Allison Elliott Tew

Georgia Institute of Technology
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EDUCATION

Georgia Institute of Technology, Atlanta, GA — 2004 – present
Ph.D. in Computer Science (expected 2010)
Advisor: Mark Guzdial

Georgia Institute of Technology, Atlanta, GA — 1997
M.S. in Computer Science

Georgia Institute of Technology, Atlanta, GA — 1994
B.S. in Computer Science, *with highest honor*

PROFESSIONAL EXPERIENCE

Graduate Research Assistant – College of Computing, Georgia Tech	2004 – present
Director of Student Services – College of Computing, Georgia Tech	2000 – 2004
Lecturer – College of Computing, Georgia Tech	1999 – 2000
Project Manager – Blackstone & Cullen, Inc., Atlanta, GA	1998
Graduate Assistant – College of Computing, Georgia Tech	1994 – 1997
Research Intern – Schlumberger Austin Systems Center, Austin, TX	1994

RESEARCH PROJECTS

Assessing Concept Knowledge in Introductory Computer Science

College of Computing, Georgia Institute of Technology

A primary goal of many computer science education projects is to determine the extent to which a given instructional intervention has had an impact on student outcomes. However, valid and reliable assessment instruments that measure the desired goals and outcomes across different platforms are not currently available. We are developing an assessment instrument to measure student learning outcomes of fundamental concepts in introductory programming courses, in a manner that is not specific to a particular language. The validity and reliability of the resultant instrument is being demonstrated through extensive testing.

Developing Regional Communities of Computing Educators – Disciplinary Commons of Computing Educators (DCCE)

School of Interactive Computing, Georgia Institute of Technology

We are exploring a pathway to revitalize undergraduate computing education through developing a regional community of computing educators, focusing on fostering innovative academic partnerships among varied levels of computing educators. The DCCE is aimed at developing a statewide community of computing educators, selected from both the secondary and collegiate levels, who hold common interests in computing education and share goals of innovating in their practice. Action research is being used as a vehicle for encouraging investigation, reflection, and discussion of practice, with the research staff providing assessment support as needed.

Media Computation Approach to Introductory CS
College of Computing, Georgia Institute of Technology

For computer scientists to embrace the challenge of offering education for everyone, computing education must be relevant, creative, and social. To meet this challenge, we developed and are studying a set of courses using media as a context to motivate the study of introductory computer science topics. "Introduction to Media Computation" is an introductory course in computing whose focus is on learning to program in order to manipulate media. "Representing Structure and Behavior" is the second course in the sequence that continues to use media as a context where students explore data structures, computational models, and simulations.

PUBLICATIONS

Journal Publications

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

[J.2] Tenenberg, J., Fincher, S., Blaha, K., Bouvier, D., Chen, T.-Y., Chinn, D., Cooper, S., Eckerdal, A., Johnson, H., McCartney, R., Monge, A., Moström, J. E., Petre, M., Powers, K., Ratcliffe, M., Robins, A., Sanders, D., Schwartzman, L., Simon, B., Stoker, C., Tew, A. E., & VanDeGrift, T. (2005). Students designing software: A multi-national, multi-institutional study. *Informatics in Education*, *4*, 143-162.

[J.1] McLellan, S. G., Roesler, A. W., & Elliott, A. L. (1996). The effect of advice message location on user performance. *IEEE Transactions on Professional Communication*, *39*(1), 43-48.

Conference Publications (refereed)

[C.6] Dorn, B, Tew, A. E., and Guzdial, M. (2007) 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*, (Coeur d'Alène, ID), 27-30.

[C.5] Guzdial, M. and Tew, A.E. (2006) Imagineering inauthentic legitimate peripheral particpation: An instructional design approach for motivating computing education. *Proceedings of the Second International Computing Education Research Workshop,* (Canterbury, UK), 51-58.

[C.4] Tew, A.E., McCracken, W.M. and Guzdial, M. (2005) Impact of alternative introductory courses on programming concept understanding. *Proceedings of the First International Computing Education Research Workshop*, (Seattle, WA), 25-35.

[C.3] Tew, A.E., Fowler, C. and Guzdial, M. (2005) Tracking an innovation in introductory CS education from a research university to a two-year college. *Proceedings of the 36th SIGCSE Technical Symposium on Computer Science Education*, (St. Louis, MO), ACM Press, 416-420.

[C.2] Fincher, S., Petre, M., Tenenberg, J., Blaha, K., Bouvier, D., Chen, T.-Y., Chinn, D., Cooper, S., Eckerdal, A., Johnson, H., McCartney, R., Monge, A., Moström, J.E., Powers, K., Ratcliffe, M., Robins, A., Sanders, D., Schwartzman, L., Simon, B., Stoker, C., Tew, A.E. and VanDeGrift, T. (2004) A multi-national, multi-institutional study of student-generated software designs. *Proceedings of the Fourth Finnish/Baltic Sea Conference on Computer Science Education*, (Koli, Finland), 20-27.

[C.1] Guzdial, M., McCracken, W.M. and Elliott, A. (1997) Task-specific programming languages as a first programming language? An invitation to discussion. *Proceedings of the Frontiers in Engineering Education Conference*, (Pittsburgh, PA), 1359-1360.

Other Publications (reviewed)

[0.1] Almstrum, V.L., Henderson, P.B., Harvey, V, Heeren, C., Marion, W. Riedesel, C. Soh, L-K, and Tew, A.E. (2006). "Concept inventories in computer science for the topic discrete mathematics," ACM SIGCSE Bulletin, 38(4), 132 – 145.

Technical Reports

[TR.2] Dorn, B., Tew, A. E., and Guzdial, M. (2008) 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.

[TR.1] Fincher, S., Petre, M., Tenenberg, J., Blaha, K., Bouvier, D., Chen, T.-Y., Chinn, D., Cooper, S., Eckerdal, A., Johnson, H., McCartney, R., Monge, A., Moström, J. E., Powers, K., Ratcliffe, M., Robins, A., Sanders, D., Schwartzman, L., Simon, B., Stoker, C., Tew, A. E., & VanDeGrift, T. (2004). *Cause for alarm? A multi-national, multi-institutional study of student-generated software designs* (Tech Report No. 16-04): Computing Laboratory, University of Kent, Canterbury.

Doctoral Consortium Participation

[DC.3] Tew, A. E., (2008, September 5). "Exploring Connections between Student Understanding and First Course Experience." Presented at the 2008 ICER Doctoral Consortium, Sydney, Australia.

[DC.2] Tew, A. E. (2007, March 7). "Effect of Introductory Computing Course Environment on Problem Solving Techniques." Presented at the 2007 SIGCSE Doctoral Consortium, Covington, KY.

[DC.1] Tew, A. E. (2006, March 1) "Exploring Alternative Introductory Courses and Programming Concept Understanding." Presented at the 2006 SIGCSE Doctoral Consortium, Houston, TX.

Posters and Invited Talks

[P.2] Moskal, B., Behrens, N., Guzdial, M., Tew, A.E., Dann, W. & Cooper, S. (2006). "Computer Science Assessment Instrument Development: Evaluating Attitudes and Outcomes." National Assessment Conference, Washington, DC.

[P.1] Guzdial, M., McCracken, W.M. and Elliott, A. (1997) LCD: A learner-centered approach to developing educational software. *Poster presented at Frontiers in Engineering Education*, (Pittsburgh, PA), 702.

TEACHING EXPERIENCE

Courses Taught

Georgia Institute of Technology, College of Computing *1999 – 2003*

CS 3911 A	(UG) *Design Project*	Fall 2003	39 students
CS 3911 B	(UG) *Design Project*	Fall 2003	40 students
CS 3911	(UG) *Design Project*	Fall 2002	44 students
CS 8801	(G) *GTA Workshop* (co-taught with Kurt Eiselt)	Fall 2002	89 students
CS 3911	(UG) *Design Project*	Summer 2002	39 students
CS 3911 A	(UG) *Design Project*	Spring 2002	33 students
CS 3911 B	(UG) *Design Project*	Spring 2002	20 students
CS 3911	(UG) *Design Project*	Fall 2001	35 students
CS 8801	(G) *GTA Workshop* (co-taught with Kurt Eiselt)	Fall 2001	86 students
CS 3911	(UG) *Design Project*	Summer 2001	28 students
CS 2335 A	(UG) *Software Practicum*	Spring 2001	99 students
CS 2335 B	(UG) *Software Practicum*	Spring 2001	74 students
CS 3911	(UG) *Design Project* (co-taught with Rich LeBlanc)	Spring 2001	25 students
CS 2335	(UG) *Software Practicum* (co-taught with Mike McCracken)	Fall 2000	16 students
CS 2331 A	(UG) *Programming Practicum I*	Spring 2000	123 students
CS 2331 B	(UG) *Programming Practicum I*	Spring 2000	78 students
CS 3802	(UG) *Introduction to Software Engineering*	Fall 1999	37 students
CS 3302	(UG) *Introduction to Software Engineering*	Spring 1999	37 students
CS 4351 B	(UG) *MIS Methodologies*	Winter 1999	23 students

Students Supervised

David Joyner, MS HCI Masters Research Project (2008 – 2009)

Project: Validating Introductory CS Concept Knowledge Assessment in High School

Bobby Oomen, MS CS (2008)

Project: Pseudocode for Assessing Introductory CS Concept Knowledge

Dannon Baker, MS CS (2007)

Project: Strategies for Validating Introductory CS Concept Knowledge Assessment

John Borak, BS CS (2003 – 2004)

Project: Software to Support Recruitment and Selection of Undergraduate Teaching Assistants

Curriculum Development

CS 2335 – Software Practicum

Collaborated with Mike McCracken to create a new lower division course introducing methods for solving large programming problems. Course topics included teamwork, problem analysis, quality assurance, and testing.

Sophomore Year Sequence (CS 2130, CS 2335, CS 2340)

Developed proposal, with Mark Guzdial, Mike McCracken, and Jim Greenlee, for new sophomore year sequence of courses to improve the new semester curriculum. Key changes included focusing course content and consolidating lab hours into courses where new content material is introduced. The result is a three course sequence covering computer hardware and programming, basic software project engineering principles, and object-oriented design.

Bachelor of Science in Software Engineering

Collaborated with the Software Engineering area faculty in proposing new undergraduate degree program in Software Engineering.

SERVICE

Professional Memberships

American Educational Research Association	2005 – present
Association for Computing Machinery	1994 – present
SIG for Computer Science Education (SIGCSE)	2004 – present
International Society of the Learning Sciences	2005 – present
National Academic Advising Association	2000 – 2004

Reviewing Activities

Computer Science Education Journal Editors: Sally Fincher and Laurie Murphy	2005 – present
Innovation and Technology in Computer Science Education Conference (ITiCSE)	2006 – 2007, 2009
SIGCSE Technical Symposium on Computer Science Education	2005 – present
ACM Conference on Human Factors in Computing Systems (CHI)	2009
National Science Foundation, Course, Curriculum, and Laboratory Improvement Program	2006 – 2007, 2009
The Journal of the Learning Sciences Editor: Janet Kolodner	2006
International Computing Education Research Workshop	2005
Expert Systems: The International Journal of Knowledge Engineering and Neural Network, Special Issue on Card Sorting Guest Editors: Sally Fincher and Josh Tenenberg	2004

Committees and Other Service

Local Arrangements Chair, *Third International Computing Education Research Workshop,* (Atlanta, GA) Conference Chairs: Richard Anderson, Sally Fincher, Mark Guzdial	2007
Undergraduate Research Opportunities in Computing Committee, College of Computing, Georgia Tech, Graduate Student Representative	2005
Undergraduate Program Coordinator, Computer Science College of Computing, Georgia Tech	2001 – 2004
Undergraduate Curriculum Committee College of Computing, Georgia Tech	2001 – 2004
Undergraduate Advising Committee (Chair) College of Computing, Georgia Tech	2000 – 2004
Undergraduate Advising Committee College of Computing, Georgia Tech	1999 – 2000

Ph.D. Admissions Committee 1994 – 1996
College of Computing, Georgia Tech, Graduate Student Representative
Presidential Scholarship Program Steering Committee 1992 – 1994
Georgia Tech, Student Representative

HONORS AND AWARDS

Outstanding Computer Science Student, College of Computing, Georgia Tech 1993
Outstanding Rising Junior in Computer Science Award, College of Computing, Georgia Tech 1992
Presidential Scholarship, Georgia Tech 1990 – 1994

REFERENCES

Available upon request.