

Janet E. Burge
Associate Professor
Computer Science and Systems Analysis Department
Miami University, Oxford, OH 45056

Education

- Worcester Polytechnic Institute Computer Science Ph.D. (2005)
- Worcester Polytechnic Institute Computer Science MS (1999)
- Michigan Technological University Computer Science BS (1984)

Appointments

- *August 2005 – present*: Associate Professor, Computer Science and Software Engineering Department, Miami University.
- *September 2000 – May 2005*: Instructor, Computer Science Department, Worcester Polytechnic Institute, Worcester, MA.
- *May 1997 – August 2005*: Associate Senior Scientist, Charles River Analytics Inc., Cambridge, MA.
- *January 1997 – May 1998*: Teaching Assistant, Worcester Polytechnic Institute, Worcester MA.
- *September 1995 – December 1996*: Senior Technical Applications Specialist, Fidelity Investments, Boston, MA.
- *June 1984 – September 1995*: Senior Engineer, Raytheon Company, Lexington, MA.

External Grants Awarded

Spring, 2010: Research Experiences for Undergraduates, CPATH: Incorporating Communication Outcomes into the Computer Science Curriculum, National Science Foundation (Janet Burge PI, Co-PIs: Jerry Gannod, Paul Anderson), **\$16,000**

Fall, 2009: CPATH: Incorporating Communication Outcomes into the Computer Science Curriculum, National Science Foundation (Janet Burge PI, Co-PIs: Jerry Gannod, Paul Anderson, MU, Mladen Vouk, Michael Carter, North Carolina State University). **\$800,000** (\$445,136 Miami)

Summer, 2009: CAREER: Rationale Capture for High Assurance Systems, National Science Foundation, **\$527,864**

Fall, 2007: “The Software Communication Chautauqua Series” National Science Foundation (Charles Wallace, Michigan Technological University, PI, Paul Anderson, MU, and Marika Seigel, MTU, Co-PIs). **\$59,794** (\$34,582 Miami)

Fall, 2006: “Automated Software Analysis and Visualization” Office of the Secretary of Defense (with Curt Wu, Charles River Analytics, PI). **\$100,000** (\$29,971 Miami)

Publications

J. Burge, G. Gannod, H. Connor, Using Rationale to Drive Product Line Architecture Configuration, presented at SHARK 2011

J. Burge, P. Anderson, G. Gannod, M. Carter, M. Vouk, Integrating Communication Instruction Throughout Computer Science and Software Engineering Curricula, presented at ASEE 2011

M. Carter, G. Gannod, J. Burge, P. Anderson, M. Vouk, Communication Genres: Integrating Communication into the Software Engineering Curriculum, presented at CSEE&T 2011

- A. Tang, A. Aleti, J. Burge, H. van Vliet, "What makes software design effective", *Design Studies*, Volume 31 (6), November 2010, 614-640
- J. Burge, B. Brinkman, "Using Rationale to Assist Student Cognitive and Intellectual Development", *Human Technology: An Interdisciplinary Journal of Humans in ICT Environments*, Volume 6 (1), May 2010, 106-128
- W. Wang, J. Burge, "Using Rationale to Support Pattern-Based Architectural Design", accepted for publication at the Workshop on Sharing and Reusing Architectural Knowledge (SHARK), Cape Town, South Africa, 2010
- J. Burge, "Application and appreciation: Changing course structure to change student attitudes", *The Proceedings of the 22nd International Conference on Software Engineering Education and Training*, Hyderabad India, 2009
- J. Burge, G. Gannod "Dimensions for Categorizing Capstone Projects", *The Proceedings of the 22nd International Conference on Software Engineering Education and Training*, Hyderabad India, 2009
- J. Daughtry, J. Burge, J. Carroll, C. Potts, "Creativity and Rationale in Software Design" *SIGSOFT Softw. Eng. Notes* 34(1) (Jan. 2009), 27-29.
- G. Gannod, J. Burge, M. Helmick, "Using the Inverted Classroom to Teach Software Engineering", *Proceedings of the International Conference on Software Engineering (ICSE)*, Leipzig, Germany, 10-18 May 2008, pp. 777-786
- J. Burge, "Using Rationale to Assist Student Cognitive and Intellectual Development", *Workshop on Creativity and Rationale in Software Design*, Invited Workshop, NSF Creative IT Program, 2008
- J. Burge, "Researching Under Uncertainty", *Artificial Intelligence in Engineering Design, Analysis, and Manufacturing*, 22 (4):311-324
- J. Burge, D.C. Brown, "SEURAT: Integrated Rationale Management, Formal Research Demonstration", *ICSE, Leipzig, Germany, 2008*, pp. 835-838
- J. Burge, D.C. Brown, "Software Engineering Using Rationale", *Journal of Systems and Software*, 2008, 81(3): 395-413
- J. Burge, J. Carroll, R. McCall, I. Mistrik, *Rationale-Based Software Engineering*, Springer, 2008
- J. Burge, "Exploiting Multiplicity to Teach Reliability and Maintainability in a Capstone Project", *Conference on Software Engineering Education and Training*, 2007, pp. 29-36
- G. Gannod, S. Urban, J. Burge, "Issues in the Design of Flexible and Dynamic Service Oriented Systems" *International Workshop on Systems Development in SOA Environments*, Minneapolis MN, 2007.
- M. Helmick, J. Kiper, J. Burge, V. Cross, G. Gannod, "Incorporating Wikis into software repository mining", in *Proceedings of Wiki4SE- Wikis for Software Engineering Workshop*, Montreal (Canada), 2007
- J. Burge, D.C. Brown, "Supporting Requirements Traceability with Rationale", *Workshop on Grand Challenges in Traceability*, Kentucky, 2006.
- J. Burge, V. Cross, J. Kiper, P. Maynard-Zhang, S. Cornford, "Enhanced design checking involving constraints, collaboration, and assumptions", *Design, Computing, and Cognition*, Gero J (ed), Kluwer Academic Publishers, Netherlands, 2006, pp. 655-674

J. Burge, "Anatomy of an Experiment: Difficulties in Evaluating Rationale-based Systems", Workshop on Design Rationale: Problems and Progress, Design, Computing, and Cognition, 2006, Eindhoven, Netherlands

J. Burge, D. Troy, "Rising to the Challenge: Using Business-Oriented Case Studies in Software Engineering Education", in Proceedings of the 19th Conference on Software Engineering Education and Training, Turtle Bay, Hawaii, 2006, pp. 43-50

J. Burge, D.C. Brown, "Rationale-Based Support for Software Maintenance," in *Rationale Management in Software Engineering*, A. Dutoit, R. McCall, I. Mistrik, B. Paech (eds.), Springer Verlag/Computer Science Editorial, Spring 2006.

B. Rosenberg, J. Burge, and P. Gonsalves, "Applying Evolutionary Multi-objective Optimization to Mission Planning for Time-sensitive Targets" Genetic and Evolutionary Computation Conference (GECCO) 2005 - Late Breaking Papers. Washington, DC, 2005.

J. Burge, P. Gonsalves, and C. Call, "Integrated Belief Network-based Situation Awareness Model Development and Adaptation," in Proceedings of SPIE, AeroSense, Orlando, FL, 2005.

P. Gonsalves, J. Burge, "Multi-objective Optimization to Support Rapid Air Operations Mission Planning," in Proceedings of SPIE, AeroSense, Orlando, FL, 2005.

J. Burge, D.C. Brown, "An Integrated Approach for Software Design Checking Using Rationale", Design Computing and Cognition '04, J. Gero (Ed.), Kluwer Academic Publishers, Netherlands, 2004, pp. 557-576.

P. Gonsalves, J. Burge, J., "Software Toolkit for Optimizing Mission Plans (STOMP)," the AIAA 1st Intelligent Systems Technical Conf., Chicago, IL, 2004.

J. Burge, D.C. Brown, "Rationale Support for Maintenance of Large Scale Systems", Workshop on Evolution of Large-Scale Industrial Software Applications (ELISA), ICSM '03, Amsterdam, NL, 2003.

P. Gonsalves, P., J. Burge, and K. Harper, "Architecture for Genetic Algorithm-Based Threat Assessment," 6th International Conference on Information Fusion, Cairns, Australia, 2003.

P. Gonsalves, J. Burge, and B. Popp, "Decision Support System for Theatre Missile Defense," National Symposium on Sensor and Data Fusion, San Diego, CA, 2003.

P. Gonsalves, J. Burge, and B. Popp, "Decision Support System for Theatre Missile Defense," Proceedings of SPIE, Volume 5096, AeroSense, Orlando, FL, 2003.

J. Burge, D. C. Brown, "Integrating Design Rationale with a Process Model", Workshop on Design Process Modeling, Artificial Intelligence in Design '02, Cambridge, UK, 2002.

J. Burge, "Design Rationale for Software Maintenance", Doctoral Symposium Abstract: Automated Software Engineering, Coronado CA, 2001.

H. Ruda, J. Burge, P. Aykroyd, J. Sander, D. Okon, and G. Zacharias, "Distributed Course of Action Planning using Genetic Algorithms, XML, and JMS," Proceedings of SPIE, Volume 4396, AeroSense, Orlando, FL, 2001.

H. Ruda, J. Burge, P. Aykroyd, J. Sander, D. Okon, and G. Zacharias, "FOX and CADET: Successful Integration of Command and Control Components" Proceedings of the Federated Laboratories Capstone Symposium, College Park, MD, 2001.

J. Burge, D.C. Brown, "Reasoning with Design Rationale", Artificial Intelligence in Design '00, J. Gero (ed.), Kluwer Academic Publishers, Netherlands, 2000, pp. 611-629.

Technical Reports

J. Burge, D. C. Brown, "NFRs: Fact or Fiction", Computer Science Technical Report, Worcester Polytechnic University, WPI-CS-TR-02-01, 2002.

J. Burge, D. C. Brown, "Discovering a Research Agenda for Using Design Rationale in Software Maintenance", Computer Science Technical Report, Worcester Polytechnic University, WPI-CS-TR-02-03, 2002.

J. Burge, D. C. Brown, "Design Rationale Types and Tools", Computer Science Technical Report, Worcester Polytechnic University, WPI-CS-TR-98-28, 1998.

J. Burge, "Knowledge Elicitation Tool Classification", Computer Science Technical Report, Worcester Polytechnic Institute, WPI-CS-TR-98-29

Service

- Anderson, P., Burge, J., Carter, M., Gustafsson, M., Research on Total Integration of Writing and Subject-Matter Instruction in the Disciplines: An Interim Report from National and International Perspectives, Panel presented at Writing Research Across Borders, 2011
- Burge, J., Anderson, P., Gannod, G., Begel, A., Is Integration of Communication and Technical Instruction Across the SE Curriculum a Viable Strategy for Improving the Real-World Communication Abilities of Software Engineering Graduates?, Panel to be conducted at CSEE&T 2011
- Supervised Undergraduate Summer Scholar, 2011 (these are awarded based on proposals submitted)
- Organized three NSF Funded workshops on Integrating Communication Skills Learning Outcomes into the CS and SE Curriculum, one at NC State, two at Miami. All with Paul Anderson, Gerald Gannod, Michael Carter, and Mladen Vouk
- Conducted a conference panel: Gerald C. Gannod, Janet E. Burge, Paul V. Anderson, and Andrew Begel, Panel entitled "Is Integration of Communication and Technical Instruction Across the SE Curriculum a Viable Strategy for Improving the Real-World Communication Abilities of Software Engineering Graduates?" at 24th IEEE-CS Conference on Software Engineering Education and Training (CSEE&T 2011), 22-24 May, 2011, pp. 525-529
- Conducted a conference panel: Paul Anderson, Janet Burge, Michael Carter, Magnus Gustafsson, Panel entitled "Research on Total Integration of Writing and Subject-Matter Instruction in the Disciplines: An Interim Report from National and International Perspectives," Panel presented at Writing Research Across Borders, 2011]
- Presented a conference talk: Paul Anderson, Janet Burge, "A Comprehensive, Progressive Approach to Fusing Mastery of Writing and Disciplinary Knowledge throughout Undergraduates' Studies: Theory, Empirical Support, and Development of Integrated Curricula," International Conference on University Literacies: Knowledge, Writing, Disciplines, Université Lille 3, Villeneuve d'Ascq, 2010, <http://evenements.univ-lille3.fr/litteracies-universitaires/>
- Conducted a "Birds of a Feather" session "Distributing Communication Skills Across the Computer Science Curriculum" at SIGCSE 2010 with Gerald Gannod and Mladen Vouk (NCSU)

- Organized the NSF Funded Software Communication Chautauqua at Miami University w/Paul Anderson, Charles Wallace, Marika Seigel
- Conducted a workshop on Improving Communication Skills of SE Students Through Curricular Innovation at CSEE&T 2009 with Paul Anderson
- Conducted a “Birds of a Feather” session “Human Communication in Computer Science & Software Engineering Education” at SIGCSE 2009 with Clifton Kussmaul and Paul Anderson
- Conducted a workshop on Software Engineering Communication at CSEE&T 2008 with Charles Wallace of MTU
- Conducted sessions during the STEM Exploration Academy, Miami University (2 years)
- Invited Talks: Virginia Tech (2010), Wesleyan (2010), Michigan Technological University (2008) (Visiting Scholar Program), University of Hyderabad, India (2009), University of Kentucky (2009), University of Memphis (2010)
- Guest editor (with R. Bracewell), Special Issue on Design Rationale in AI for Engineering Design, Analysis, and Manufacturing Journal, 2008.
- Program Committees: Workshop on the Sharing and Reusing of Architectural Knowledge, International Conference on Research into Design (ICoRD'09), International Workshop on Traceability in Emerging Forms of Software Engineering, ACM Symposium on Applied Computing Human Computer Interaction Track, AAAI Symposium on AI and Sustainable Design
- Served on two NSF review panels
- University Committee member: Academic Achievement Awards
- Department Committee member: Undergraduate Committee (3 years), Graduate Committee (1 year)
- Session Chair: Conference on Software Engineering Education and Training, 2009.
- Paper Reviews: Artificial Intelligence in Design '00, two papers, Journal of AI in Engineering Design and Manufacturing, three papers, Journal of Systems and Software, three papers, Concurrent Engineering, one paper, Journal of Engineering Design, five papers, Journal of Computing and Information Science in Engineering (JCISE), two papers. Research in Engineering Design, one paper, IEEE Software, one paper, AIEDAM Journal, one paper.
- Chapter Reviewer, Rationale Management in Software Engineering
- Student Outcomes Assessment Steering Committee, Graduate Student Representative, 2000-2003.

Courses Taught

- CSA212, Software Engineering for Human Computer Interaction
- CSA271, Object Oriented Programming
- CSA 448/449, Senior Design Project
- CSA 610, Graduate Seminar
- CSA 201, Introduction to Software Engineering
- CSA 348, Applied Software Engineering
- CSA 475, Software Systems Project
- CSA 472/572, Software Engineering
- CS 509, Design of Software Systems, Graduate Level (Worcester Polytechnic Institute)
- CS 2011, Introduction to Machine Organization and Assembly Language (Worcester Polytechnic Institute)

Graduate Students Supervised

- Wei Wang, Supporting Architecture Rationale Capture and Management with Architectural Patterns
- Lin Li, Rationale Extraction from Existing Documents

Honors

- Distinguished Scholar, Miami University, 2009-2010
- Outstanding Research Award, School of Engineering and Applied Science, Miami University, 2010
- Best Presentation Award for “Reasoning with Design Rationale”, Artificial Intelligence in Design '00.
- Robert S. Park Fellowship, Worcester Polytechnic University, 1998-1999.
Carl and Inez Weidenmiller Fellowship, Worcester Polytechnic University, 1999-2000.

Professional Societies

- Member IEEE Computer Society