

H. Chad Lane

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Education

Ph.D. (expected) Computer Science, University of Pittsburgh, August 2004.
dissertation: "Natural Language Tutoring and the Novice Programmer"
advisor: Kurt VanLehn.

M.S. Computer Sciences, University of Wisconsin-Madison, 1997.

B.S. Mathematics & Computer Science, Truman State University, *cum laude*, honors in Computer Science, 1995.

Awards & Honors

Poster Award, runner-up, Computer Science Day Graduate Student Competition, University of Pittsburgh, 2002.

Orrin E. & Margaret M. Taulbee Award for Excellence in Computer Science, Department of Computer Science, University of Pittsburgh, 2001.

Orrin E. & Margaret M. Taulbee Award for Excellence in Computer Science, Department of Computer Science, University of Pittsburgh, 2000.

Teaching Award for the Highest Evaluation Score among TAs, Department of Computer Science, University of Pittsburgh, 1999.

Commendation from Vice Chancellor for positive interaction with students, University of Pittsburgh, 1998.

Outstanding Graduate Student Instructor Award, Computer Sciences Department, University of Wisconsin-Madison, 1997.

Research Summary

My research involves applications of artificial intelligence to education and cognitive modeling of tutoring. I have developed models of tutoring that support students in a number of domains, including algebra equation solving, propositional logic, football, and most recently novice programming. My dissertation work describes a model of preventive tutoring for beginning programmers derived from human tutoring data. The resulting tutoring system models and supports the cognitive problem solving activities novice programmers are known to generally underestimate or even bypass altogether. Interaction occurs through the use of natural language dialogue. To demonstrate the value of this model and explore the pedagogical benefits of dialogue, I am currently engaged in a controlled evaluation that compares the dialogue version of the system with a read-only version.

Experience

University of Pittsburgh
Pittsburgh, PA

Graduate Student Researcher
Fall 1999–present

Member of the Center for Interdisciplinary Research on Constructive Learning Environments (CIRCLE) working on intelligent tutoring systems and projects related to artificial intelligence, cognition, and learning. Reviewed grant proposals and established peer reviewing relationships with graduate students from psychology and intelligent systems. Coordinated the CIRCLE Seminar series by inviting and scheduling visiting speakers. Attended and periodically led the discussion at research and project meetings. See <http://www.pitt.edu/~circle>

Experience (cont.)	University of Pittsburgh Pittsburgh, PA	<i>Teaching Fellow/Instructor</i> Fall 1997–Spring 1999 Fall 2001–present
	Taught various introductory level computer science courses. Created syllabi, delivered lectures, administered exams, gave homework, assigned final grades, and oversaw teaching assistants. Also redesigned pre-introductory course (CS0007) during transition to Java. See http://www.cs.pitt.edu/~hcl/TP	
	Truman State University Kirksville, MO	<i>Director, Joseph Baldwin Academy</i> Summers 1996–1998
	Oversaw daily operations of the Joseph Baldwin Academy, a summer academic program for gifted young students. Duties included talking with parents, student discipline, staff hiring, training, and support, and daily communications with university staff and officials. Approximately 300 students attend JBA each summer in one of two, three-week sessions. Also served as Preceptor for courses such as Computer Programming, Logic, and College Algebra before becoming Director. See http://jba.truman.edu	
	University of Wisconsin–Madison Madison, WI	<i>Teaching Assistant</i> Fall 1995–Spring 1997
	Same teaching duties as listed above.	
	U.S. Department of Energy Oak Ridge, TN	<i>Student Researcher</i> Spring–Summer 1994
	Student member of DOE computer security research team.	
	Truman State University Kirksville, MO	<i>Student Programmer</i> Fall 1991–Spring 1995
	Maintained and configured various systems, networks, and databases for university.	
Refereed Publications	Lane, H. Chad & Kurt VanLehn (in press). A Dialogue-Based Tutoring System for Beginning Programming. <i>Proceedings of the 17th International FLAIRS Conference</i> . AAAI Press. [pdf]	
	Lane, H. Chad & Kurt VanLehn (2003). Coached Program Planning: Dialogue-Based Support for Novice Program Design. <i>Proceedings of the Thirty-Fourth Technical Symposium on Computer Science Education (SIGCSE '03)</i> . ACM Press, pp. 148–152. [pdf]	
Other Publications	Lane, H. Chad (2004). A Preventive Tutoring System for Beginning Programming. <i>Thirty-Fifth ACM Technical Symposium on Computer Science Education, Doctoral Consortium</i> , Norfolk, VA. [html]	
	Lane, H. Chad (2003). Development of an Intelligent Tutoring System for Novice Program Design. <i>Thirty-Fourth ACM Technical Symposium on Computer Science Education, Doctoral Consortium</i> , Reno, NV. [html]	
	Lane, H. Chad (2002). Eliciting Pseudocode in Novice Program Design. <i>Thirty-Third ACM Technical Symposium on Computer Science Education, Doctoral Consortium</i> , Northern Kentucky, KY. [html]	
	Lane, H. Chad (1994). Cryptographic Algorithms for Privacy-Enhanced Mail. <i>Technical Report K/DSRD-1721</i> , Oak Ridge National Lab, Data Systems Research and Development.	

Presentations

“Siblings, Ponderosa, and Girth: Teaching and Tutoring Programming so Novices Can Understand.” Teaching Assistant Workshop, Department of Computer Science, University of Pittsburgh, Pittsburgh, PA, November 2003.

“Coached Program Planning: Dialogue-Based Support for Novice Program Design.” ACM Technical Symposium on Computer Science Education, Reno, NV, February 2003.

“Developing an Intelligent Tutoring System for Novice Program Design.” ACM Technical Symposium on Computer Science Education, Doctoral Consortium. Reno, NV, February 2003.

“Coached Program Planning: Dialogue-Based Support for Novice Program Design.” Poster Presentation, Computer Science Day, Department of Computer Science, University of Pittsburgh, November 2002.

“Tutoring the Novice Programmer: Towards a Design-Oriented Intelligent Tutoring System for Programming.” CIRCLE Advisory Board Meeting, Pittsburgh, PA, March 2002.

“Eliciting Pseudocode in Novice Program Design.” ACM Technical Symposium on Computer Science Education, Doctoral Consortium. Northern Kentucky, KY, February 2002.

“Scaffolding Pseudocode Construction in Novice Programming.” Poster Presentation, CIRCLE Advisory Board Meeting, Pittsburgh, PA, March 2001.

“PLAYBOOK: An Intelligent Tutoring System for Football.” Seminar Presentation, Department of Computer Science, University of Pittsburgh, November 1999.

“Teaching a Course as a TA.” Teaching Assistant Orientation, Department of Computer Science, University of Pittsburgh, September 1998.

“A Model of Instructional Explanation in an Algebra Tutor.” Poster Presentation, Learning Research and Development Center, University of Pittsburgh, Pittsburgh, PA, April 1998.

“Zero-Knowledge Proofs: Proving You Know Without Telling.” Senior Honors Project Presentation, Division of Math and Computer Science, Truman State University, April 1995.

Service

Reviewer, ACM Technical Symposium on Computer Science Education (SIGCSE), 2004.

Undergraduate Programs Committee, Department of Computer Science, University of Pittsburgh, 1998-2000.

Volunteer Java Seminar Instructor, Learning Research and Development Center, University of Pittsburgh, Fall 1999.

Professional Associations

AAAI, ACM, SIGART, SIGCSE, SIGDIAL

References

Available upon request.