

Brian D. Langner (*blangner@cs.cmu.edu*)

CONTACT INFORMATION

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RESEARCH INTERESTS

Natural language generation, speech synthesis, spoken dialog systems, natural language processing, speech-to-speech translation, speech recognition, computational linguistics, human-computer interaction, artificial intelligence, cognitive science

EDUCATION

Carnegie Mellon University

Ph.D. in Language and Information Technologies (expected completion December 2009)

M.S. in Language and Information Technologies, May 2004
Final GPA: 3.61/4.00

Michigan State University

B.S. with Honors in Computer Science, May 2002
Cognate in Cognitive Science
Final GPA: 3.66/4.00

CURRENT RESEARCH

- Data-driven natural language generation
- Tactical spoken language generation
- Intelligent presentation of complex information using speech synthesis
- Understandable natural language generation over a telephone for the general population
- Error classification, identification, and recovery in spoken dialog systems

ACADEMIC AND TEACHING EXPERIENCE

Carnegie Mellon University, Pittsburgh, PA

Course Lecturer

August 2008 - December 2009

Part-time lecturer for several undergraduate and graduate level courses, including Speech Processing, covering a practical and theoretical understanding of speech recognition, speech synthesis, and spoken dialog systems; Speech II, covering perception and prosody of human speech, and speech synthesis.

Undergraduate Supervisor

September 2008 - May 2009

Supervised an undergraduate student working on an REU project, investigating features of dialog success and failure for the purpose of estimating whether a particular dialog will be successful while the dialog is occurring.

Technical Committee Member

June 2009

Reviewer for NAACL-HLT 2009 Student Research Workshop.

Conference Tutorial Organizer

June 2008

Co-designed materials and presentation for a tutorial on building practical dialog systems. One of several presenters (about 40% of the session) for a well-attended tutorial session at ACL 2008. This tutorial has now been given several times.

Teaching Assistant

August 2006 - May 2008

Assistant for multiple courses during this time: Introduction to Human Language Technologies, covering information retrieval, NLP, machine translation, and speech recognition and synthesis; Speech II, covering perception and prosody of human speech, and speech synthesis. Duties included assignment grading, course website maintenance, and teaching several lectures.

Michigan State University, East Lansing, MI

Teaching Assistant

August 2000 - May 2002

Assistant for introductory C++ programming course. Duties included being the primary instructor for one or more 2-hour lab sessions per week, grading of weekly programming projects, weekly office hours. In Fall 2001, was the instructor for the Honors section of this course, which included additional responsibilities of lecturer for the Honors material (including an introduction to Java), and generation and grading of Honors projects.

INDUSTRY AND
PROFESSIONAL
EXPERIENCE

Interspeech 2006 Organizing Committee, Pittsburgh, PA

Webmaster

September 2005 - October 2006

Designed, expanded, and maintained interfaces to organize and run the large (1300-person) annual speech- and language-oriented international conference. Dealt with paper submission, reviewing, acceptance notifications, session planning, scheduling, and related tasks. Web-based interface was primarily standard HTML and PHP, integrating with a PostgreSQL database for dynamic content.

Follett Software Company, McHenry, IL

Software developer

May 2001 - August 2001

Assisted in porting the "WebCollection Plus" product from a C++-based Win32 service/application with a custom embedded language (similar to PHP) to a package of Java servlets and C++-based library code to run under Novell Netware. Also assisted with testing the product.

3Com Corporation, Mt. Prospect, IL

Web developer

May 2000 - August 2000

Designed and implemented group intranet web site. Site involved use of HTML, Cascading Style Sheets, server-side includes, JavaScript, and Perl-based CGI scripts for dynamic pages. CGI scripting controlled creation, modification, and display of developers' test plans and reports. Installed and configured Apache web server to run this site.

SOFTWARE
DEVELOPMENT

- Co-developer of **Olympus**, a general open-source framework for building spoken dialog systems. The Olympus platform has been used to build more than a dozen dialog systems at multiple institutions.
- Co-developer of **Let's Go**, a spoken dialog system that provides bus schedule information for the Pittsburgh metropolitan area. This system is accessible to the general public and has handled more than 85,000 calls since March 2005.
- Co-developer of **flite**, a small, fast run-time synthesis engine for multiple architectures designed as an alternative to the Festival engine, capable of using voices built with the FestVox voice-building tools.

PUBLICATIONS

Langner, B., Black, A. (2009) MOUNTAIN: A Translation-based Approach to Natural Language Generation for Dialog Systems, IWSDS 2009, Irsee, Germany.

Black, A., Anumanchipalli, G., Kominek, J., Langner, B., Nallasamy, U., Prahallad, K., Qin, L., and Toth, A. (2009) CMU Blizzard 2009: A Statistical Parametric Synthesis Approach, Blizzard Challenge 2009, Edinburgh, UK.

Black, A., Bennett, C., Kominek, J., Langner, B., Prahallad, K., Toth, A. (2008) CMU Blizzard 2008: Optimally Using a Large Database for Unit Selection Synthesis, Blizzard Challenge 2008, Brisbane, Australia.

Eskenazi, M., Black, A., Raux, A. and Langner, B. (2008) Let's Go Lab: A platform for evaluation of spoken dialog systems with real world users, Interspeech 2008, Brisbane, Australia.

Raux, A., Langner, B., Black, A. and Eskenazi, M. (2008) Building Practical Spoken Dialog Systems ACL/HLT 2008 Tutorial, Columbus, Ohio.

Langner, B., Black, A. (2007) uGloss: A Framework for Improving Spoken Language Generation Understandability, Interspeech 2007, Antwerp, Belgium.

Black, A., Bennett, C., Blanchard, B., Kominek, J., Langner, B., Prahallad, K., Toth, A. (2007) CMU Blizzard 2007: A Hybrid Acoustic Unit Selection System from Statistically Predicted Parameters, Blizzard Challenge 2007, Bonn, Germany.

Langner, B., Black, A. (2007) Understandable Production of Massive Synthesis, 6th ISCA Speech Synthesis Workshop, Bonn, Germany.

Langner, B., Kumar, R., Chan, A., Gu, L., Black, A. (2006) Generating Time-Constrained Audio Presentations of Structured Information, Interspeech 2006, Pittsburgh, USA.

Raux, A., Bohus, D., Langner, B., Black, A., Eskenazi, M. (2006) Doing Research on a Deployed Spoken Dialogue System: One Year of Let's Go! Experience, Interspeech 2006, Pittsburgh, USA.

Bohus, D., Langner, B., Raux, A., Black, A., Eskenazi, M., Rudnicky, A. (2006) Online Supervised Learning of Non-understanding Recovery Policies, SLT 2006, Aruba, Aruba.

Langner, B., Black, A. (2005) Using Speech In Noise to Improve Understandability for Elderly Listeners, ASRU 2005, San Juan, Puerto Rico.

Raux, A., Langner, B., Black, A., Eskenazi, M. (2005) Let's Go Public! Taking a Spoken Dialog System to the Real World, Interspeech 2005 (Eurospeech), Lisbon, Portugal.

Kominek, J., Bennett, C., Langner, B., Toth, A. (2005) The Blizzard Challenge 2005 CMU Entry: A Method For Improving Speech Synthesis Systems, Interspeech 2005 (Eurospeech), Lisbon, Portugal.

Langner, B., Black, A. (2005) Improving the Understandability of Speech Synthesis by Modeling Speech In Noise, ICASSP 2005, Philadelphia, USA.

Langner, B., Black, A. (2004) An Examination of Speech In Noise and Its Effect on Understandability for Natural and Synthetic Speech, Carnegie Mellon University, Language Technologies Institute, Technical Report CMU-LTI-04-187.

Langner, B., Black, A. (2004) Creating a Database of Speech In Noise For Unit Selection Synthesis, 5th ISCA Speech Synthesis Workshop, Pittsburgh, USA.

Raux, A., Langner, B., Black, A. and Eskenazi, M. (2003) LET'S GO: Improving Spoken Dialog Systems for the Elderly and Non-natives, Eurospeech 2003, Geneva, Switzerland.

AWARDS AND
HONORS

- 2005-06 NSF IGERT Fellowship Recipient
- Tau Beta Pi Honor Society
- Upsilon Pi Epsilon Honor Society