

Robert St. Amant

Department of Computer Science
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RESEARCH AREAS

Human-computer interaction—interaction models, user models, intelligent user interfaces, interface evaluation. Artificial intelligence—cognitive robotics, intelligent data analysis.

EMPLOYMENT

2001-present Associate Professor, Department of Computer Science,
North Carolina State University
2004-2005 Visiting Research Scholar, Information Sciences Institute,
University of Southern California
1996-2001 Assistant Professor, Department of Computer Science,
North Carolina State University
1985-1991 Software Engineer, Texas Instruments, Inc., and Texas Instruments
Deutschland, GmbH (Freising, Germany)

EDUCATION

1991-1996 Ph.D., Computer Science, University of Massachusetts, Amherst, MA
1981-1985 B.S., EECS, The Johns Hopkins University, Baltimore, MD

AWARDS

Best Paper (as co-author, with Reuben Cornel and Jeff Shrager), *19th Behavior Representation in Modeling & Simulation (BRIMS, 2010) Conference*, Charleston, SC.
Best Paper (as co-author, with Lucas Layman and Laurie Williams), *First International Symposium on Empirical Software Engineering and Measurement (ESEM, 2007)*, Madrid, Spain.
Best Applied Paper (as first author, with Frank Ritter), *Sixth International Conference on Cognitive Modeling (ICCM, 2004)*, Pittsburgh, PA.
Outstanding New Teacher, Department of Computer Science (1999); nominated College of Engineering Outstanding Teacher (2000, 2001).
Recognition of Special Service, *Heeresamt*, German Army, Cologne (1991).

PUBLICATIONS

Books (in preparation)

St. Amant, R. (in preparation). *How to think about computing if you're not a computer scientist*. Oxford University Press.

Proceedings

Begole, B., Payne, S., Churchill, E., St. Amant, R., Gilmore, D., and Rosson, M. B., editors. (2007). *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*. ACM Press, New York, NY.

Journal and periodical articles

Horton, T. E., Butler, C. G., Daughtry, J. M., and St. Amant, R. Tool-based direct manipulation

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environments. Under review.

- St. Amant, R., and Horton, T. E. (2008). Revisiting the definition of tool use. *Animal Behaviour*, 75(4):1199-1208.
- Healey, C. G., Kocherlakota, S., Rao, V., Mehta, R., and St. Amant, R. (2008). Visual perception and mixed-initiative interaction for assisted visualization design. *IEEE Transactions on Visualization and Computer Graphics*, 14(2): 396-411.
- St. Amant, R., Horton, T. E., and Ritter, F. E. (2007). Model-based evaluation of expert cell phone menu interaction. *ACM Transactions on Human-Computer Interaction* 14(1): 1-24.
- Ritter, F. E., Van Rooy, D., St. Amant, R., and Simpson, K. (2006). Providing user models with direct access to computer interfaces: An exploratory study of a simple human-robot interface. *IEEE Transactions on Systems, Man, and Cybernetics* 36(3): 592-601.
- St. Amant, R., Freed A., and Ritter, F. E. (2004). Specifying ACT-R models of user interaction with a GOMS language. *Cognitive Systems Research* 6(1): 71-88.
- St. Amant, R. (2004). Environment modification in simulated navigation tasks for human-robot interaction. (Invited). *International Journal of Computational Cognition* 3(3): 65-73.
- St. Amant, R., and Young, R. M. (2001). Interface agents in model world environments. *AI Magazine* 22(4): 95-107. Winter.
- St. Amant, R., and Riedl, M. O. (2001). A perception/action substrate for cognitive modeling in HCI. *International Journal of Human-Computer Studies* 55(1): 15-39.
- St. Amant, R. (2000). Interface agents as surrogate users. *Intelligence magazine* 11(2): 29-38. Summer.
- St. Amant, R., Lieberman, H., Potter, R., and Zettlemyer, L. S. (2000). Visual generalization in programming by example. *Communications of the ACM* 43(3): 107-114. March.
- St. Amant, R. (1999). User interface affordances in a planning representation. *Human-Computer Interaction* 14(3): 317-354.
- St. Amant, R., Long, T. E., and Dulberg, M. S. (1998). Experimental evaluation of intelligent assistance for navigation. *Knowledge-Based Systems* 11(1): 61-70.
- St. Amant, R., and Cohen, P. R. (1998). Intelligent support for exploratory data analysis. *Journal of Computational and Graphical Statistics* 7(4): 545-558.
- St. Amant, R., and Cohen, P. R. (1998). Interaction with a mixed-initiative system for exploratory data analysis. *Knowledge-Based Systems* 10(5): 265-273.
- St. Amant, R., Kuwata, Y., and Cohen, P. R. (1996). Monitoring progress with dynamic programming envelopes. *International Journal of Artificial Intelligence Tools* 5(1-2): 143-153.

Conference and workshop papers

- Bahram, S., Sen, D., and St. Amant, R. (2011). Prediction of Web page accessibility based on structural and textual features. *Proceedings of the International Cross-Disciplinary Conference on Web Accessibility (W4A)*.
- Cornel, R., St. Amant, R., and Shrager, J. (2010). Collaboration and modeling in CogLaborate. *19th Behavior Representation in Modeling & Simulation (BRIMS) Conference*.
- Horton, T. E., Williams, L., Mu, W., and St. Amant, R. (2008). Visual affordances and symmetries in *Canis habilis*: A progress report. *AAAI Fall Symposium Technical Report*.
- Layman, L., Williams, L., and St. Amant, R. (2008). MimEc: Intelligent user notification of faults in the Eclipse IDE. *Cooperative and Human Aspects of Software Engineering (CHASE) Workshop, 30th International Conference on Software Engineering (ICSE)*.
- Layman, L., Williams, L., and St. Amant, R. (2007). Toward reducing fault fix time: Understanding developer behavior for the design of automated fault detection tools. *First International Symposium on Empirical Software Engineering and Measurement (ESEM)*.
- Nicholson, S., Byrne, M., Fotta, M., and St. Amant, R. (2007). Visual systems interface. *Behavior*

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Representation in Modeling and Simulation (BRIMS) Conference.

- Chang, Y.-H., Cohen, P. R., Morrison, C., and St. Amant, R. (2006). Piagetian adaptation meets image schemas: The Jean system. *From Animals to Animats 9: Proceedings of the Ninth International Conference on Simulation of Adaptive Behaviour*, Nolfi S., Baldassarre G., Calabretta R., Hallam J., Marocco D., Meyer J-A, Parisi D., eds. *Lecture Notes on Artificial Intelligence*, Volume 4095. Berlin, Germany: Springer Verlag, pp. 359-370.
- St. Amant, R., McBride, S. P., and Ritter, F. E. (2006). AI support for building cognitive models. *Proceedings of the Twenty-First National Conference on Artificial Intelligence (AAAI, Nectar track)*, pp. 1663-1666.
- St. Amant, R., Morrison, C. T., Chang Y.-H., Cohen, P. R., and Beal, C. (2006). An image schema language. *Proceedings of the Seventh International Conference on Cognitive Modeling*, pp. 292-297.
- Ritter, F. E., Haynes, S. R., Cohen, M., Howes, A., John, B., Best, B., Lebiere, C., Jones, R. M., Crossman, J., Lewis, R. L., St. Amant, R., McBride, S. P., Urbas, L., Leuchter, S., Vera, A. (2006). High-level behavior representation languages revisited. *Proceedings of the Seventh International Conference on Cognitive Modeling*, pp. 404-407.
- St. Amant, R., and Wood, A. B. (2005). Tool use for autonomous agents. *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, pp. 184-189.
- St. Amant, R., and Ritter, F. E. (2004). Automated GOMS to ACT-R model translation. *Proceedings of the Sixth International Conference on Cognitive Modeling (ICCM)*, pp. 26-31.
- St. Amant, R., Horton, T. E., and Ritter, F. E. (2004). Model-based evaluation of cell phone menu interaction. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*, pp. 343-350.
- Green, N., Kruger, J., Faldu, C., and St. Amant, R. (2004). A reduced QWERTY keyboard for mobile text entry. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI), short papers*, pp. 1429-1432.
- Butler, C. G., and St. Amant, R. (2004). HabilisDraw DT: A bimanual tool-based direct manipulation drawing environment. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI), short papers*, pp. 1301-1304.
- Riedl, M. O., and St. Amant, R. (2003). Social navigation: Modeling, simulation, and experimentation. *Proceedings of the International Joint Conference on Autonomous Agents and MultiAgent Systems (AAMAS)*, pp. 361-368.
- St. Amant, R., and Christian, D. B. (2003). Environment modification in a simulated human-robot interaction task: Experimentation and analysis. *Proceedings of the International Conference on Intelligent User Interfaces (IUI)*, pp. 174-181.
- St. Amant, R., Dinardo, M. D., and Buckner, N. (2003). Balancing efficiency and interpretability in an interactive statistical assistant. *Proceedings of the International Conference on Intelligent User Interfaces (IUI)*, pp. 181-188.
- Simpson, C. A., and St. Amant, R. (2003). Search for efficient device-dependent action sequences in the user interface. *Proceedings of the International Conference on Intelligent User Interfaces (IUI)*, pp. 297-299.
- Daughtry, J. M., and St. Amant, R. (2003). Power Tools and Composite Tools: Integrating Automation into Direct Manipulation Interfaces. *Proceedings of the International Conference on Intelligent User Interfaces (IUI)*, pp. 233-235.
- Shah, K., Rajyaguru, S., St. Amant, R., and Ritter, F. E. (2003). Connecting a cognitive model to dynamic gaming environments: Architectural and image processing issues. *Proceedings of the Fifth International Conference on Cognitive Modeling (ICCM)*, pp. 189-194.
- Riedl, M. O., and St. Amant, R. (2002). Toward automated exploration of interactive systems. *Proceedings of the International Conference on Intelligent User Interfaces (IUI)*, pp. 135-142.

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- St. Amant, R., and Horton, T. E. (2002). A tool-based interactive drawing environment. *ACM Conference on Human Factors in Computing Systems (CHI) Extended Abstracts*, pp. 762-763.
- St. Amant, R., and Dudani, A. (2002). An environment for programming user interface softbots. *Proceedings of the International Working Conference on Advanced Visual Interfaces (AVI)*, pp. 119-122.
- St. Amant, R., Blair, J. E., Barry, P. A., Bentor, Y., and Healey, C. G. (2002). A visual interface to a music database. *Proceedings of the International Working Conference on Advanced Visual Interfaces (AVI)*, pp. 85-88.
- Ritter, F. E., Van Rooy, D., and St. Amant, R. (2002). A user modeling design tool for comparing interfaces. *Proceedings of the Fourth International Conference on Computer-Aided Design of User Interfaces (CADUI)*.
- St. Amant, R., and Horton, T. E. (2002). Characterizing tool use in an interactive drawing environment. *Second International Symposium on Smart Graphics*, pp. 86-93.
- St. Amant, R., and Healey, C. G. (2001). Usability guidelines for interactive search in direct manipulation systems. *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI)*, pp. 1179-1184.
- St. Amant, R., Healey, C. G., Riedl, M. O., Kocherlakota, S., Pegram, D. A., and Torhola, M. (2001). Intelligent visualization in a planning simulation. *Proceedings of the International Conference on Intelligent User Interfaces (IUI)*, pp. 153-160.
- St. Amant, R., and Zettlemoyer, L. S. (2000). The user interface as an agent environment. *Proceedings of the International Conference on Autonomous Agents (Agents)*, pp. 483-490.
- Dulberg, M. S., St. Amant, R., and Zettlemoyer, L. S. (1999). An imprecise mouse gesture for the fast activation of controls. *Proceedings of INTERACT*, pp. 375-382.
- Zettlemoyer, L. S., and St. Amant, R. (1999). A visual medium for programmatic control of interactive applications. *Proceedings of the ACM Conference on Human Factors in Computing (CHI)*, pp. 199-206.
- Zettlemoyer, L. S., St. Amant, R., and Dulberg, M. S. (1999). Ibots: Agent control through the user interface. *Proceedings of the International Conference on Intelligent User Interfaces (IUI)*, pp. 31-37.
- St. Amant, R. (1999). Planning and user interface affordances. *Proceedings of the International Conference on Intelligent User Interfaces (IUI)*, pp. 135-142.
- Healey, C. G., St. Amant, R., and Elhaddad, M. (1999). ViA: A perceptual visualization architecture. *28th Applied Imagery Pattern Recognition workshop*.
- St. Amant, R., and Dulberg, M. S. (1998). An experiment with navigation and intelligent assistance. *Proceedings of the International Conference on Intelligent User Interfaces (IUI)*, pp. 171-178.
- St. Amant, R. (1997). Planning and navigation in a mixed-initiative user interface. *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, pp. 64-69.
- St. Amant, R., and Cohen, P. R. (1997). Evaluation of a semi-autonomous assistant for exploratory data analysis. *Proceedings of the International Conference on Autonomous Agents*, pp. 355-362.
- St. Amant, R., and Cohen, P. R. (1997). Interaction with a mixed-initiative system for exploratory data analysis. *Proceedings of the International Conference on Intelligent User Interfaces (IUI)*, pp. 15-22.
- St. Amant, R., and Cohen, P. R. (1997). Building an EDA assistant: a progress report. *Proceedings of the International Workshop on Artificial Intelligence and Statistics (AI & Stats)*, pp. 501-512.
- St. Amant, R. (1997). Navigation for data analysis systems. *Advances in Intelligent Data Analysis: Reasoning about Data*. Springer, pp. 101-110.
- St. Amant, R., and Cohen, P. R. (1996). A planner for exploratory data analysis. *Proceedings of the International Conference on Artificial Intelligence Planning Systems (AIPS)*. AAAI Press, pp. 205-212. Reprinted in *Readings in Agents*. Huhns, M., and Singh, M., eds. Morgan Kaufmann,

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pp. 131-138.

- St. Amant, R., and Cohen, P. R. (1995). Preliminary system design for an EDA assistant. *Proceedings of AI & Stats*, pp. 502-511.
- Cohen, P. R., Gregory, D. E., Ballesteros, L. A., and St. Amant, R. (1995). Two algorithms for inducing structural equation models from data. *Proceedings of AI & Stats*, pp. 129-139.
- St. Amant, R., and Cohen, P. R. (1995). A case study in planning for exploratory data analysis. *Advances in Intelligent Data Analysis*, pp. 1-5.
- St. Amant, R., Yoshitaka Kuwata, and Cohen, P. R. (1995). Monitoring progress with dynamic programming envelopes. *Seventh IEEE International Conference on Tools with AI*, pp. 426-433.
- St. Amant, R., and Cohen, P. R. (1994). Toward the integration of exploration and modeling in a planning framework. *Knowledge Discovery in Databases Workshop, AAAI*, pp. 49-50.
- St. Amant, R., and Cohen, P. R. (1994). A planning representation for automated exploratory data analysis. D. H. Fisher and Wray Buntine, editors, *Knowledge-Based Artificial Intelligence Systems in Aerospace and Industry*. Proc SPIE 2244, pp. 44-52.
- St. Amant, R., and Cohen, P. R. (1994). Automated analysis of complex data. *Ninth Annual Goddard Conference on Space Applications of Artificial Intelligence*, NASA Conference Publication 3268, pp. 161-172.
- Howe, A. E., St. Amant, R., and Cohen, P. R. (1994). Integrating statistical methods for characterizing causal influences on planner behavior over time. *Sixth IEEE International Conference on Tools with AI*.
- Cohen, P. R., Ballesteros, L. A., Carlson, A., and St. Amant, R. (1993). Automating path analysis for building causal models from data. *Proceedings of the International Conference on Machine Learning (ICML)*, pp. 57-64.
- Cohen, P. R., Ballesteros, L., Carlson, A., and St. Amant, R. (1993). Automating path analysis for building causal models from data: First results and open problems. *Knowledge Discovery in Databases Workshop, AAAI*, pp. 153-161.
- Cohen, P. R., St. Amant, R., and Hart, D. M. (1992). Early warnings of plan failure, false positives and envelopes: Experiments and a model. *Proceedings of the Fourteenth Annual Conference of the Cognitive Science Society*, pp. 773-778.

Book chapters

- St. Amant, R. (2005). Artificial intelligence. *The Encyclopedia of Human-Computer Interaction*, Bainbridge, W., ed. Berkshire Publishing.
- St. Amant, R. (2005). Statistical analysis support. *The Encyclopedia of Human-Computer Interaction*, Bainbridge, W., ed. Berkshire Publishing.
- St. Amant, R., Lieberman, H., Potter, R., and Zettlemoyer, L. S. (2001). Visual generalization in programming by example. *Your Wish Is My Command*, Lieberman, H., ed. Morgan Kaufmann.
- St. Amant, R., and Cohen, P. R. (1997). Massive datasets and artificial intelligence planning. *Massive Data Sets Workshop*, Committee on Applied and Theoretical Statistics, National Research Council.
- Cohen, P. R., Oates, T., and St. Amant, R. (1996). Plan steering and mixed-initiative planning. *Advanced Planning Technology: Technological Achievements of the ARPA/Rome Laboratory Planning Initiative*. Tate, A., ed. AAAI Press, pp. 105-112.
- St. Amant, R., and Cohen, P. R. (1996). Control representation in an EDA assistant. *Learning from Data: AI and Statistics V*, Fisher, D. H., and Lenz, H., eds. Springer, pp. 353-362.
- Cohen, P. R., Gregory, D. E., Ballesteros, L. A., and St. Amant, R. (1996). Two algorithms for inducing structural equation models from data. *Learning from Data: AI and Statistics V*, Fisher, D. H., and Lenz, H., eds. Springer, pp. 3-12.
- Cohen, P. R., Hart, D. M., Ballesteros, L. A., Carlson, A., and St. Amant, R. (1994). Path analysis

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models of an autonomous agent in a complex environment. *Selecting Models from Data: AI and Statistics IV*, Cheeseman, P., and Oldford, R. W., eds. Springer, pp. 243-251.

RESEARCH FUNDING

Models and tools for auditory Web browsing (PI). Under review, National Science Foundation.

A mobile aid for users with disabilities (PI). Google Research. August, 2010. \$45,000.

Toward Cognitive Habile Agents (PI). National Science Foundation. January, 2006 - December, 2009. \$375,266.

Intelligent Human-Machine Interface and Control for Highly Automated Chemical Screening Processes (co-PI). National Science Foundation. August, 2004 - August, 2007. \$748,132.

MAVEN: Model-based Automated Visualization for Enhanced Situation Awareness (co-PI). Army STTR. August, 2004. \$30,000.

US Germany Workshop Towards an International Research Partnership Program on Human-Automation Interaction in the Life Sciences (co-PI). National Science Foundation. September, 2004. \$58,699.

AAAI/SIGART Doctoral Consortium (PI, American Association for Artificial Intelligence). National Science Foundation. July, 2004. \$14,000.

ITR: Integrating Intrusion Detection with Intelligent Visualization and Interaction Strategies (co-PI). National Science Foundation. September, 2002 - July, 2005. \$415,099.

Using Cognitive Models to Examine Human-Robot Interfaces: An Exploratory Study (PI, subcontract to the Pennsylvania State University). Space and Naval Warfare Systems Center (SPAWAR), San Diego. May, 2001 - May, 2002. \$65,419.

Interactive Exploration of Complex Datasets Via the Effective Generation of Text and Graphics (co-PI). National Science Foundation. September, 2000 - September, 2003. \$570,000.

User Interface Softbots (PI). National Science Foundation. August, 2000 - August, 2003. \$497,384.

MIPER: Mixed-Initiative Plan Evaluation and Repair (PI, subcontract to the University of Massachusetts). DARPA/Rome Laboratory. August, 1997 - June, 2001. \$234,869.

IDIOM: An Intelligent, Dynamically Manipulable Simulation for High School Physics Education (PI). The William R. Kenan Institute for Engineering, Technology, and Science. September, 1998 - August, 2000. \$70,000.

Online Financial Investment via Interactive Search and Visualization (co-PI). AngelsStreet.com. August, 1999 - June, 2000. \$210,975.

o3c: intelligent support for online shopping (co-PI). Centennial Venture Partners/Lichtin Corporation. June, 1999 - December, 1999. \$207,658.

TEACHING AND MENTORING

Instructional development

Developed *CSC 791: Intelligent User Interfaces* in Spring 2011, a graduate seminar on the topic.

Developed *CSC 521: Artificial Intelligence Programming* in Spring 2007, a combined upper-level 2007-8 undergraduate/graduate class focusing on programming techniques for AI systems.

Assisted in the development of *CSC 295F: Collaborative Operating Systems Development* for Spring 2003, an apprentice programming course largely taught by upper-level undergraduates to lower-level undergraduates in computer science. Project activities in the course include building practical utilities for Linux, Windows, and other software systems.

Developed *CSC 295H: Honors Special Topics in Computing*, with support from John Wall (Director, University Honors Council) and technical staff. Project activities in the course were geared toward the long-term goal of building a Linux-based open source environment tailored for NCSU students.

Co-developed *CSC 600: Computer Science Graduate Orientation*, an introductory research seminar

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for new graduate students.

Taught *CSC 554: Human-Computer Interaction* as a course in the *Video-Based Engineering Education (VBEE) program*, to reach over 40 off-campus students in addition to about 40 on-campus students.

Developed *CSC 554: Human-Computer Interaction*, a graduate level course on user interface issues.

Coordinated the development of *CSC 454: Human-Computer Interaction*, an undergraduate level course on user interface issues.

Teaching

Aside from special topics courses, I have taught the following (with course catalog descriptions).

CSC 200: Introduction to Computers and Their Uses. Survey of basic principles of computer hardware, communications, operating systems, microcomputer issues, security, impact on society, system development, and use in organizations...

CSC 454: Human-Computer Interaction. A survey of concepts and techniques for user interface design and human computer interaction. Emphasizes user-centered design, interface development techniques, and usability evaluation.

CSC 520: Artificial Intelligence I. Introduction to and overview of artificial intelligence. Study of AI programming language such as LISP or PROLOG. Elements of AI problem-solving technique. State spaces and search techniques. Logic, theorem proving and associative databases. Introduction to knowledge representation, expert systems and selected topics including natural language processing, vision and robotics.

CSC 521: Artificial Intelligence Programming. Introduction to techniques for developing AI systems and programming in a language for AI, Common Lisp. Implementation and extension of systems for problem solving, pattern matching, rule-based processing, machine learning, and related areas.

CSC 554: Human-Computer Interaction. Basic theory and concepts of human-computer interaction. Human and computational aspects. Cognitive engineering. Practical HCI skills. Significant historical case studies. Current technology and future directions in user interface development.

Undergraduate mentoring

From 1999 through 2004, the computer science department sponsored an effort to identify, organize, and mentor exceptional students by introducing them to the world of computer science research. I developed and directed the mentoring program, named AURICS, for Accelerated Undergraduate Research In Computer Science. AURICS was patterned after successful programs at MIT, CalTech, and the University of Colorado, in which the goal is to integrate undergraduates into ongoing research efforts, to enhance their educational experience. The program was highly praised by the department's Industrial Advisory Council. I coordinated independent studies for a number of undergraduates on separate projects, some resulting in publications.

Nathan Green, Jan Kruger, and Chirag Faldu: A reduced QWERTY keyboard for text entry (2004).

Austin Waters and Yinon Bentor: Geometrical techniques for identifying symmetries for a robot grasper (2003).

Adam Mitchell: An agent for strategic gaming environments (2003).

John Daughtry: Power tools and composite tools for drawing (2002-3).

John Daughtry and Tyler Johnson: A privacy evaluation agent for the Web (2002).

Inki Brown: Automated assistance for presentation generation (2002).

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- Colin Butler: A pattern definition tool for interface softbots. Funded by NSF (2001-2).
- Yinon Bendor, Patrick Barry, and Eric Pelkey [67]: Visualization and selection in a music database (2001-2).
- Jordan Liggitt and Breneria Travis (NSF Minority Undergraduate Research Grant): Redesign of the Web pages of ACM SIGART's Intelligence Magazine (2001-2).
- Mike Daniels: Building a robot arm simulation. (2000-1).
- Saunak Chakrabarti: An interactive tool for perception in the user interface (2000-1).
- James Blair, SunJun Park, Patrick Barry, and Duke Rogers: Lola: Visualization and selection in a music database (2000-1).
- Luis Cepeda, Micah Colon, Naveen Malik, and Mark van Osdell: Intelligent support for online shopping. Funded by o3c.com (1999).
- Joshua Christie and Keith Watts: Intelligent support for online financial decision-making. Funded by angelsstreet.com (1999-2000).
- William Culverhouse, Hayes Davis, Christopher Hardee, Thai-Hang La, and Julie Stash: Intelligent tutoring agents (1999).
- Adam Price: Integration of multidimensional visualization techniques with mixed-initiative AI search algorithms (1999).
- Mark Riedl: A Web-based intelligent assistant to help students with course scheduling; mixed-initiative planning. Funded by DARPA (1998).
- Keri Smith and Troy Tulle: Mixed-initiative planning. Funded by DARPA (1998).
- Luke Zettlemoyer, Derek Foley, Brendon Windmeyer: User interface agents. In 1999 Luke was named one of the two Outstanding Undergraduates by the Computing Research Association, the single highest national honor given to undergraduate computer science students.

Ph.D. and M.S. students graduated

- Marivic Bonto-Kane, Ph.D., 2010 (*Thesis title: Statistical modeling of human response times for task modeling in HCI*).
- Reuben Cornel, M.S., 2009 (*Thesis title: Coglaborate - An environment for collaborative cognitive modeling*).
- Lloyd Williams, Ph.D., 2009 (*Dynamic ontology-driven learning and control of robotic tool-using behavior*).
- Wei Mu, Ph.D., 2009 (*A schematic representation for cognitive tool-using agents*).
- Lucas Layman, Ph.D., 2009, as co-advisor (*Information needs of developers for program comprehension during software maintenance tasks*).
- James Ward, M.S., 2008 (*A comparison of fuzzy logic spatial relationship methods for human-robot interaction*).
- Chaya Narayanan Kutty, M.S., 2008 (*Toward video games on video*).
- Kevin Damm, M.S., 2008 (*Incorporating student note-taking into online intelligent computer-assisted instruction*).
- Andrea Dawkins, M.S., 2007 (*Personalized hierarchical menu organization for mobile device users*).
- Kenya Freeman, Ph.D. in Psychology, 2006, as co-advisor (*The effects of automated decision aid reliability and algorithm modality on reported trust and task performance*).
- Curtis Boyce, M.S., 2006 (*Video-based augmented reality for robot navigation*).
- Sean P. McBride, M.S., 2005 (*Data organization and abstraction for distributed intrusion detection*).
- Lloyd Williams, M.S., 2005 (*Opening the black box on statistical modeling*).
- Alexander Wood, M.S., 2005 (*Effective tool use in a habile agent*).
- Thomas Horton, M.S., 2004 (*HabilisDraw: a tool-based direct manipulation software environment*).
- Bradley Siegler, M.S., 2004 (*Supporting electronic CRC card sessions with natural interaction*).
- Colin G. Butler, M.S., 2004 (*Exploring bimanual tool-based interaction in a drawing environment*).

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Nihar Namjoshi, M.S., 2004 (*Web information retrieval using Web document structures*).
Martin Dulberg, Ph.D., 2003 (*A task-based evaluation framework for comparing input devices*).
Ajay Dudani, M.S., 2003 (*User interface softbots*).
Kunal Shah, M.S., 2003. (*Image processing for cognitive models in dynamic gaming environments*).
Sameer Rajyaguru, M.S., 2003 (*Image processing substrate to assist cognitive models interact with dynamic environments*).
Mark O. Riedl, M.S., 2001 (*A Computational model of navigation in social environments*).
Troy Tolle (Kenan Fellowship recipient), M.S., 2000 (*IDIOM: An Intelligent, Dynamically Manipulable Simulation for high school physics education*).
T. Edward Long, M.S., 1999. (*A navigation testbed*).

SERVICE

Editorial appointments

Member, editorial board, *Oxford Series on Cognitive Models and Architectures*, 2010-present.
Member, editorial board, *AI Magazine*, 2008-2010.
Co-editor, Links column, and area editor for planning, *Intelligence Magazine*, 2000-2002.
Special reviewer, *User Modeling and User Adapted Interaction*, Kluwer.
Associate editor, *Journal of Statistical Software*, 1995-1997.

Conference committees

Steering board member, *International Conference on Intelligent User Interfaces (IUI)*, 2006-present.
CHI Notes co-chair, *ACM Conference on Human Factors in Computing Systems (CHI)*, 2007.
Conference chair, *International Conference on Intelligent User Interfaces (IUI)*, 2005.
Treasurer, *International Conference on Intelligent User Interfaces (IUI)*, 2003, 2004.
AAAI conference committee; chair/co-chair, *SIGART/AAAI Doctoral Consortium*, 2003, 2004.
Associate papers chair, *ACM Conference on Human Factors in Computing Systems (CHI)*, 1999, 2002, 2003.
Tutorials/workshops chair, *International Conference on Intelligent User Interfaces (IUI)*, 2000, 2001.
Organizing committee and registration chair, *International Conference on Intelligent User Interfaces (IUI)*, 1998.

Conference program committees

User Interface Software and Technology (UIST), 2004, 2010.
National Conference on Artificial Intelligence (AAAI), Integrated Intelligence Track, 2007.
International Conference on Intelligent User Interfaces (IUI), 1999-present.
National Conference on Artificial Intelligence (AAAI), 1996, 2000, 2002.
Computer-Aided Design of User Interfaces (CADUI), 2002.
International Conference on Autonomous Agents, 2001.

University and departmental service

Member, Faculty Senate, 2010-present.
Member, Departmental Assessment Committee, 2009-present.
Capstone project evaluation, Webmaster Certificate Program, Computer Training Unit, 2008-09.
Member, Departmental Graduate Admissions Committee, 1997-98, 1998-99, 1999-2000, 2006-07, 2007-08.
Member, Departmental Graduate Curriculum Committee, 1996-97, 2000-01, 2001-2002.

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REFERENCES

Available on request.