, characteristics of task oriented and conversational dialogue.
 - **Candidacy Exams:** Phonetics, Phonology, Syntax, Semantics.
 - **Other Relevant Courses:** Mathematical Foundations of Communication, Topics in Prosody, Probability, Formal Semantics and Mathematical Linguistics.
- *M.Sc. (Research) in Computer Science, University of Melbourne, Australia* (2004-2005)
 - **Masters Thesis:** A Formal Framework for Linguistic Tree Query (First class honors)
 - **Research Areas:** Logical representations of linguistic structures, database theory, query language design, semistructured data and XML query.
- *B.Sc. (Hons) in Mathematics and Computer Science, University of Melbourne* (1999-2003)
 - **Honours Thesis:** Phylogenetic Inference and Hypothesis Testing (First class honors)
 - **Research Areas:** Computation of statistics for evaluating phylogenetic trees.
 - **Relevant Courses:** Human Language Technology, Interactive System Design, Information Retrieval, Algorithms and Data Structures, Database Systems, Software Development Tools and Principles, Logic and Computation, Network Optimization, Programming Languages Implementation, Bioinformatics, Topics in Enumeration and Graph Theory, Metric Spaces, Topology, Linear Analysis.

Research Experience

- *Speech Research Intern, Educational Testing Service.* (368 hours in 2010)
 - **Supervisor:** Dr Klaus Zechner
 - **Responsibilities:** Statistical and machine learning analysis of prosodic features of ESL corpora for tone and stress classification (R, Weka), investigation of the accuracy of various pitch trackers and postprocessing methods, programming for SpeechRater (Java).
- *Research Assistant, Dept. of Linguistics, University of Pennsylvania* (Summer 2008)
 - **Supervisor:** A. Prof. Jiahong Yuan.
 - **Responsibilities:** Literature review for a NSF grant proposal on forced alignment in phonetics research, helped create evaluation data for the alignment experiments focusing on the phonetic properties of vowel reduction.

- **Phonetics Lab RA, Dept. of Linguistics, University of Pennsylvania** (2006-2007)
 - **Supervisor:** A. Prof. Jiahong Yuan.
 - **Responsibilities:** Conducted research on crosslinguistic perception of speech disfluency, design/implementation of experiment GUI (Python) and statistical analysis of the data (R), lab systems administrator (Linux/Windows/Mac).
- **Annotator, IRCS, University of Pennsylvania** (Summer 2006)
 - **Supervisor:** Dr Rashmi Prasad.
 - **Responsibilities:** Annotation correction for the Penn Discourse Treebank.
- **Research Fellowship, Department of Math/Stats, University of Melbourne** (Summer 2003)
 - **Supervisor:** Dr Graham Byrnes.
 - **Responsibilities:** Simulated phylogenetic data; helped develop a program (C) for calculating a GLS statistic from phylogenetic data.

Teaching Experience

- **Teaching Assistantships at the University of Pennsylvania:**
 - Introduction to Linguistics (Spring 2008)
 - Introduction to Formal Linguistics (Fall 2007)
 - Phonetics Practicum (MATLAB, Praat, Python, R) (Spring 2007)
 - Introduction to Phonetics (MATLAB, Praat, Python, R) (Fall 2006)
- **Teaching Assistantships at the University of Melbourne:**
 - Introduction to Programming (C, Haskell) (Sem I 2004, 2005)
 - Logic and Computation (Prolog) (Sem II 2003, 2004)
 - Professional Issues in Computing (Sem I 2003)

Journal Articles

Catherine Lai and Steven Bird (2010) Querying Linguistic Trees, *Journal of Logic, Language and Information*, 19(1), pp 53–73.

Conference Proceedings and Presentations

Catherine Lai, Keelan Evanini and Klaus Zechner (2011) Comparative Analysis of Prosodic Features of Native and Non-native Spontaneous Speech. Presented at *New Tools and Methods for Very-Large-Scale Phonetics*, Philadelphia, January, 2011.

Catherine Lai (2011) Update Foregrounding: Verum Focus, Prosody, and Negative Polar Questions. Accepted for *the 85th Annual Meeting of the Linguistic Society of America (LSA)*, Pittsburgh, January 6-9, 2011. (Not presented due to illness).

Keelan Evanini and Catherine Lai (2010) The importance of optimal parameter setting for pitch extraction. Presented at *the 2nd PanAmerican/Iberian Meeting on Acoustics*, Cancun, Mexico, Nov 2010.

Catherine Lai (2010) What does really really mean?: Evidence, standards and probability in dialogue. Presented at *The 41st Annual Meeting of North East Linguistic Society*, Philadelphia, Oct 2010.

Catherine Lai (2010) What do you mean, you're uncertain?: The interpretation of cue words and rising intonation in dialogue. In *Proceedings of Interspeech'10*, Makuhari, Japan, Sept 2010.

Catherine Lai, Yanyan Sui and Jiahong Yuan (2010) A Corpus Study of the Prosody of Polysyllabic Words in Mandarin Chinese. In *Proceedings of Speech Prosody 2010*, Chicago, USA, May 2009.

Aviad Eilam and Catherine Lai (2009) Sorting Out The Implications of Questions. Presented at *CONSOLE'09*, Barcelona, Spain, Dec 2009.

Catherine Lai (2009) Perceiving Surprise on Cue Words: Prosody and Semantics Interact on *Right* and *Really*. In *Proceedings of Interspeech'09*, Brighton, UK, Sept 2009.

Catherine Lai (2008) Bayesian Decision Theory, Iterated Learning and Portuguese Clitics. Presented at *Psychocomputational Models of Human Language Acquisition (Cog Sci 2008)*, Washington D.C, July 2008.

Catherine Lai (2008) Prosodic Cues for Backchannels and Short Questions: *Really?* In *Proceedings of Speech Prosody 2008*, Campinas, Brazil, May 2008.

Catherine Lai, Kyle Gorman, Jiahong Yuan, Mark Liberman (2007) Perception of Disfluency: Language Differences and Listener Bias. In *Proceedings of Interspeech'07*, Antwerp, Belgium, August 2007.

Catherine Lai and Steven Bird (2005) LPath+: A First-Order Complete Language for Linguistic Tree Query. In *Proceedings of the 19th Pacific Asia Conference on Language, Information and Computation (PACLIC)*. pp 1-12, Taipei, Taiwan. Taipei: Academia Sinica. December 2005.

Catherine Lai and Steven Bird (2004) Querying and Updating Treebanks: A Critical Survey and Requirements Analysis. In *Proceedings of the Australasian Language Technology Workshop*, December 2004.

Technical Skills

- Programming languages: Python, R, MATLAB, C, Java, SQL, Prolog, Haskell.
- Speech/classification Toolkits: Praat (scripting), Weka.
- Software development: UNIX shell, git, CVS, gdb, make, Lex, Yacc, Vim.

Language Proficiency

English (native), Portuguese (intermediate), Cantonese (basic), French (reading).

Awards

- Dissertation Completion Fellowship, University of Pennsylvania (2011)
- Dean's Summer Fellowship, University of Pennsylvania (2009)

- International Speech Communication Association (ISCA) Travel Grant (2007)
- Benjamin Franklin Fellowship, University of Pennsylvania (2005-2010)
- Australian Postgraduate Award, Australian Government/University of Melbourne (2004-2005)
- Faculty of Science, Dean's Honours List: Math/Comp. Sci. Honours, University of Melbourne (2004)
- Faculty of Engineering, Dean's Honours List, University of Melbourne (2002)

Service

- Organizing committee, Workshop: New Tools and Methods for Very-Large Scale Phonetics Research (2010-2011)
- ISCA Student Advisory Council (2009-present)
- Organizing committee, 2010 Young Researchers' Roundtable on Spoken Dialogue Systems (2009-2010)
- Co-ordinator, Splunch (phonetics lab research lunch) (2006,2009)
- Editor, Penn Working Papers in Linguistics (2006-2009)
- Co-chair, 32nd Penn Linguistics Colloquium (2007-2008)
- Committee member, 30th-31st Penn Linguistics Colloquium (2005-2007)

References

Jiahong Yuan
 Department of Linguistics
 University of Pennsylvania
 619 Williams Hall
 Philadelphia, PA 19104-6305
jiahong@ling.upenn.edu

Mark Liberman
 Department of Linguistics
 University of Pennsylvania
 619 Williams Hall
 Philadelphia, PA 19104-6305
myl@cis.upenn.edu

Florian Schwarz
 Department of linguistics
 University of Pennsylvania
 619 Williams Hall
 Philadelphia, PA 19104-6305
florians@ling.upenn.edu

Steven Bird
 Department of Computer Science
 and Software Engineering
 University of Melbourne, Victoria 3010
 Australia
sbird@unimelb.edu.au

Klaus Zechner
 Speech Team, R&D
 Educational Testing Service
 Rosedale Road
 Princeton, NJ 08541
KZechner@ets.org