

Heather Pon-Barry

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Research Interests

Computational Linguistics, Spoken Language Processing, Prosody, Artificial Intelligence, Cognitive Science, Psycholinguistics.

Education

- 2006-present Harvard University. Ph.D. student in Computer Science, Artificial Intelligence Lab, School of Engineering and Applied Sciences.
- 2003-2004 Stanford University. M.S. in Symbolic Systems, concentration in Natural Language Technologies.
- 1999-2003 Stanford University. B.S. in Symbolic Systems, concentration in Artificial Intelligence.

Publications

Journal Articles and Book Chapters

- 2009 Sebastian Vargas, Fuliang Weng, and Heather Pon-Barry. Interactive Question Answering and Constraint Relaxation in Spoken Dialogue Systems. *Natural Language Engineering*, 15(1):9-30.
- 2006 Heather Pon-Barry, Karl Schultz, Elizabeth Owen Bratt, Brady Clark, and Stanley Peters. Responding to Student Uncertainty in Spoken Tutorial Dialogue Systems. *International Journal of Artificial Intelligence in Education*, 16, 171-194.
- 2005 Heather Pon-Barry, Karl Schultz, Brady Clark, Elizabeth Owen Bratt, Stanley Peters, and David Haley. Contextualizing Reflective Dialogue in a Spoken Conversational Tutor. *Journal of Educational Technology & Society* 8(4), 42-51.
- 2005 Brady Clark, Oliver Lemon, Alexander Gruenstein, Elizabeth Owen Bratt, John Fry, Stanley Peters, Heather Pon-Barry, Karl Schultz, Zack Thomsen-Gray, and Pucktada

Treeratpituk. A General Purpose Architecture for Intelligent Tutoring Systems. In *Natural, Intelligent and Effective Interaction in Multimodal Dialogue Systems*. Edited by Niels Ole Bernsen, Laila Dybkjaer, and Jan van Kuppevelt. Dordrecht: Kluwer.

Conference Papers

- 2009 Heather Pon-Barry and Stuart Shieber. Identifying uncertain words within an utterance via prosodic features. *Proceedings of Interspeech 2009*.
- 2009 Heather Pon-Barry and Stuart Shieber. The importance of sub-utterance prosody in predicting level of certainty. *Proceedings of NAACL-HLT 2009*.
- 2008 Heather Pon-Barry. Prosodic manifestations of confidence and uncertainty in spoken language. In *Proceedings of Interspeech 2008* (pp. 74-77).
- 2006 Heather Pon-Barry, Fuliang Weng, and Sebastian Varges. Evaluation of content presentation strategies for an in-car spoken dialogue system. In *Proceedings of the 9th International Conference on Spoken Language Processing, Interspeech 2006* (pp. 1930-1933).
- 2006 Fuliang Weng, Sebastian Varges, Badri Raghunathan, Florin Ratiu, Heather Pon-Barry, Brian Lathrop, et al. CHAT: A Conversational Helper for Automotive Tasks. In *Proceedings of the 9th International Conference on Spoken Language Processing, Interspeech 2006*, (pp. 1061-1064).
- 2006 Sebastian Varges, Fuliang Weng, and Heather Pon-Barry. Interactive Question Answering and Constraint Relaxation in Spoken Dialogue Systems. *Proceedings of the 7th SIGdial Workshop on Discourse and Dialogue* (pp. 28-35).
- 2004 Heather Pon-Barry, Brady Clark, Karl Schultz, Elizabeth Owen Bratt, and Stanley Peters. Advantages of Spoken Language in Dialogue-based Tutoring Systems. In J. Lester, R. Vicari, & F. Paraguacu (eds.) *Proceedings of ITS 2004, 7th International Conference on Intelligent Tutoring Systems* (pp. 390-400).
- 2004 Heather Pon-Barry, Brady Clark, Elizabeth Owen Bratt, Karl Schultz, and Stanley Peters. Evaluating the Effectiveness of SCoT: a Spoken Conversational Tutor. In J. Mostow & P. Tedesco (eds.) In *Proceedings of the ITS 2004 Workshop on Dialog-based Intelligent Tutoring Systems* (pp. 23-32).
- 2004 Heather Pon-Barry, Brady Clark, Karl Schultz, Elizabeth Owen Bratt, and Stanley Peters. Contextualizing Learning in a Reflective Conversational Tutor. In *Proceedings of the 4th IEEE International Conference on Advanced Learning Technologies* (pp. 236-240).

- 2004 Karl Schultz, Brady Clark, Heather Pon-Barry, Elizabeth Owen Bratt, and Stanley Peters. SCoT: A Spoken Conversational Tutor. Intelligent Systems Demonstration for AAAI-04.
- 2003 Karl Schultz, Elizabeth Owen Bratt, Brady Clark, Stanley Peters, Heather Pon-Barry, and Pucktada Treeratpituk. A Scalable, Reusable Spoken Conversational Tutor: ScoT. In V. Aleven, U. Hoppe, J. Kay, R. Mizoguchi, H. Pain, F. Verdejo, and K. Yacef (eds.) *Proceedings of the AIED 2003 Workshop on Tutorial Dialogue Systems: With a View Towards the Classroom* (pp. 367-377).
- 2002 Brady Clark, Elizabeth Owen Bratt, Oliver Lemon, Stanley Peters, Heather Pon-Barry, Zack Thomsen-Gray, and Pucktada Treeratpituk. A General Purpose Architecture for Intelligent Tutoring Systems. In the *Proceedings of the International CLASS Workshop on Natural, Intelligent and Effective Interaction in Multimodal Dialogue Systems*.
- 2002 Elizabeth Owen Bratt, Brady Clark, Zack Thomsen-Gray, Stanley Peters, Pucktada Treeratpituk, Heather Pon-Barry, Karl Schultz, David C. Wilkins, and David Fried. Model-Based Reasoning for Tutorial Dialogue in Shipboard Damage Control. In B. Bredeweg (ed.) *ITS 2002 Workshop on Model Based Systems and Qualitative Reasoning for Intelligent Tutoring Systems* (pp. 63-69).
- 2001 Brady Clark, John Fry, Matt Ginzton, Stanley Peters, Heather Pon-Barry, and Zack Thomsen-Gray. A Multimodal Intelligent Tutoring System for Shipboard Damage Control. In *Proceedings of 2001 International Workshop on Information Presentation and Multimodal Dialogue* (pp. 121-125).
- 2001 John Fry, Matt Ginzton, Stanley Peters, Brady Clark, and Heather Pon-Barry. Automated Tutoring Dialogues for Training in Shipboard Damage Control. In *Proceedings of the 2001 SIGdial Workshop*.

Manuscripts

- 2004 Heather Pon-Barry. In search of Bloom's missing sigma: Adding the conversational intelligence of human tutors to an intelligent tutoring system. Unpublished M.S. Thesis, Symbolic Systems Program, Stanford University.

Awards and Honors

- 2007 National Science Foundation Graduate Research Fellowship.
- 2007 National Defense Science and Engineering Graduate Fellowship.
- 2007 Linguistic Society of America Institute Fellowship.

- 2006 Applied Sciences Fellowship, Division of Engineering and Applied Sciences, Harvard University.
- 2005 Paper presented at the Seventh International Conference on Intelligent Tutoring Systems, "Advantages of spoken language in dialogue-based tutoring systems," selected for 'Best of ITS 2004' (given to top 5 papers).

Teaching Experience

- 2008 Teaching Fellow, Applied Math 101: Introduction to Probability and Statistics for Engineers, Harvard University.
- 2007 Teaching Fellow, Computer Science 182: Intelligent Machines: Reasoning, Actions, and Plans, Harvard University.
- 2007-2008 Mentor, Women in Science Program, Harvard University.
- 2002 Teaching Assistant, Engineering 50: Introduction to Materials Science, Stanford Japan Center, Kyoto, Japan.
- 2000-2001 Volunteer tutor for East Palo Alto Tennis & Tutoring program, Stanford, CA.

Academic Service

- 2008-2009 Board member, Harvard Graduate Women in Science.
- 2007-2009 Coordinator, Artificial Intelligence Research Group seminar series, Harvard University.
- 2002-2003 Symbolic Systems Program Advising Fellow, Stanford University.

Work Experience

- 2004-2006 Research Intern/Research Associate for project titled "Driving Your Car with Conversational Language" (Principal Investigators: Fuliang Weng, Bosch Research & Technology Center; Carsten Bergmann, Volkswagon of America Electronics Research Lab; Stanley Peters, Stanford University; Harry Bratt, SRI), Bosch Research & Technology Center, Palo Alto, CA.
- 2001-2004 Undergraduate/Graduate Research Assistant for project titled "Natural Language Interaction with Intelligent Tutoring Systems" (Principal Investigators: Stanley Peters, Herbert Clark), CSLI, Stanford University.

2002 Intern for project entitled "Modeling and Analyzing Multimodal Communicative Behavior" (Principal Investigator: Eric Bateson), Advanced Telecommunications Research Institute International (ATR), Kyoto, Japan.

Other Education

2007 Linguistic Society of America Summer Institute, Stanford, CA.

2003 CIRCLE summer school on intelligent tutoring systems. Carnegie Mellon University, Pittsburgh, PA.

2002 Overseas Studies Program, Stanford Japan Center, Kyoto, Japan.