Brian Dorn

School of Interactive Computing
Georgia Institute of Technology
85 5th St NW
Atlanta, GA 30332-0760

+1 678-385-1105 (office)
+1 678-570-7401 (mobile)
dorn@cc.gatech.edu
http://home.cc.gatech.edu/dorn

EDUCATION

Georgia Institute of Technology, Atlanta, GA — Fall 2005 to Present
Ph.D. in Computer Science (expected August 2010)

Thesis: *A case-based approach for supporting the informal computing education of end-user programmers*

Thesis Committee: Drs. Mark Guzdial (advisor), Amy Bruckman, Janet Kolodner, John Stasko, and Chris Hundhausen (external, Washington State University)

Iowa State University, Ames, IA — Conferred: August 6, 2005
M.S. in Computer Science, Higher Education Minor

Thesis: *Design and implementation of a reusable type inference engine and its application to Scheme*

Thesis Advisor: Dr. Gary T. Leavens

Northwest Missouri State University, Maryville, MO — Conferred: April 27, 2002
B.S. in Computer Science, Mathematical Science Minor (*summa cum laude)*

TEACHING EXPERIENCE

Georgia Institute of Technology, School of Interactive Computing — Fall 2005 to Present
Guest/Substitute Lecturer

CS 6460	Graduate *Foundations of Educational Technology*	Fall 2009	
CS 6460	Graduate *Foundations of Educational Technology*	Spring 2009	
CS 8803	Graduate *Computer Science Education Research*	Spring 2008	
CS 6460	Graduate *Foundations of Educational Technology*	Spring 2008	
CS 4660	Undergraduate *Educational Technology*	Fall 2007	
CS 1316	Undergraduate *Representing Structure and Behavior*	Fall 2007	
CS 1315	Undergraduate *Introduction to Media Computation*	Fall 2006	

Iowa State University, Department of Computer Science — Fall 2002 to Fall 2004
Graduate Teaching Assistant

ComS 430	Undergraduate *Advanced Programming Tools*	Fall 2004	51 students
ComS 342	Undergraduate *Principles of Programming Languages*	Spring 2004	76 students
ComS 430	Undergraduate *Advanced Programming Tools*	Fall 2003	52 students
ComS 228	Undergraduate *Introduction to Data Structures*	Summer 2003	52 students
ComS 228	Undergraduate *Introduction to Data Structures*	Spring 2003	156 students
ComS 430	Undergraduate *Advanced Programming Tools*	Fall 2002	48 students

Northwest Missouri State University, Department of CS/IS — Jan 1999 to Apr 2002
Undergraduate Teaching Assistant

Courses included undergraduate sections of *Fundamentals of Computer Science*, *Data Structures*, *Programming Languages I*, and *Computer Networks*.

SELECTED PROJECTS

Supporting the Informal Education of End-User Programmers — College of Computing, Georgia Tech

My dissertation work explores the informal learning processes employed by graphic and web designers who have adopted scripting and programming in their everyday activities. I have conducted surveys, content analyses, and interviews to assess current user knowledge and to gain an understanding of the instructional resources they use. I am designing and evaluating a new case-based educational resource that leverages user current practices while scaffolding the appropriation of deeper knowledge of computer science concepts. My work on this project was funded in part by NSF grant ITR-0613738.

Media Computation — College of Computing, Georgia Tech

Media Computation is a contextualized approach to teaching introductory computing through the programmatic manipulation of digital pictures, sounds, and video. While pursuing my Ph.D., I have been involved in a variety of aspects of this project. I developed survey instruments to help other institutions adopting the curriculum evaluate its success. I was involved in the ongoing maintenance and support of the Jython Environment for Students, the custom development environment built to accompany the course materials. In addition, I assisted with workshops disseminating the Media Computation curriculum to high school and university faculty.

Typedscm — Department of Computer Science, Iowa State

As part of my Master's thesis, I designed and implemented an abstract unification framework for a student-oriented type checker for the Scheme programming language. It provides for a separation of concerns like unification, typing rules, and error message generation within type checking code, resulting in a system that is both easy to read and maintain. This software was used in several offerings of the course *Principles of Programming Languages* at Iowa State.

Available online: http://www.eecs.ucf.edu/~leavens/typedscm

Jeroo — Department of Computer Science/Information Systems, NW Missouri State

Over the last eight years I have been involved in a joint development project for Jeroo, an instructional tool for introducing object oriented programming. I designed the Jeroo programming languages, implemented its compilers, and built its runtime module. I continue to provide software maintenance support for the project. Jeroo was named the Premier Courseware of 2004 by the National Engineering Education Delivery System, and it continues to be used by students in many high schools and universities worldwide.

Available online: http://www.jeroo.org

JOURNAL PUBLICATIONS (REFEREED)

[J.3] A. E. Tew, B. Dorn, W. D. Leahy, and M. Guzdial. Context as support for learning computer organization. *Journal on Educational Resources in Computing*, 8(3):1-18, 2008.

[J.2] G. Ury, M. McDonald, G. McDonald, and B. Dorn. Student performance online vs. onground: A statistical analysis of IS courses. *Information Systems Education Journal*, 4(98), 2006. (reprinted version of [C.7])

[J.1] D. Sanders and B. Dorn. Classroom experience with Jeroo. *Journal of Computing Sciences in Colleges*, 18(4):308-316, 2003.

CONFERENCE PUBLICATIONS (REFEREED)

[C.10] D. L. Roberts, M. L. Furst, C. L. Isbell, and B. Dorn. Using influence and persuasion to shape player experiences. In *SIGGRAPH Sandbox '09: ACM SIGGRAPH Video Game Proceedings*, pages 23-30, 2009.

[C.9] B. Dorn, A. E. Tew, and M. Guzdial. Introductory computing construct use in an end-user programming community. In *VL/HCC'07: Proceedings of the IEEE Symposium on Visual Languages and Human Centric Computing*, pages 27-30, 2007.

[C.8] B. Dorn and M. Guzdial. Graphic designers who program as informal computer science learners. In *ICER '06: Proceedings of the 2nd International Workshop on Computing Education Research*, pages 127-134, 2006.

[C.7] G. Ury, M. McDonald, G. McDonald, and B. Dorn. Student performance online vs. onground: A statistical analysis of IS courses. In *ISECON '05: Proceedings of 22nd annual Information Systems Educator Conference*, 2005.

[C.6] D. Sanders and B. Dorn. Object-oriented programming with Jeroo in the information technology classroom. In *ISECON '04: Proceedings of the 21st annual Information Systems Educator Conference*, 2004.

[C.5] B. Dorn, D. Zelik, H. Vepadharmalingam, M. Ghosh, and S. K. Adams. Designing a user interface for a PDA-based campus navigation device. In *Proceedings of the 48th annual meeting of the Human Factors and Ergonomics Society*, pages 861-865, 2004.

[C.4] M. McDonald, B. Dorn, and G. McDonald. A statistical analysis of student performance in online computer science courses. In *SIGCSE '04: Proceedings of the 35th SIGCSE Technical Symposium on Computer Science Education*, pages 71-74, 2004.

[C.3] B. Dorn and D. Sanders. Using Jeroo to introduce object-oriented programming. In *FIE '03: Proceedings of the 33rd annual Frontiers in Education conference*, volume 1, pages T4C 22-27, 2003.

[C.2] G. McDonald, M. McDonald, and B. Dorn. Teaching without a classroom: Delivering courses online. In *Proceedings of the 36th annual Midwest Instruction and Computing Symposium*, 2003.

[C.1] D. Sanders and B. Dorn. Jeroo: A tool for introducing object-oriented programming. In *SIGCSE '03: Proceedings of the 34th SIGCSE Technical Symposium on Computer Science Education*, pages 201-204, 2003.

MANUSCRIPTS UNDER REVIEW

[M.1] B. Dorn and M. Guzdial. Learning on the Job: Characterizing the Programming Knowledge and Learning Strategies of Web Designers. Submitted to CHI 2010.

WORKSHOP PAPERS (REFEREED)

[W.2] B. Dorn and M. Guzdial. Learning on the Web: A Case Study of Graphic Design End-User Programmers. Presented at *End-User Programming on the Web Workshop* collocated with CHI'09, 2009.

[W.1] J. Stasko, M. Doo, B. Dorn, and C. Plaue. Explorations and experiences with ambient information systems. In *Proceedings of the 1st Workshop on Ambient Information Systems* collocated with Pervasive 2007, 2007. CEUR Workshop Proceedings.

WORKSHOPS AND TUTORIALS ORGANIZED

[O.1] D. Sanders and B. Dorn. (2008, September). Introduction to computer programming with Jeroo. Post-conference workshop presented at the First Annual CS-K-12-MW Conference, Holland, MI.

UNPUBLISHED THESES

[T.1] B. Dorn. Design and implementation of a reusable type inference engine and its application to Scheme. Master's thesis, Iowa State University, Ames, Iowa, 2005.

TECHNICAL REPORTS AND OTHER MANUSCRIPTS (NON-REFEREED)

[TR.4] B. Dorn, A. E. Tew, and M. Guzdial. Computer Science construct use, learning, and creative credit in a graphic design community. Technical Report GT-IC-08-01, Georgia Institute of Technology, School of Interactive Computing, Atlanta, GA, 2008.

[TR.3] B. Dorn and G. T. Leavens. A framework for implementing type systems. Technical Report 07-12, Iowa State University, Department of Computer Science, Ames, Iowa, 2007.

[TR.2] G. T. Leavens, C. Clifton, and B. Dorn. A type notation for Scheme. Technical Report 05-18, Iowa State University, Department of Computer Science, Ames, Iowa, 2005. (revised Jan. 2006 as TR 05-18a)

[TR.1] B. Dorn. Design and implementation of a reusable type inference engine and its application to Scheme. Technical Report 05-16, Iowa State University, Department of Computer Science, Ames, Iowa, 2005. (minimally revised version of [T.1])

DOCTORAL CONSORTIA (REFEREED)

[DC.4] Dorn, B. (2008, September 5). "Supporting Informal Computing Education among End-User Programmers." Presented at the 2008 ICER Doctoral Consortium, Sydney, Australia.

[DC.3] Dorn, B. (2008, March 12). "Minimalist CS Education for End-User Programmers." Presented at the 2008 SIGCSE Doctoral Consortium, Portland, OR.

[DC.2] Dorn, B. (2007, September 23). "Community-Based Scaffolding to Promote End-User Learning." Presented at the 2007 VL/HCC Graduate Consortium, Coeur d' Alène, ID. Research summary in *VL/HCC'07: Proceedings of the IEEE Symposium on Visual Languages and Human Centric Computing*, pages 254-255, 2007.

[DC.1] Dorn, B. (2007, March 7). "Developing CS Education for End User Programmers." Presented at the 2007 SIGCSE Doctoral Consortium, Covington, KY.

POSTERS PRESENTED AND OTHER TALKS GIVEN

[P.2] Dorn, B. (2002, April 6). "Online Courses as a Content Delivery Method in Computer Science Education." Presented at the 8th Annual Consortium for Computing in Small Colleges Conference, Central Plains Region, Kansas City, KS.

[P.1] Dorn, B. (2002, February 28-29). "Comparison of Student Performance in Online Courses vs. Traditional Lecture Courses." Presented at the 33rd SIGCSE Technical Symposium on Computer Science Education, Covington, KY. (Presentation made as a finalist in the ACM International Undergraduate Research Competition.)

RESEARCH AND PROFESSIONAL EXPERIENCE

Graduate Research Assistant – Georgia Institute of Technology, Atlanta, GA Aug 2005 to Present

I conducted research in the Contextualized Support for Learning laboratory under the direction of Mark Guzdial. In addition to my dissertation work, I was involved in various aspects of the Media Computation curricular effort.

Technical Co-op, i5/OS Clustering – IBM, Rochester, MN May 2006 to Aug 2006
Jan 2005 to Aug 2005

I provided testing, debugging, and development assistance on i5/OS Clustering components. I also coordinated test plan implementation, execution, and bug fixing activities with the team to ensure timely completion.

Graduate Teaching Assistant – Iowa State University, Ames, IA Aug 2002 to Dec 2004

I taught recitation sections and provided classroom and grading support for the courses indicated under the heading Teaching Experience.

Summer Intern, Collaborative Messaging – Motorola, Inc., Tempe, AZ May 2001 to Aug 2001

I designed and implemented corporate user directory management tools as needed by the Collaborative Messaging Team. These tools aided in a division-wide Microsoft Exchange email migration.

Summer Intern, Analog Hard Copy Imaging – Motorola, Inc., Tempe, AZ May 2000 to Aug 2000

I prototyped a lightweight web-based revision control environment built on top of CVS for the Analog Hard Copy Imaging group better suited to their local developer requirements than existing tools.

REVIEWING ACTIVITIES

SIGCSE Technical Symposium on Computer Science Education 2008 to Present
ACM Conference on Human Factors in Computing Systems (CHI) 2009
Innovation and Technology in Computer Science Education Conference (ITiCSE) 2007, 2009
Computer Science Education Journal 2007, 2009
Editors: Sally Fincher and Laurie Murphy

OTHER SERVICE

CS Ph.D. Admissions Committee – College of Computing, Georgia Tech 2009-2010
Dean Search Student Panel – College of Computing, Georgia Tech 2009
Faculty Computer Committee – College of Computing, Georgia Tech 2007-2008
Graduate Student Representative
Third International Computing Education Research Workshop (ICER), Atlanta, GA 2007
Local Arrangements Co-chair, Conference Webmaster
Conference Chairs: Richard Anderson, Sally Fincher, Mark Guzdial

PROFESSIONAL MEMBERSHIPS

American Educational Research Association 2007 to Present
Association for Computing Machinery 1999 to Present
SIG for Computer Science Education (SIGCSE) 2003 to Present
SIG for Computer-Human Interaction (SIGCHI) 2009 to Present
IEEE Computer Society 2007 to 2008

HONOR SOCIETY MEMBERSHIPS

Upsilon Pi Epsilon, Computer Science Honor Society 2003
Mortar Board, Interdisciplinary Honor Society 2001
Alpha Chi, Interdisciplinary Honor Society 2000
National Residence Hall Honorary 2000
Phi Eta Sigma, Interdisciplinary Honor Society 1999
Sigma Pi Sigma, Presidential Scholar Honor Society 1998

OTHER HONORS AND AWARDS

Graduate Research Assistantship, Georgia Institute of Technology	2005 to Present
Graduate Teaching Assistantship, Iowa State University	2002 to 2004
Preparing Future Faculty Associate, Iowa State University	2004
Kappa Kappa Psi Honorary Band Fraternity	
National Alumni Advisory Committee, Chair	2007 to Present
J. Lee Burke National Student Achievement Award	2002
Tau Beta Sigma Honorary Band Sorority	
Midwest District Honorary Member	2003
Outstanding Senior in Computer Science Award, NW Missouri State	2002
Mortar Board's Top Ten Sophomores at Northwest Award, NW Missouri State	2000
Outstanding Freshman in Computer Science Award, NW Missouri State	1999
Outstanding Freshman in Mathematics Award, NW Missouri State	1999

REFERENCES

Dr. Mark Guzdial
Professor
School of Interactive Computing
Georgia Institute of Technology
85 5th St NW
Atlanta, GA 30332-0760
+1 404-894-5618
guzdial@cc.gatech.edu

Dr. Gary Leavens
Professor and Associate Director of EECS
School of Electrical Engineering and Computer Science
University of Central Florida
439C Harris Center (Building 116)
4000 Central Florida Blvd
Orlando, FL 32816-2362
+1 407-823-4758
leavens@eecs.ucf.edu

Dr. Josh Tenenberg
Professor
Computing and Software Systems
Institute of Technology
University of Washington, Tacoma
1900 Commerce St
Tacoma, WA 98402-3100
+1 253-692-4521
jtenenbg@uw.edu