

MARK J. GUZDIAL
Associate Professor
College of Computing
Georgia Institute of Technology

EDUCATIONAL BACKGROUND

Ph.D.	1993	University of Michigan	Education and Computer Science and Engineering
M.S.	1986	University of Michigan	Computer Science and Engineering
B.S.	1984	Wayne State University	Computer Science

EMPLOYMENT HISTORY

Assistant Professor	College of Computing Georgia Institute of Technology	1993-Present
Member of Technical Staff	Bell Communications Research	1984-1987

CURRENT FIELDS OF INTEREST

Educational computing, computer science education, computer-supported collaborative learning, multimedia composition environments, design environments for students, computational science (computer modeling, simulation, and visualization) for students, software-realized scaffolding, log file analysis.

Dr. Guzdial's current research centers on facilitating project-based learning: student learning through doing. He focuses on computer-supported collaborative learning, support for modeling, and project case libraries. He is developing theory on how one designs, implements, and evaluates educational technology to support student activity. His Collaborative Software Lab has the goal of enabling collaborative *DynaBooks*, in reference to the early vision of the computer as a personal tool for creating, experiencing, and sharing dynamic media for learning. Dr. Guzdial uses a variety of techniques to evaluate the usability and learnability of the environments he creates, and he is a leader in developing techniques for analysis of user event traces (log files). A major focus of his research recently has been the development of a media-focused introduction to computing aimed at women and non-CS-majors.

I. TEACHING

A. Courses Taught

<u>Quarter/Year</u>	<u>Course</u>	<u>Number of Students</u>
Winter 1994	CS 1410 Programming Concepts, Standards, and Methods I	141
Spring 1994	CS 2390 Modeling and Design (Team taught w/R. LeBlanc)	50
Spring 1994	CS 8113g Design and Analysis of Educational Software (New Course)	25
Summer 1994	CS 2390 Modeling and Design (Team taught w/R. LeBlanc)	30
Fall 1994	CS 8113g Educational Technology	14
Winter 1995	CS 2390 Modeling and Design	52
Winter 1995	CS 8113g Design and Analysis of Educational Software	12
Winter 1996	CS 2390 Modeling and Design	75
Spring 1996	CS 2390 Modeling and Design	75
Spring 1996	CS 6398 Design and Analysis of Educational Software	15
Fall 1996	CS 2390 Modeling and Design	77
	CS 8011g GVU Educational Technology Seminar	6
Winter 1997	CS 6397 Educational Technology	31
	CS 8011g GVU Educational Technology Seminar	6
Spring 1997	CS 2390 Modeling and Design	89

Summer 1997	CS 2390 Modeling and Design	46
Fall 1997	CS 8011g GVU Educational Technology Seminar	12
Winter 1998	CS2390 Modeling and Design	122
Spring 1998	CS2390 Modeling and Design	120
Fall 1998	CS2390 Modeling and Design	102
Winter 1999	CS2390 Modeling and Design	118
Spring 1999	CS8113g Computer-Supported Collaborative Learning	14
Spring 1999	CS2390 Modeling and Design	68
Spring 2000	CS2340 Objects and Design	171
Summer 2000	CS2340 Objects and Design (w/Rich LeBlanc)	101
Fall 2000	CS4660 Educational Technology	41
Spring 2001	CS4670 and CS7567 Computer Supported Collaborative Learning	24
Fall 2001	CS4803 Computer Music Implementation	20
Fall 2001	CS2340 Objects and Design	144
Spring 2002	CS2340 Objects and Design	190
Spring 2003	CS4803g/1315 Introduction to Media Computation	120
Fall 2003	CS1315 Introduction to Media Computation	309

B. Continuing Education

<u>Quarter/Year</u>	<u>Course</u>
Summer 1994	LCC's Multimedia in Education
Fall 1994, inter 1997	CoC's Object-Oriented Design and Analysis
Fall 1994	LCC's Multimedia in Education
Summer 1995 Fall 1996, Winter 1997	CoC's Object-Oriented Programming
Summer 1998, Summer 1999	CoC's Object-Oriented Analysis & Design; Object-Oriented Programming

C. Curriculum Development

Developed five new courses:

CS 1315 Introduction to Media Computation Approved Fall 2002
Introduction to computation (algorithmic thinking, data structures, data transformation and processing, and programming) in a media and communication context. Approved for meeting the computing literacy requirement at Georgia Tech. 11 programs, including the College of Architecture, Dupree College of Management, and most of the Ivan Allen College.

CS 6397 Educational Technology Approved Fall 1995
Introduction to educational technology. Review of philosophies/approaches (apprenticeship, tutoring), technologies (collaborative learning, multimedia), issues impacting effective use of technology (teachers, classroom culture), and assessment.

CS 6398 Design & Analysis of Educational Software Approved Fall 1995
Student teams design, implement, and analyze educational software. Topics include educational software types, design approaches, and formative evaluation techniques (interviews, log file analysis).

CS4670 and CS7567 Computer-Supported Collaborative Learning
Introduction to theory, practice, implementation, and evaluation of computer-supported collaborative learning. Undergraduate and graduate versions of the course are defined and will be taught concurrently.

CS4803 Computer Music Implementation (with Jim Greenlee)

Students review and implement various synthesis methods including additive, subtractive, frequency modulation, and sampling synthesis. Students then use these methods in algorithmic composition.

Substantially refined:

CS 2390/2340 Modeling and Design/Objects and Design

Introduction to object-oriented analysis, design, and programming. Refined the course to gain measurable benefits in students understanding of object-oriented analysis and design, user interface programming, and design debugging skills.

D. Individual Student Guidance

1. Postdoctoral Fellows co-supervised

Amnon Shabo	Sept. 1995- August 1997	Multimedia Courseware
Roland Hübscher	Sept. 1995- August 1997	Computer-supported collaborative learning environments

2. Ph.D. Students Supervised

Noel Rappin, Graduated Winter 1998, "A Framework for Teaching Learners To Model by Focusing Complexity of Modeling and Simulation Tools"
Jennifer Turns (ISyE), Graduated Spring 1999, "The Reflective Learner"
Colleen Kehoe, Graduated Fall 2001, "Supporting Critical Design Dialog" Currently at University of Illinois at Chicago as staff
Jochen Rick, completed qual Fall2000.
Mike McCracken

3. Ph.D. Independent Studies Students (last five years only)

David Carlson	Winter 1995	Analysis of CaMILE use in ME 3110 and Development of WebCaMILE
Noel Rappin	Winter 1995	DEVICE - Dynamic Environment for Visualization in Chemical Engineering
Mark Gray	Winter 1995	Automated Usability Evaluation
Haowi Hsieh	Winter 1995	Exploring Courseware on the World-Wide Web
Viren Shah	Winter 1995	Models of Interactive Multimedia Courseware
Lucy Gibson	Spring 1995	Computer Assisted English Education
Colleen Kehoe	Winter 1995	Exploring Courseware on the World-Wide Web
	Spring 1995	
	Spring 1996- Winter 1997	Apprenticeship-Based Learning Environments
Viren Shah	Fall 1995- Spring 1996	Multimedia Courseware on the WWW
	Fall 1996- Spring 1997	Cognitive Multimedia
Ashley Taylor	Summer 1997	Debugging of Object-Oriented Programs
Matt Sanders	Winter 1998	How do people use Swikis?
Lex Spoon	Spring 1998	Web-Executable Smalltalk

Ashley Taylor	Fall 1998, Winter 1999	Debugging Support Environments
Lex Spoon	Fall 1998, Winter-Spring 1999	A Graphical Collaboration Tool
Jochen Rick	Spring 2000-Spring 2001	Collaborative Multimedia for Learning
Joshua Gargus	Fall 2000-Spring 2001	Extended models of collaboration
Mitch Parry	Spring 2001	Music Visualization
Andrea Forte	Fall 2002-Spring 2003	Development and evaluation of an introductory computing course.

4. Ph.D. Qualifying Examination Committees (last five years only)

Ashley Taylor	Spring 2000	Algorithm Animation
Priscilla Dodds	Spring 2000	Deviant Behavior in on-line Communities
Jason Elliott	Spring 2000	3-D Graphics for Learning
Lizzie Edwards	Spring 2000	Languages for learning math through 3-D
Jim Hudson	Fall 2000	Text chat for foreign language learning
Jochen Rick	Fall 2000	CoWeb
Khai Truong	Spring 2001	Capture and Access Architecture
David Nguyen	Spring 2001	Evaluating UbiComp Interfaces
Carlos Jensen	Spring 2001	Trust in Interfaces
Bolot Kerimbaev	Fall 2001	HyperSwiki
Rod Peters	Fall 2001	Analyzing People's Information Management
James Eagan	Spring 2002	Visualizing generic network structures
David Nguyen	Spring 2002	Supporting group design processes
Kris Nagle	Spring 2002	Audio communication systems in the home
Kristin Lamberty	Fall 2002	DigiQuilt
Elain Huang	Fall 2002	Supporting group awareness

5. M.S. Student Projects Supervised

J. Nicole Winter	Winter 1997-Spring 1997	CABLE: Case Library Scaffolding for Chemical Engineering
Ivan Brusic	Summer 1998-Spring 1999	Portable Zoomable User Interfaces
Aibek Musaev	Spring 2000-Fall 2000	Literate Programming in Squeak
Chris Martin	Fall 2000	Learning through music visualization
Akbar Ladak	Summer 2001	An MPEG Collaborative Annotation System
Yisrael Lowenstein	Fall 2001	A MIDI Editor for Novices
Brad Stenger	Summer 2001, Spring 2002	Collaboration support for BioInformatics
Kathy Gray	Spring 2002	Ectropic Design Evaluation
Adam Wilson	Fall 2003	Software for Media Computation

6. Undergraduate Special Problems Students

Ross Philipson	Spring and Summer, 1998	An Admin Utility for Pluggable WebServers
Aibek Musaev	Fall, 1998	A Multimedia Tool for Web Delivery
Brian Trammell	Spring 2000	Real-time network measurement for Squeak applications

Brian Payne and Jonathon Greene	Spring-Summer 2000	Real-time audio collaboration
Jim Roberts	Fall 2000	Porting Squeak to embedded devices
James Mickens	Fall 2000	Streaming multimedia in Squeak
Chris Morris	Spring 2001	Text vs. GUI for collaboration
Albert Urshansky	Spring 2001	CoWeb Use Evaluation
Yuliya Shevchuk	Spring 2001	CoWeb Use Evaluation
Yisrael Lowenstein	Spring 2001	Voice to MIDI
Janet Turner	Spring 2001	Voice to MIDI
Susan Rathmann	Spring 2001	Improving Internet UI of Squeak
Ross Peterson	Spring 2001	Improving Internet UI of Squeak
David Jaggie	Fall 2001	Students' Reasons for not using CoWeb
Jamie Cheung	Fall 2001	A toolkit for Animated GIFs
Chris Henke	Spring 2002	Real-time collaboration support infrastructure
Keith McDermott and Francesco Robles	Summer 2002	Real-time collaboration support interface and documentation
Webb McDonald	Summer 2002	Parsing natural language and generating 3-D images demonstrating semantics.
Matt Wallace	Fall 2002	Explaining graphics algorithms to novices.
Adam Wilson	Fall 2002	Creating media exploration tools for novices
Lauren Rich	Spring 2003	Assessing the impact of media computation on female non-major students.
Heather Perry	Summer 2003	Contrasting female media computation to traditional CS1 students

6. PhD Dissertation Committees

Jim Pitkow	Characterizing WWW Information Ecologies,
Scott McCrickard	Internet Information Monitoring and Display
Alex Zhang	Technological support for communities
Jennifer Mankoff	Toolkit support for correcting user errors
Jason Brotherton	Classroom 2000
Jason Ellis	Palaver Tree Online: Technological Support for Classroom Integration of Oral History
Khai Truong	A toolkit for capture-and-access applications
Heather Richter	Designing and Evaluating Meeting Capture and Access Services
Jim Rowan	Aging in Place, Social Communication and Distance
Jim Hudson	Designing for participation: How social and environmental factors influence educational discussions

II. RESEARCH AND CREATIVE SCHOLARSHIP

A. Thesis

"Emile: Software-Realized Scaffolding for Science Learners Programming Multiple Media"
September 1993
Advisor: Elliot Soloway
University of Michigan

B. Published Journal Papers

- Boggs, G.J., R. Alley, and M.J. Guzdial. (Boggs is principal author. Alley and Guzdial contributed sections on the hardware and software, respectively.) (1984) "Digital speech recording and playback system using a multiprocessor architecture." *Behavior Research Methods, Instruments, & Computers*. Vol. 16, No. 5. pp. 420-424.
- Blumenfeld, P.C., E. Soloway, R.W. Marx, J.S. Krajcik, M. Guzdial, and A. Palincsar. (Blumenfeld was the principal author. Guzdial provided educational technology examples for last third of paper.) (1991) "Motivating project-based learning: Sustaining the doing, supporting the learning." *Educational Psychologist*, 26(3 & 4). pp. 369-398
- Brade, K., M. Guzdial, M. Steckel, and E. Soloway. (Brade and Guzdial are principal authors.) (1994) "Whorf: A visualization tool for software maintenance." *International Journal on Software and Knowledge Engineering*, 4(1), 1-16.
- K.E. Hay, S. Jackson, R.A. Boyle, M. Guzdial, and E. Soloway. (Hay is principal author. Guzdial contributed design rationale and consulted on data analysis.) (1994) "Student composition of multimedia documents: A preliminary study." *Journal of Computers and Education*, 23(4). 301-317.
- Guzdial M. (1995) "Software-realized scaffolding to facilitate programming for science learning." *Interactive Learning Environments*, 4(1). 1-44.
- Badre, A. N., Guzdial, M., Hudson, S.E., and Santos, P.J.. (Hudson is the primary author. Guzdial added visualizations sections.) (1995) "A user interface evaluation environment using synchronized video, visualizations, and event trace data." *Journal of Software Quality*, 4. 101-113.
- Guzdial M., Kolodner J.L., Hmelo C., Narayanan H., Carlson D., Rappin N., Hübscher R., Turns J., Newstetter W. (Guzdial was the principal author with Kolodner contributing sections) (1996) "Computer support for learning through complex problem-solving." *Communications of the ACM*, 39(4). 43-45.
- Shabo A., Guzdial M., Stasko J. (Shabo and Guzdial were the primary authors.) (1997) "An apprenticeship-based multimedia courseware for computer graphics studies delivered on the World Wide Web." *Journal of Computers and Education* 29(2-3), 103-116.
- Guzdial M., Konneman M., Walton C., Hohmann L., Soloway E. (Guzdial was the principal author, with Konneman and Walton adding analysis sections.) (1998) "Layering scaffolding and CAD on an integrated workbench: An effective design approach for project-based learning support." *Interactive Learning Environments*, 1(1), 1-37.
- Hmelo C.E., Guzdial M., Turns J. (1998) "Computer-support for collaborative learning: Learning to Support Student Engagement." *Journal of Interactive Learning Research*. 9(2), 107-130.
- Guzdial, M., & Kehoe, C. (1998). Apprenticeship-based learning environments: A principled approach to providing software-realized scaffolding through hypermedia. *Journal of Interactive Learning Research*, 9(3/4).
- Guzdial, M. (1999). Supporting Learners as Users. *The Journal of Computer Documentation*, 23(2), 3-13.
- Ram, A., Catrambone, R., Guzdial, M. J., Kehoe, C. M., McCrickard, D. S., & Stasko, J. (1999). PML: Representing procedural domains for multimedia presentations. *IEEE Multimedia*, 6(2), 40-52.
- Guzdial, M., & Turns, J. (2000). Effective discussion through a computer-mediated anchored forum. *Journal of the Learning Sciences*, 9(4), 437-470.
- Realf, M., Ludovice, P., Guzdial, M., Morley, T., & Sukel, K. (2000). Computer supported collaborative learning for curriculum integration. *Computers and Chemical Engineering*, 24, 1473-1479.

- Stasko, J. T., Catrambone, R., Guzdial, M., & McDonald, K. (2000). An evaluation of space-filling information visualizations for depicting hierarchical structures. *International Journal of Human-Computer Studies*, 53(5), 631-866.
- Pimentel, M. d. G., Ishiguro, Y., Kerimbaev, B., Abowd, G. D., & Guzdial, M. (2000). Supporting Long-Term Educational Activities through Dynamic Web Interfaces. *Interacting with Computers*, 13(3), 353-374.
- Realff, M., Ludovice, P., Guzdial, M., Morley, T., and Sukel, K. (2000). Computer supported collaborative learning for curriculum integration. *Computers and Chemical Engineering*, 24:1473-1479.
- Rappin, N., Guzdial, M., Realff, M., & Ludovice, P. (2001). (Guzdial assembled the paper out of Rappin's thesis.) Connections as a Focus for Model-Building Learning in Engineering. *Interactive Learning Environments*, 9(2), 101-141.
- Guzdial, M. (2001). Centralized mindset: A student problem with object-oriented programming. *Journal of Computer Science Education*, 14(3&4 (April)), 28-32.
- Guzdial, M., Rick, J., & Kehoe, C. (2001). (Guzdial did the majority of the writing.) Beyond adoption to invention: Teacher-created collaborative activities in higher education. *Journal of the Learning Sciences*, 10(3), 265-279.
- Clancy, M., Stasko, J., Guzdial, M., Fincher, S., & Dale, N. (2001). Models and areas for CS education research, *Computer Science Education*, 11(4):323-341, December 2001
- Guzdial, Mark and Elliot Soloway. 2002. (Guzdial did the majority of the writing.) Teaching the Nintendo Generation to Program. *Communications of the ACM*, 45(4), 17-21.

C. Published Books and Parts of Books

- Guzdial, M. (1990) *Introducing LogoExpress*. Logo Computer Systems Inc.: Montreal, Quebec, Canada. (Introductory manual for grades 6-8.)
- Guzdial, M. (1990) *Projects for LogoExpress*. Logo Computer Systems Inc.: Montreal, Quebec, Canada. (Teachers' manual with project descriptions.)
- Soloway, E., M. Guzdial, K. Brade, L. Hohmann, I. Tabak, P. Weingrad, and P. Blumenfeld. (Soloway and Guzdial are the principal authors.) (1992) "Technological support for the learning and doing of design." In *Foundations and Frontiers of Adaptive Learning Environments*. M. Jones and P.H. Winne (Eds.) Springer-Verlag: New York.
- Guzdial, M., E. Soloway, P. Blumenfeld, L. Hohmann, K. Ewing, I. Tabak, K. Brade, and Y. Kafai. (Guzdial is the principal author.) (1992) "The future of CAD: Technological support for kids building artifacts." In *Learning to Design, Designing to Learn: Using Technology to Transform the Curriculum*. D. Balestri, S. Ehrmann, and D.L. Ferguson (Eds.) Ablex: Norwood, New Jersey.
- Guzdial, M., P. Weingrad, R. Boyle, and E. Soloway. (Guzdial is the principal author.) (1992) "Design support environments for end users." In *Languages for Developing User Interfaces*. B.A. Myers (Ed.) Jones & Bartlett: Boston.
- Guzdial, M., J. Reppy, and R. Smith. (Guzdial and Reppy are the principal authors.) (1992) "Report of the user/programmer distinction working group." In *Languages for Developing User Interfaces*. B.A. Myers (Ed.) Jones & Bartlett: Boston.
- Kolodner J., Guzdial M. (1996) "Effects with and of CSCL: Tracking learning in a new paradigm." In: Koschmann T, ed. *CSCL: Theory and Practices of an Emerging Paradigm*. Hillsdale, NJ: Lawrence Erlbaum and Associates. 307-320
- Guzdial M., Weingarten F., eds. (1997) *Setting a Computer Science Research Agenda for Educational Technology*. Washington, DC: CRA.

- Guzdial, M., Weingarten F. (1997) "Research in the union of computer science and education." In: Guzdial M., Weingarten F., eds. *Setting a Computer Science Research Agenda for Educational Technology*. Washington, DC: CRA. 3-9.
- Soloway, E., Guzdial, M. (1997) "Designing for learners" In: Guzdial M., Weingarten F., eds. *Setting a Computer Science Research Agenda for Educational Technology*. Washington, DC: CRA. 10-22.
- Guzdial, M. (1997) "Technological Support for Project-Based Learning" In: D. Palumbo and C. Dede, eds. *Association for Supervision and Curriculum Development (ASCD) 1998 Yearbook: Learning and Technology*. ASCD:Danvers, MA. 47-72.
- Kolodner, J. L., & Guzdial, M. (2000). Theory and Practice of Case-based Learning Aids. In D. Jonassen (Ed.), *Theoretical Foundations of Learning Environments*. LEA: Mahwah, New Jersey. 215-242.
- Bruckman, A.S., Guzdial, M., Kolodner, J.L., & Ram, A. (Eds.) (1998.) *Proceedings of the International Conference of the Learning Sciences 1998*. AACE, Charlottesville, VA, 1998.
- Guzdial, M., Turns, J. (2000) "CSCL for Engineers: Scaling Up Assessment" In: R. Kozma and M. Jacobson, eds. *Advanced Technology for Science Learning*. Ablex.
- Guzdial, M. (2000) "Logo" In: J.G. Webster, ed. *Encyclopedia of Electrical and Electronics Engineering*. John Wiley & Sons.
- Guzdial, M. (2000). *Squeak: Object-oriented design with Multimedia Applications*. Englewood, NJ: Prentice-Hall.
- Guzdial, M., & Rose, K. (Eds.). (2001). *Squeak, Open Personal Computing for Multimedia*. Englewood, NJ: Prentice-Hall.
- Dieberger, A., & Guzdial, M. (2003). CoWeb: Experiences with Collaborative Web Spaces. In C. Lueg & D. Fisher (Eds.), *From Usenet to CoWebs: Interacting with Virtual Communities and Information Spaces*. Amsterdam: Springer-Verlag. P. 155-166
- To Appear*
- Rick, J., Guzdial, M., Carroll, K., Holloway-Attaway, L., & Walker, B. (To appear). Collaborative Web Sites for English Composition. In S. Fisher (Ed.), *Cost-Effective Learning: Projects supported by the Mellon Foundation*. New York: Mellon Foundation.
- Guzdial, M. (To appear). Programming Environments for Novices. In *Handbook of Computer Science Education*. Petre, M., and Fincher, S., (Eds.) Springer-Verlag.
- In Development*
- Guzdial, M. *Introduction to Media Computation: A Multimedia Cookbook in Python*. Used as course notes in Spring and Fall 2003. Pre-release version available as ISBN 0536-80548-2. Publication expected in 2004.

D. Conference Presentations

1. Invited Keynote addresses

- Guzdial, M. (1997) "Technology Enhanced and Extended Learning." Invited plenary address at the Chairs of Departments of Psychology Group annual meeting, Savannah, GA. February.
- Guzdial, M. (1998) "Computer Support for Apprenticeship in Software Engineering." Keynote Address. International Conference of Software Engineering Education and Training. Atlanta, GA. February.
- Guzdial, M. (1998). "Technological Support for an Apprenticeship-Based Computer Science Education." Keynote Address. ACM Southeast Regional Conference. Marietta, GA. April.
- Guzdial, M. (1998). "Technological Support for Project-Based Learning." Invited Keynote Address. CALISCE'98: 4th International Conference on Computer Aided Learning and Instruction in Science and Engineering. Göteborg, Sweden. June.

- Guzdial, M. (2003). "Introduction to Media Computation: A new CS1 approach that addresses women's interests" Consortium for Computer Sciences in Colleges, Southeastern Conference. November.
2. Conference Presentations with Proceedings (refereed)
- Costello, J., M. Guzdial, and N. Jasinski. (All authors contributed equally.) (1986) "Software tools for field performance studies." *Proceedings Annual IEEE Reliability and Maintainability Symposium*. pp. 214-219.
- Guzdial, M. (1987) "Logo in the outside world." *MACUL'87 Proceedings*. Michigan Association for Computer Users in Learning: Westland, MI. pp. 24-28
- Guzdial, M. (1989) "Object-oriented programming in education." *Proceedings of the National Educational Computing Conference*. International Society for Technology in Education, Boston, Mass. pp. 204-208.
- Guzdial, M. (1991) "The need for education and technology: Examples from the GPCeditor." *Proceedings of the National Educational Computing Conference*. International Society for Technology in Education, Phoenix, AZ. pp. 16-23.
- Hohmann, L., M. Guzdial, and E. Soloway. (Hohmann is the principal author.) (1992) "SODA: A computer-aided design environment for the doing and learning of software design." *Computer Assisted Learning: 4th International Conference, ICCAL '92 Proceedings*, Wolfville, Nova Scotia, Canada, June 17-20. Springer-Verlag: Berlin. 307-319.
- Guzdial, M. (1994) "Approaches to classroom-based computational science." *Proceedings of the National Educational Computing Conference*. June. Boston, MA.
- Guzdial M. (1995) "Centralized mindset: A student problem with object-oriented programming." *ACM SIGCSE Technical Symposium 1995*. New York: ACM Press: 182-185.
- Guzdial M, Rappin N, Carlson D. (1995) "Collaborative and multimedia interactive learning environment for engineering education." *ACM Symposium on Applied Computing 1995*. ACM Press: Nashville, TN. 5-9.
- Guzdial M., Turns J., Rappin N., Carlson D. (1995) "Collaborative support for learning in complex domains." In: Schnase JL, Cunnius EL, ed. *Computer Support for Collaborative Learning (CSCL '95)*. Bloomington, IN: Lawrence Erlbaum Associates: 157-160. (75% acceptance rate)
- Hmelo C.E., Vanegas J.A., Realf M., Bras B., Mulholland J., Shikano T., Guzdial M. (1995) "Technology support for collaboration in a problem-based curriculum for sustainable technology." In: Schnase JL, Cunnius EL, ed. *Computer Support for Collaborative Learning (CSCL '95)*. Bloomington, IN: Lawrence Erlbaum Associates: 169-172. (75% acceptance rate)
- Narayanan N.H., Hmelo C.E., Petrushyn V., Newstetter W.C., Guzdial M., Kolodner J.L. (1995) "Computational support for collaborative learning through generative problem solving." In: Schnase JL, Cunnius EL, ed. *Computer Support for Collaborative Learning (CSCL '95)*. Bloomington, IN: Lawrence Erlbaum Associates: 247-254. (75% acceptance rate)
- Guzdial M., Carlson D., Turns J. (1995) "Facilitating learning design with software-realized scaffolding for collaboration." *Proceedings of the Frontiers in Education Conference*. American Society for Engineering Education. **Awarded Honorable Mention in Best Paper Competition (out of 209 papers).**
- Guzdial M., Kafai Y. (1995) "Learner-Centered Design: HCI Perspective for the Future." In: Olson G, ed. *DIS'95: Designing Interactive Systems Symposium*. Ann Arbor: ACM: 143-147.
- Carlson D., Guzdial M., Kehoe C., Shah V., Stasko J. (1996) "WWW Interactive Learning Environments for Computer Science Education." *ACM SIGCSE'96 Technical Symposium*. Philadelphia, PA: ACM. 290-294.
- Shabo A., Guzdial M., Stasko J. (1996) "Addressing Student Problems in Learning Computer Graphics." Presented at SIGGRAPH96 Educators Symposium. *Computer Graphics*; 30(3):38-40.

- Shabo A., Guzdial M., Stasko J. (1996) "Computer Science Apprenticeship: Creating Support for Intermediate Computer Science Students." In: Edelson D, Domeshek E, eds. *International Conference of the Learning Sciences 1996 Proceedings*. Evanston, IL. 308-315. (34% Acceptance Rate)
- Guzdial M., Rappin N., Realff M., Ludovice P. (1996) "Simulated Environments for Learning in Real World Contexts in Chemical Engineering." In: Edelson D, Domeshek E, eds. *International Conference of the Learning Sciences 1996 Proceedings*. Evanston, IL. 106-113 (34% Acceptance Rate)
- Byrne M., Guzdial M., Ram P., Catrambone R., Ram A., Stasko J., Shippey G., Albrecht F. (1996) "The Role of Student Tasks in Accessing Cognitive Media Types." In: Edelson D, Domeshek E, eds. *International Conference of the Learning Sciences 1996 Proceedings*. Evanston, IL. 114-119 (34% Acceptance Rate)
- Hmelo C.E., Guzdial M. (1996) "Of Black and Glass Boxes: Scaffolding for Doing and Learning." In: Edelson D, Domeshek E, eds. *International Conference of the Learning Sciences 1996 Proceedings*. Evanston, IL. 128-134 (34% Acceptance Rate)
- Shippey G., Ram A., Albrecht F., Roberts J., Guzdial M., Catrambone R., Byrne M., Stasko J. (1996) "Exploring interface options in multimedia educational environments." In: Edelson DC, Domeshek E, eds. *International Conference of the Learning Sciences 1996 Proceedings*. Evanston, IL. 496-501 (34% Acceptance Rate)
- Gray M., Badre A., Guzdial M. (1996) "Visualizing usability log data." In: *Proceedings IEEE Visualization '96*. Atlanta: IEEE. 93-98.
- Rappin N., Guzdial M., Realff M., Ludovice P. (1997) "Balancing usability and learning in an interface." *Proceedings of CHI'97 (Conference on Human Factors in Computing Systems)*. Atlanta: ACM. 479-486.
- Guzdial M. (1997) "Technological support for an apprenticeship in object-oriented design and programming." In: *Proceedings of the OOPSLA'97 Educators Symposium*. Atlanta, GA: ACM.
- Guzdial M. (1997) "A shared command line in a virtual space: The WorkingMan's MOO." In: *UIST'97 Conference Proceedings as TechNote*. Banff, Alberta, Canada: ACM: 73-74.
- Guzdial, M. (1997). Information ecology of collaborations in educational settings: Influence of tool. In R. Hall, N. Miyake, & N. Enyedy (Eds.), *Proceedings of Computer-Supported Collaborative Learning'97* (pp. 83-90). Toronto, Ontario, Canada. (61% accept rate)
- Guzdial, M., Hmelo, C., Hübscher, R., Nagel, K., Newstetter, W., Puntambakar, S., Shabo, A., Turns, J., & Kolodner, J. L. (1997). Integrating and Guiding Collaboration: Lessons learned in computer-supported collaboration learning research at Georgia Tech. In R. Hall, N. Miyake, & N. Enyedy (Eds.), *Proceedings of Computer-Supported Collaborative Learning'97* (pp. 91-100). Toronto, Ontario, Canada. (61% accept rate)
- Puntambekar, S., Nagel, K., Hübscher, R., Guzdial, M., & Kolodner, J. L. (1997). Intra-group and intergroup: An exploration of learning with complementary collaboration tools. In R. Hall, N. Miyake, & N. Enyedy (Eds.), *Proceedings of Computer-Supported Collaborative Learning'97* (pp. 207-214). Toronto, Ontario, Canada. (61% accept rate)
- Shabo, A., Nagel, K., Guzdial, M., & Kolodner, J. (1997). JavaCAP: A collaborative case authoring program on the WWW. In R. Hall, N. Miyake, & N. Enyedy (Eds.), *Proceedings of Computer-Supported Collaborative Learning'97* (pp. 241-249). Toronto, Ontario, Canada. (Accept rate (61% accept rate)
- Guzdial, M. (1998). "Making project-based learning work in undergraduate educational support: Lessons in computer-supported collaborative learning." In C. Alvegård (Ed.), *CALISCE'98: 4th*

- International Conference on Computer Aided Learning and Instruction in Science and Engineering Proceedings* (pp. 3-8). Göteborg, Sweden: Chalmers University of Technology.
- Guzdial, M. (1998). "Technological support for apprenticeship." *WebNet98: World Conference of the WWW*. Orlando, FL. 362-367.
- Abowd, G., Pimentel, M. d. G., Kerimbaev, B., Ishiguro, Y., & Guzdial, M. (1999). Anchoring discussions in lecture: An approach to collaboratively extending classroom digital media, *Proceedings of CSCL'99* (pp. 11-19). Palo Alto, CA.
- Guzdial, M., Realff, M., Ludovice, P., Morley, T., Kerce, C., Lyons, E., & Sukel, K. (1999). Using a CSCL-driven shift in agency to undertake educational reform, *Proceedings of CSCL'99* (pp. 211-217). Palo Alto, CA.
- Spoon, S. A., & Guzdial, M. (1999). MuSwiki: A graphical collaboration tool, *Proceedings of CSCL'99* (pp. 590-599).
- Zimring, C., Khan, S., Craig, D., Haq, S.U., & Guzdial, M. (1999). *CoOL Studio: Using simple tools to expand the discursive space of the design studio*. Paper presented at the Design Thinking Research Symposium, MIT, Cambridge, MA.
- Craig, D., ul-Haq, S., Khan, S., Zimring, C., Kehoe, C., Rick, J., & Guzdial, M. (2000). *Using an unstructured collaboration tool to support peer interaction in large college classes*. Paper presented at the International Conference of the Learning Sciences 2000, Ann Arbor, MI. 178-184.
- Sukel, K., Guzdial, M., Realff, M., Ludovice, P., & Morley, T. (2000). *The Costs of a Non-Integrated Engineering Education*. Paper presented at the International Conference of the Learning Sciences 2000, Ann Arbor, Michigan. 89-90.
- Guzdial, M., Rick, J., & Kerimbaev, B. (2000). Recognizing and Supporting Roles in CSCW, *Proceedings of CSCW'2000* (pp. 261-268). (NOTE: CSCW2000 had an 18% acceptance rate this year.)
- Morley, T., Guzdial, M., Ludovice, P., Realff, M., & Sukel, K. (2000). *Web-based cross-disciplinary student collaboration*. Paper presented at the International Conference of Teachers of College Mathematics, Atlanta, GA.
- Guzdial, M. (2000). Use of collaborative multimedia in computer science classes, *Proceedings of Integrating Technology into Computer Science Education Conference*. Canterbury, UK: ACM.
- Guzdial, M. (2001). Using Squeak for Teaching User Interface Software, *Proceedings of ACM SIG Computer Science Education Conference* (pp. 219-223). Charlotte, NC: ACM.
- Clancy, M., Stasko, J., Guzdial, M., Fincher, S., & Dale, N. (2001). Models and areas for CS education research, *Proceedings of ACM SIGCSE (Computer Science Education) 2001*. New York, NY: ACM.
- Guzdial, M., Ludovice, P., Realff, M., Morley, T., Carroll, K., & Ladak, A. (2001). The challenge of collaborative learning in engineering and math, *Proceedings of IEEE/ASEE Frontiers in Education (FIE) 2001 Conference*. Reno, NV: IEEE.
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- Guzdial, M., & Carroll, K. (2002). Exploring the lack of dialogue in computer-supported collaborative learning. In G. Stahl (Ed.), *Proceedings of the 2002 Computer-Supported Collaborative Learning Conference* (p. 418-424). Boulder, CO: University of Colorado at Boulder. (18.6% Acceptance Rate)

- Rick, J., Guzdial, M., Carroll, K., Holloway-Attaway, L., & Walker, B. (2002). Collaborative learning at low cost: CoWeb use in English Composition, *Proceedings of the Computer Supported Collaborative Learning 2002* (p. 435-442). Mahwah, NJ: Lawrence Erlbaum Associates. (18.6% Acceptance Rate)
- Guzdial, M., Ludovice, P., Realf, M., Morley, T., and Carroll, K. (2002). When Collaboration Doesn't Work. *Proceedings of the International Conference of the Learning Sciences*. (p. 125-130). Mahwah, NJ: Lawrence Erlbaum Associates.
- Guzdial, M. (2003). A Media Computation course for non-majors. *Innovation and Technology in Computer Science Education 2003 Conference*. Thessalonika, Greece, June. (p.104-108)
- Barbosa, E.F., Maldonado, J.C., LeBlanc, R., and Guzdial, M. (2003). Introducing Testing Practices into *Objects and Design* Course. *Computer Science and Engineering Education and Training Conference 2003*. pp. 279-286

Accepted

- Forte, A. and Guzdial, M. (2004). Computers for Communication, not Calculation: Media as a Motivation and Context for Learning. *Hawaii International Conference on System Sciences*. January.
- Rich, L., Perry, H., and Guzdial, M. (2004). A CS1 Course Design to Address Interests of Women. In *Proceedings of the ACM SIGCSE Conference*. Norfolk, VA. March. (28% acceptance rate)

3. Conference Presentations with Proceedings (abstract reviewed)

- Rappin N, Guzdial M, Vanegas JA. (1994) (Rappin is the principal author.) "Supporting distinct roles in a multimedia database." *Conference Proceedings of the Third Annual Conference on Multimedia in Education & Industry*. Charleston, SC: Association for Applied Interactive Multimedia: 202-204.
- Turns J., Mistree F., Rosen D., Allen J., Guzdial M., Carlson D. (1995) "A collaborative multimedia design learning simulator." In: Maurer H, ed. *ED-Media 95: World Conference on Educational Multimedia and HyperMedia*. Graz, Austria, June 17-21: AACE: 654-659.
- Guzdial, M., Vanegas, J., Mistree, F., Rosen, D., Allen, J., Turns, J., & Carlson, D. (1995). "Supporting collaboration and reflection on problem-solving in a project-based classroom." *Second Congress on Computing in Civil Engineering*. Atlanta, Georgia: American Society of Civil Engineers.
- Vanegas, J., & Guzdial, M. (1995). "A Collaborative and Multimedia Interactive Learning Environment for Engineering Education in Sustainable Development and Technology." *Second Congress on Computing in Civil Engineering*. Atlanta, GA: American Society of Civil Engineers.
- Rappin, N., Guzdial, M., Ludovice, P., & Realf, M. (1995). "DEVICE: Dynamic Environment for Visualizations in Chemical Engineering." *AI-Education Conference*.
- Shabo A., Guzdial M., Stasko J. (1996) "Computer Science Apprenticeship." 7th Israeli Conference on Computer-Based Systems and Software Engineering (CBSSE). Herzeliya, Israel: IEEE Computer Society Press: 77-82.
- Realf M., Ludovice P., Rappin N., Guzdial M. (1997) "DEVICE - Dynamic Environment for Visualization in Chemical Engineering." American Society for Engineering Education. Milwaukee, WI: ASEE.
- Hübscher R., Puntembakar S., Guzdial M., Kolodner J.L. (1997) "Integrating Tools into the Classroom." *Supplemental Proceedings of CHI'97 (Conference on Human Factors in Computing Systems)*. Atlanta: ACM. 244-245.

- McCracken M., Elliott A., Guzdial M. (1997) "Task-Specific Programming Languages as a First Programming Language? An Invitation to Discussion." In: *Proceedings of the Frontiers in Education Conference*. Pittsburgh, PA: IEEE: 1359-1360.
- Guzdial M., Kehoe C., Turns J. (1997) "What We Know About Technological Support for Project-Based Learning." In: *Proceedings of the Frontiers in Education Conference*. Pittsburgh, PA: IEEE: 918-922.
- Guzdial M., Elliot A., McCracken M. (1997) "LCD: A Learner Centered Approach to Developing Educational Software." In: *Proceedings of Frontiers in Education Conference*. Pittsburgh, PA: IEEE: 702.
- Gray, K.A., Guzdial, M., and Rugaber, S. (2003) "Extending CRC Cards into a Complete Design Process." Innovation and Technology in Computer Science Education Conference. Thessalonika, Greece, June. p. 226.

4. Conference Presentations without Proceedings (abstract reviewed)

- Guzdial, M. (1985) "Object-oriented programming in Logo." Logo85: Second International Logo Conference. MIT, Cambridge, MA. July 23.
- Guzdial, M. (1986) "Wandering in a sea of text: A Logo hypertext tool and its applications." Logo86: Third International Logo Conference. MIT, Cambridge, MA. July 10.
- Guzdial, M. and E. Soloway. (Guzdial is the principal author.) (1991) "The design of an educational multimedia composition environment." Intelligent Multimedia Interfaces Workshop. American Association for Artificial Intelligence Conference. Anaheim, CA. July 15.
- Brade, K., M. Guzdial, M. Steckel, and E. Soloway. (Brade is the principal author.) (1992) "Whorf: A visualization tool for software maintenance." IEEE Workshop on Visual Languages, University of Washington, Seattle, WA. Sept. 15-18.
- Guzdial, M., K. Hay, and E. Soloway. (Guzdial is the principal author.) (1992) "Architecture of design support environments." Paper presented at American Educational Research Association Annual Meeting, San Francisco, CA. April 20-24.
- Guzdial, M., E. Soloway, L. Hohmann, I. Tabak, K. Brade, M. Konemann, C. Walton, and B. Robinson. (Guzdial is the principal author.) (1992) "Student outcomes using the GPCeditor." Paper presented at American Educational Research Association Annual Meeting, San Francisco, CA. April 20-24.
- Guzdial, M., P. Weingrad, and E. Soloway. (Guzdial is the principal author.) (1992) "Computer environments to situate and support design." End-User Programming Languages Workshop, ACM CHI92: Computer Human Interactions Conference. Monterey, CA. May 3-5.
- Weingrad, P., K.E. Hay, S. Jackson, R. Boyle, M. Guzdial, and E. Soloway. (Weingrad and Hay were the principal authors.) (1993) "The structure of multimedia documents: An early study of student composition." Ninth Annual Computers & Writing Workshop. Ann Arbor, MI. May 20-23.
- Guzdial, M. (1993) "Technological support for science learners programming in multiple media." Paper presented at American Educational Research Association Annual Meeting and at National Association for Research in Science Teaching Annual Meeting. Atlanta, GA. April 12-19.
- Guzdial, M. (1994) "Visualizing analyses of log files." Paper presented at the American Educational Research Association Annual Meeting. New Orleans, April 4-8.
- Guzdial, M., P. Santos, A. Badre, S. Hudson, and M. Gray. (Guzdial is the principal author.) (1994) "Analyzing and visualizing event log files: A computational science of usability." Paper

presented at the Human Computer Interaction Consortium Workshop. Winter Park, CO. Feb. 2-6. (Also as Technical Report #GIT-GVU-94-8.)

Guzdial M. (1995) "Role of artifacts in programming and physics learning with Emile." Presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Guzdial M. (1995) "Student articulation and reflection in Project LITERACY-HI's Hypermedia System." Presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Hmelo, C. & Guzdial, M. (1995). "Software-realized scaffolding: A case study of McBAGEL." Presented at Fourth International Workshop on Human and Machine Cognition, Seaside, FLA.

Guzdial M., Weingarten F. (1996) "Research Agenda for Computer Science in Educational Technology." Presented at an invited symposium at the annual meeting of the American Educational Research Association. New York, NY.

Hmelo C., Guzdial M., Turns J. (1997) "Computer-support for collaborative learning: Learning to make it work." Paper to be presented at the annual meeting of the American Educational Research Association, Chicago, IL

Hübscher R., Guzdial M. (1997) "A Scaffolded Learning Environment Supporting Learning and Design Activities." Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL

Kehoe, C. and Guzdial, M. (1997). "Case Libraries for Learning Object-Oriented Design", Poster presented at the Empirical Studies of Programmers Workshop, Arlington, VA, 1997.

Puntambekar, S., Guzdial, M., Nagel, K., Hübscher, R., Shabo, A., & Kolodner, J.L. (1998) "Supporting a complete learning by design process for middle school students" Presented in symposium "Learning by Design: Opportunities and Challenges" at the Annual meeting of the American Educational Research Association, San Diego, April 13-17.

F. Other

1. Submitted Journal Papers

In development

Forte, A. and Guzdial, M. Motivation and Non-majors in CS1: Identifying discrete audiences for introductory computer science. *IEEE Transactions on Education*.

2. Software

Guzdial, M. and J. Merz. (Guzdial designed and created the prototype. Merz recoded for the commercial application.) (1992) *MediaText*. Multimedia composition software for grades 6-12. Published by Wings for Learning and distributed by Wings for Learning and Apple Computer (as part of their Multimedia Authoring kit.) *MediaText* appeared in an episode of the PBS television series *Innovations* on educational computing. *MediaText* has been reviewed in several magazines and journals including *Journal of Educational Hypermedia and Multimedia* and *Electronic Learning*.

Awards

Teaching & Learning Magazine Top Six Educational Software Products of 1992.

Parents' Choice Magazine Gold Award, 1992.

InCider Magazine Product of the Month, 1992.

Merz, J. and M. Guzdial. (1992) *My MediaText Workshop*. Multimedia composition software for grades 3-6. Published and distributed by Wings for Learning.

Guzdial, M., Rappin, N., and Carlson, D. (1994-1997) *CaMILE (Collaborative and Multimedia Interactive Learning Environment): NoteBase, MediaBase, Electronic Books, and Server Software*. A learning environment to scaffold the process of collaboration through discussions

using multimedia-annotated notes. Originally designed by Guzdial and developed by Guzdial, Rappin, and Carlson, it is entering its third generation of implementation. Used by over 1000 students at Georgia Tech, and has been downloaded by over 300 educational institutions around the world.

Guzdial, M. (1997) *Pluggable WebServer and CoWeb/Swiki*. A toolkit for the creation of anchored collaboration environments. Over 1000 students at Georgia Tech have used CoWebs in the first six months of 1998, and over 100 external sites have downloaded the software. CoWebs are being used at Disney Imagineering, Boeing, Interval Research, University of Illinois Urbana-Champaign, University of North Carolina-Chapel Hill, University of Colorado-Boulder, Chalmers University at Göteborg, Sweden, University of Madgedburg, Germany, as well as other locations. <http://www.cc.gatech.edu/fac/mark.guzdial/squeak/pws/>

Awards

1999 Progressive Architecture Design Research Citation (*Architecture Magazine* Design Research Award)

1999 American Institute of Architects Education Honor Award

2001 McGraw-Hill Technology Design Competition at the Computers and Writing Conference, Teaching and Learning Technologies for Rhetoric and Writing (w/Lissa Holloway-Attaway)

2. Published Papers (non-refereed)

a.) Professional Society Magazines

Maxim, B. and M. Guzdial. (Both authors contributed equally.) (1990) "Artificial intelligence using Logo." *SIGCS Newsletter*. 4(3). International Society for Technology in Education. pp. 16-24.

Soloway, E., M. Guzdial, and K.E. Hay. (Soloway is principal author.) (1993) "Reading and writing in the 21st century." *EDUCOM Review*, 28(1). pp. 26-28.

Soloway, E., M. Guzdial, and K.E. Hay. (Soloway is the principal author. Guzdial made a significant contribution.) (1994) "Learner-centered design: The challenge for HCI in the 21st century." *Interactions*, 1(2). 36-48.

Guzdial, M. (2001) "Active Essays for Studying Computer Music." *Squeak News*, 1(3). (Electronic Magazine distributed on CD-ROM.)

b.) Technical Reports

Guzdial, M. (1993) "Deriving software usage patterns from log files." Technical Report #GIT-GVU-93-41. Graphics, Visualization, and Usability Center, College of Computing, Georgia Institute of Technology.

Guzdial, M., C. Walton, M. Konemann, and E. Soloway. (1993) "Characterizing process change using log file data." Technical Report #GIT-GVU-93-44. Graphics, Visualization, and Usability Center, College of Computing, Georgia Institute of Technology.

Guzdial M., Santos P., Badre A., Hudson S., Gray M. (1994) "Analyzing and Visualizing Log Files: A Computational Science of Usability." Technical Report #GIT-GVU-94-8. Georgia Institute of Technology. Graphics, Visualization, and Usability Center.

Santos P., Hudson S., Guzdial M., Badre A. (1995) "Video temporal compression techniques to facilitate usability evaluation." Georgia Institute of Technology, Graphics, Visualization, and Usability Center. Technical Report #GIT-GVU-95-17.

Ashwin Ram, Richard Catrambone, Mark J. Guzdial, Colleen M. Kehoe,, D. Scott McCrickard, John T. Stasko (1998) "PML: Representing Procedural Domains for Multimedia Presentations" Georgia Institute of Technology, Graphics, Visualization, and Usability Center, Technical Report #GIT-GVU-98-20.

Collaborative Software Lab (Guzdial, K., Realff, Morley, Ludovice, et al.). (2000). *A Catalog of CoWeb Uses* (Georgia Tech GVU Center Technical Report GIT-GVU-00-19). Atlanta, Georgia: Georgia Tech GVU Center.

Guzdial, M. (2000). *Using Squeak for Teaching User Interface Software* (GIT-GVU-00-17). Atlanta, GA: Georgia Tech GVU Center.

Guzdial, M., & Greenlee, J. (2002). *A Computer Music Implementation Course using Active Essays* (GVU Technical Report TR #GIT-GVU-02-08). Atlanta, GA: College of Computing/GVU.

c.) Other Magazine Publications

Guzdial M. (1994) "The Virtual Classroom." *Computer Currents*. September:43.

G. Research Proposals and Grants

1. Approved

Support Source:	EduTech Institute, Georgia Institute of Technology
Project Title:	An Integrated Multimedia Support System for Teaching Sustainable Development and Technology using a Problem Based, Case Based, and Collaborative Learning and Reasoning Approach.
Co-PIs:	Jorge Vanegas and Mark Guzdial
Amount Funded:	\$23,163
Period Covered:	7/1/93-5/31/94
Support Source:	EduTech Institute, Georgia Institute of Technology
Project Title:	Development of an Integrated and Collaborative Design-Learning Simulator
Co-PIs:	Mark Guzdial, David Rosen, Janet K. Allen, and Farrokh Mistree
Amount Funded:	\$26,262
Period Covered:	6/1/94-5/30/95
Support Source:	Intel Corporation
Project Title:	Usability Analysis and Visualization Tools
Co-PIs:	Albert Badre, Mark Guzdial, and Scott Hudson
Amount Funded:	\$64,000
Period Covered:	5/1/94-4/30/95
Support Source:	National Science Foundation (CISE - Education Infrastructure)
Project Title:	Multimedia Support for Introductory and Advanced Computer Science Education
Co-PIs:	James Foley, John Stasko, and Mark Guzdial
Amount Funded:	\$232,835
Period Covered:	9/1/94-8/31/97
Support Source:	EduTech Institute, Georgia Institute of Technology
Project Title:	Simulated Environments for Learning Real World Contexts in Chemical Engineering
Co-PIs:	Mark Guzdial, William Ernst, Peter Ludovice, Matthew Realff, Dennis Sonol
Amount Funded:	\$17,600
Period Covered:	3/28/95-6/30/96
Support Source:	National Science Foundation (CAREER-EHR)

Project Title: Integrating Programming into Engineering Education through Context-Setting and Scaffolding
 PI: Mark Guzdial
 Amount Funded: \$102,706
 Period Covered: 6/15/95-6/14/98

Support Source: Office of Naval Research
 Project Title: Using Cognitive Principles to Design Multimedia Training Environments
 Co-PIs: Richard Catrambone, Mark Guzdial, Ashwin Ram, John Stasko
 Amount Funded: \$360,000
 Period Covered: 6/1/95-5/31/98

Support Source: ARPA-DODDS
 Project Title: Collaborative Learning based on Real-World, Engineering-Related Tasks
 Co-PIs: Janet Kolodner, Mark Guzdial
 Amount Funded: \$475,000
 Period Covered: 8/1/95-7/31/97

Support Source: NSF (CISE-Cross-Program)
 Project Title: Working Symposium of New Information Technology and Education: A Research Agenda
 Co-PIs: Fred W. Weingarten, Mark Guzdial
 Amount Funded: \$168,000 (to Computing Research Association)
 Period Covered: 9/1/95-8/31/96

Support Source: NSF (EHR - Curriculum Materials Development)
 Project Title: Learning by Design: Integrating and Enhancing the Middle School Math, Science, and Technology Curricula.
 Co-PIs: Janet Kolodner, Joanna Fox, Mark Guzdial
 Amount Funded: \$1,200,000
 Period Covered: 5/15/96-4/30/99

Support Source: NSF (CRLT)
 Project Title: A Design Education Center: Using Cognitive Science and Technology to Facilitate Learning and Doing Design
 Co-PIs: Janet Kolodner, Mark Guzdial
 Amount Funded: \$50,000
 Period Covered: 10/1/96-9/30/97

Support Source: Georgia Tech Foundation
 Project Title: An EduTech Project Website
 Co-PIs: Chuck Eastman, Wendy Newstetter, and Mark Guzdial
 Amount Funded: \$61,000
 Period Covered: 8/1/97-7/30/98

Support Source: University of Georgia System Board of Regents Teaching and Learning Grant
 Project Title: Reconfiguring Studio Design Processes Using Web-Based Case Libraries
 Co-PIs: Craig Zimring, Sabir Khan, Mark Guzdial, Hazem El-Sabbagh
 Amount Funded: \$23,000
 Period Covered: 12/1/97-7/1/98

Support Source: University of Georgia System Board of Regents Teaching and Learning Grant
 Project Title: Effective Computer Aided Design in the Engineering Curriculum
 Co-PIs: Pete Ludovice, Matthew Realff, Mark Guzdial
 Amount Funded: \$14,000
 Period Covered: 12/1/97-7/1/98

Support Source: NSF REPP
 Project Title: Integrating Learning Across Undergraduate Engineering Curriculum through Technology-Supported Collaboration
 Co-PIs: Mark Guzdial, Matthew Realff, Pete Ludovice, Tom Morley
 Amount Funded: \$620,000
 Period Covered: 1/1/99-12/31/02

Support Source: Mellon Foundation
 Project Title: Cost-Effective Uses of the CoWeb Collaborative Learning Technology to Improve Higher Education
 Co-PIs: Mark Guzdial
 Amount Funded: \$240,000
 Period Covered: 1/1/00-5/31/02

Support Source: National Science Foundation, CISE Division
 Project Title: Ectropic Design: Intelligent Collaboration Spaces for Open Software
 Co-PIs: Spencer Rugaber and Mark Guzdial
 Amount Funded: \$200,000
 Period Covered: 1/1/01-12/31/02

Support Source: National Science Foundation, ITR, CISE Division
 Project Title: Scaffolded Work Environments for Learning
 Co-PIs: Elliot Soloway (PI, U.Michigan), Edelson, Reiser (Northwestern), Moher, Johnson (U. Chicago-Ill.), Guzdial (GaTech)
 Amount Funded: \$2,999,999 – subcontract to Georgia Tech, \$350,000
 Period Covered: 1/1/01-12/31/03

Support Source: GVU Seed Grant
 Project Title: Supporting a media-focused computational curriculum
 Co-PIs: Guzdial, Jay Bolter (LCC), Diane Gromala (LCC)
 Amount Funded: \$36,000 (one 12-month GRA)
 Period Covered: 9/1/02-8/31/03

Support Source: Al West Fund (Bob McMath's office)
 Project Title: Developing *Introduction to Media Computation*
 Co-PIs: Guzdial
 Amount Funded: \$35,000
 Period Covered: 9/1/02-8/31/03

Support Source: NSF DUE-CCLI
 Project Title: Media Computation as a Motivation and Structure for a Non-Majors CS1 Class: "Data-First" Computing
 Co-PIs: McCracken, Guzdial
 Amount Funded: \$480,000
 Period Covered: 9/1/02-8/31/04

Support Source: NSF CISE: Educational Innovations
Project Title: Introduction to Media Computation: A new CS1 approach aimed at non-majors and under-represented populations
PI: Guzdial
Amount Funded: \$302,079 (Funded at \$251,000)
Period Covered: 8/15/03-8/14/06

2. Pending

Support Source: NSF ROLE
Project Title: Computer-Supported Collaborative Learning in Support of SMET Undergraduate Retention: A practice-oriented CSCL Research Agenda
PI: Guzdial
Amount Requested: \$781,412
Period Covered: 1/1/04-12/31/07

Support Source: NSF DUE—CCLI ASA
Project Title: Developing methods to assess innovative curricula for women and non-majors in computer science
PI: Guzdial
Amount Requested: \$304,000
Period Covered: 1/1/04-12/31/07

3. Not Funded

Support Source: National Science Foundation (RIA - Interactive Systems)
Project Title: A Visualization System for Students through Software-Realized Scaffolding
Amount Requested: \$96,000
Period Covered: 7/1/94-6/30/96

Support Source: National Science Foundation (DMII)
Project Title: Design Management on the Information Superhighway
Co-PIs: David Rosen, Janet Allen, Mark Guzdial
Amount Requested: \$343,769
Period Covered: 3/1/95-2/29/98

Support Source: Sloan Foundation
Project Title: Technological and Pedagogical Support for Collaborative Learning in Design Education
Co-PIs: Mark Guzdial, David Rosen, Farrokh Mistree, Jorge Vanegas, Janet Kolodner, Hari Narayanan, Wendy Newstetter, Ellen Zegura, Cindy Hmelo
Amount Requested: \$1,000,000
Period Covered: 3/1/95-2/28/99

Support Source: FIPSE
Project Title: Preparing Engineers for the Design Workplace
Co-PIs: Janet Kolodner, Mark Guzdial, Farrokh Mistree, Jorge Vanegas
Amount Requested: \$240,000

Period Covered: 1/1/95-12/31/98
 Support Source: NSF REPP
 Project Title: ScienceConnections: Fostering the Implementation of Educational and Technological Innovations for Learning Complex Scientific Knowledge
 Co-PIs: Michael Jacobson, Michael Hannafin, Wyatt Anderson (U.Ga.), and Mark Guzdial
 Amount Funded: \$1.5M (\$465,000 subcontract to Tech)
 Period Covered: 6/1/98-5/31/01

Support Source: McDonnell Foundation Centennial Fellowships
 Project Title: Technology to Support Engineering Education Reform through Project-Based Learning
 PI: Mark Guzdial
 Amount Requested: \$1.0M
 Period Covered: 1/1/00-1/1/04

Support Source: NSF CISE - Educational Innovations
 Project Title: Infrastructure, Environments, and Evaluation Techniques for Curriculum Integration in Computer Science
 Co-PIs: Mark Guzdial, Russell Shackelford, Gregory Abowd
 Amount Requested: \$630,000
 Period Covered: 9/1/98-8/31/01

Support Source: NSF Inter-Agency Educational Research Initiative
 Project Title: Supporting mathematics learning in early school-agers through intrinsically motivating culturally relevant music analysis and composition software environments
 PI: Mark Guzdial
 Amount Requested: \$285,000
 Period Covered: 9/1/99-8/31/02

Support Source: DARPA, Information Technology Expeditions
 Project Title: Ectropic Design: Intelligent Collaboration Spaces for Open Software
 Co-PIs: Spencer Rugaber and Mark Guzdial
 Amount Requested: \$256,870
 Period Covered: 9/1/99-8/31/01

Support Source: Fulbright Foundation
 Project Title: Tailoring Web-Based Collaborative Learning for Distance Education
 PIs: Mark Guzdial
 Amount Requested: \$50,000
 Period Covered: 9/1/00-8/31/01

Support Source: NSF ROLE
 Project Title: Developing a Case-Building Infrastructure for Design Classes
 PIs: Craig Zimring, Jean Wineman, Mark Guzdial
 Amount Requested: \$900,000
 Period Covered: 9/1/00-8/31/02

Support Source: Proctor and Gamble Curriculum Development Awards Program
 Project Title: Infusing Multimedia as a CS Classroom Activity

Co-PIs: Guzdial, Eiselt, McCracken
 Amount Funded: \$150,000
 Period Covered: 9/1/01-8/31/03

Support Source: NSF ITR
 Project Title: Temporal Multimedia Databases for Social Science Research
 Co-PIs: Hay, Hannafin (UGa), Guzdial
 Amount Funded: \$3,000,000
 Period Covered: 9/1/01-8/31/03

Support Source: NSF Combined Research Curriculum Development
 Project Title: Integrating Multimedia Construction into Early Undergraduate Computer Science Courses
 Co-PIs: Guzdial, Eiselt, McCracken
 Amount Funded: \$480,000
 Period Covered: 1/1/02-12/31/04

Support Source: NSF ITR
 Project Title: Temporal Multimedia Databases for Social Science Research
 Co-PIs: Hay, Hannafin (UGa), Bobick, Guzdial
 Amount Funded: \$4,500,000
 Period Covered: 9/1/02-8/31/04

Support Source: NSF DUE - Evaluation
 Project Title: Measuring Programming Competence
 Co-PIs: McCracken, Guzdial
 Amount Funded: \$480,000
 Period Covered: 9/1/02-8/31/04

Support Source: NSF Combined Research and Curriculum Development
 Project Title: Integrating Multimedia Construction into Early Undergraduate Computer Science Courses
 Co-PIs: Guzdial, Eiselt, McCracken
 Amount Funded: \$480,053
 Period Covered: 9/1/02-8/31/04

Support Source: NSF DUE
 Project Title: Media Computation to Motivate Women and Non-Majors in Computer Science
 Co-PIs: Guzdial, MacIntyre
 Amount Requested: \$500,000
 Period Covered: 1/1/04-12/31/07

H. Research Proposals and Grants (Contributor)

Support Source: GE Foundation
 Project Title: Curriculum for Sustainable Development
 Co-PIs: John White (Engineering), Jorge Vanegas (CE)
 Consulting Faculty: Mark Guzdial, Janet Kolodner (Providing expertise in cognitive science and educational technology.)
 Amount Funded: \$964,000

Period Covered: 1/1/94-12/31/96

Support Source: NSF Science and Technology Center
Project Title: Interactive Digital Media and Interfaces
Co-Pis: Ken Perlin (NYU), Arie Kaufmann (SUNY Stony Brook), Jarek
Rossignac (Georgia Tech)
Amount Proposed: \$5,249,350 (Georgia Tech subcontract)

III. SERVICE

A. Professional Activities

1. Membership in Professional Societies

Member, Association for Computing Machinery, 1984-present
Member, ACM Special Interest Group on Programming Languages (SIGPLAN), 1984-present
Member, ACM Special Interest Group on Computer Use in Education (SIGCUE) and Computer Science Education (SIGCSE), 1990-present
Member, ACM Special Interest Group on Computer-Human Interaction (SIGCHI), 1993-present
Member, AERA Special Interest Group for Advanced Technologies for Learning, 1993-present
Member, Association for Advancement of Computing in Education (AACE), 1996-present
Member, IEEE Computer Society, 1995-present

2. Conference Committees

Chair of NSF-Sponsored Workshop with F. Weingarten. "Setting a Research Agenda for Computer Science in Educational Technology" <http://www.cc.gatech.edu/gvu/edtech/nsfws/>
Chair of NSF-Sponsored Workshop with J. Kolodner. "Design Education Workshop" <http://www.cc.gatech.edu/edutech/dew/>
Co-Organizer, International Conference of the Learning Sciences, 1998, held in December in Atlanta.

3. Organizing Activities

Chair, AERA Special Interest Group for Advanced Technologies for Learning, 1995-1996
Chair of Symposium, "Exploring the dimensions of log file analysis: An interactive 'Cook-Off'", *American Educational Research Association Annual Meeting '95*.
Chair of Symposium with Y. Kafai (UCLA), "Artifacts of Learning: Perspective on Students' Learning Processes and Strategies through their Learning Products", *American Educational Research Association Annual Meeting '95*.
Chair of Panel with Y. Kafai (UCLA), "Learner-Centered System Design: HCI Perspective for the Future", *Designing Interactive Systems (DIS'95)*. Panelists: Gerhard Fischer (U. Colorado-Boulder), John Carroll (Virginia Tech), Roger Schank (Northwestern), Elliot Soloway (U. Michigan), and discussant Ben Shneiderman (U. Maryland)
Chair of NSF-sponsored Workshop "Integrating Multimedia into CS Education" at Georgia Tech's College of Computing, May 3-5, 2002. <http://coweb.cc.gatech.edu/mmworkshop>

B. On-Campus Committees

College of Computing Recruiting Committee, 1993-1994.
GIT EduTech Technical Advisory Committee, 1993-1996.
College of Computing Undergraduate Curriculum Committee, 1994-1995, 1995-1996

College of Computing Dean's Advisory Committee, 1995-1996, 1997-1998.
GIT Educational Technology Task Force, 1994-1996.
GVU HCI Traineeships Committee, 1994-1995 (founding chair), 1995-1996.
Technology Fee Policy Committee, 1997.
College of Computing, PhD Admissions Committee, 1997-1998.
College of Computing, Undergraduate Semester Curriculum Task Force, 1998.
GIT Institute Undergraduate Curriculum Committee, 2001-present
Chair, College of Computing Undergraduate Curriculum Committee, 2001-present
Full Professor Promotion Review Committee for Mindy Millard-Stafford, 2001.
Board of Regents Academic Advisory Committee on Computing, 2001-2004
College of Computing/College of Engineering Steering Committee 2002-2003, co-chair 2003-2004
Technology Fee Committee, 2002-2003, chair 2003-2004

IV. NATIONAL AND INTERNATIONAL PROFESSIONAL RECOGNITION

A. Invited Lectures

Institute for the Learning Sciences, Northwestern University, Evanston, IL, February, 1993.
Technical Educational Research Center (TERC), Cambridge, MA, March, 1993.
Georgia Institute of Technology, Atlanta, GA, April, 1993.
"Design Support Environments: Interfaces for Learners"
(Faculty interviews)

EduTech Week, Georgia Institute of Technology, Atlanta, GA, December, 1993.
"An Integrated Multimedia Support System for Sustainable Development Technology" (with J.A. Vanegas)

Mitsubishi Electric Research Laboratory, Cambridge, MA, June, 1994.
"Supporting learning through computational science."

School of Architecture, Georgia Institute of Technology, October, 1994.
"Learning, Teaching, and Technology."

Computer Science Colloquium, George Washington University, Washington, DC, November, 1994.
"Scaffolded and Contextualized Programming Environments for Learning."

Education in Mathematics, Science, and Technology Colloquium, University of California at Berkeley, Berkeley, CA, April, 1995.
"Supporting Project-Based Learning through Scaffolding and Context-Setting."

IBM T.J. Watson Research Center, Yorktown Heights, NY, June, 1995.
"Scaffolded and Contextualized Programming Environments for Learning."

Clark Atlanta University, Computer Science Department Colloquium, November, 1995.
"Scaffolding and Contextualize Environment for Learning."

The National Design Experiments Consortium, Education Development Center, April, 1996.
"Using the Web in Graduate Courses."

Old Dominion University, November 2001, "Towards Collaborative Dyanbooks"

Allegheny College, November 2001, "Squeak: Back to the Future"

University of Central Florida, April 2002, "Towards Collaborative Dynabooks"

MIT Media Lab's *Okawa Lunch Talk*, April 2002, "Towards Collaborative Dynabooks in Squeak"

University System of Georgia Academic Advisory Committee on Computing Disciplines, January, 2003. "Media computing as a context for learning computation."

Workshop at ACM SIGCSE 2003 (peer-reviewed), February, 2003. "Multimedia Construction Projects"

DePauw University, April 2003. "Squeak: Back to the Future."

Workshop on Women and Minorities in Computer Science, University of Colorado-Boulder, August 2003. "Providing a Context to Motivate Non-Majors into Computing"

To appear

Workshop at ACM SIGCSE 2004 (peer-reviewed), March, 2004. "Multimedia Construction Projects"

B. Editorial and Reviewer Work for Technical Journals

MIT Press

Prentice-Hall

IEEE Transactions on Systems, Man, and Cybernetics

ACM Transactions on Software Engineering

ACM Transactions on Computer-Human Interface (TOCHI)

ACM Communications of the ACM

Cognitive Science Society Conference (1994)

American Educational Research Association Annual Meeting (AERA 1995-2000)

AI-Education Conference (AI-Ed'95)

Interactive Learning Environments

Journal of Computers and Education

Journal of the Learning Sciences

Journal of User Modeling and User Interface Adaptation

American Association of Artificial Intelligence (AAAI'96) Program Committee

Cognitive Science

International Journal of AI and Education

Computer Supported Collaborative Learning Conference (CSCL'95, '97, '99, '02) Program Committee

International Conference of the Learning Sciences (ICLS'96, '2000, '2002) Program Committee

American Philosophical Quarterly

Journal of Communications Education

Journal of Engineering Education

Review of Educational Research

Journal of Contemporary Psychology

Editorial Board

Journal of the Learning Sciences

Journal of Interactive Learning Research, 1997-2002

IEEE Multimedia, 1998-2001

Interactive Learning Environments

C. Awards and Honors

1997 Georgia Institute of Technology's "Outstanding Innovative Use of Educational Technology" Award
1998 Georgia Tech's College of Computing's "Junior Faculty Research" Award
1998 Georgia Tech's College of Computing's "Edenfield Faculty Research" Award
1999 Progressive Architecture Design Research Citation (*Architecture Magazine* Design Research Award)
1999 American Institute of Architects Education Honor Award
2000 Georgia Tech's Outstanding Interdisciplinary Activity Award
2001 University System of Georgia's "2001 Regents' Research in Undergraduate Education Award"
2001 Georgia Tech's College of Computing's "The William A. 'Gus' Baird Faculty Teaching Award"
2001 McGraw-Hill Technology Design Competition at the Computers and Writing Conference, Teaching and Learning Technologies for Rhetoric and Writing (w/Lissa Holloway-Attaway)
2001-2003, ACM Distinguished Lecturer

D. Other Recognition

My work on CaMILE has been discussed in:

Hodges M. (1994) "Learning from a distance." *Research Horizons*, 12(2):12-14.
Hodges M. (1994) "Technology for education." *Research Horizons*, 11(4):8-15.
Coffee, H. (1995). "The Internet." *Georgia Tech Alumni Magazine*. 71(4):16-24.
Jonassen, D. H. (2000). Designing Constructivist Learning Environments1. In C.M. Reigeluth (Ed.), *Instructional Design Theories and Models*, Volume II. Mahwah, NJ: Lawrence Erlbaum, 1998.

My work on MediaText has been discussed in:

Brady H.(1992) "The 1992-93 Technology & Learning Software Awards." *Technology & Learning Magazine*, November/December:13-30.
Finkel L. (1992) "Q&A on Multimedia." *Electronic Learning*, March:14.
Land M. (1993) "Multimedia with MediaText." *Journal of HyperMedia and MultiMedia Studies*, 2(3):23-25.
Thornburg DD. (1993) "Disktop revolution: Is today's multimedia technology the soul of a new generation?" *InCider/A+ Magazine*, August:54-57.

My work on Pluggable WebServer has led to some unusual recognition:

Chalmers University in Göteborg, Sweden, has established a research group to study use of CoWebs in undergraduate education (Frank Bach, Personal Communication)

My work on CoWeb/Swiki has been discussed in:

Leuf, Bo, and Cunningham, Ward. 2001. *The Wiki Way*. Addison Wesley.

IV. OTHER CONTRIBUTIONS

A. Seminar Presentations

B. Special Activities

Presentation to CETL Teaching Fellows on Technology during Winter '95, Spring '95, and Fall '95 Quarters.

Invited presentation at NSF Engineering Education Scholars Workshop, Georgia Tech, July 24-28, 1995.

V. PERSONAL DATA

Married to Barbara Ericson since July 1985.

Three children: Matthew (born 1991), Katherine (born 1995), Jennifer (born 1997).