

Greg Trafton

Education

- 1989–1994 **Ph.D in Psychology**, *Princeton University*, Princeton, NJ.
1989–1991 **M.A. in Psychology**, *Princeton University*, Princeton, NJ.
1985–1989 **B.S. in Computer Science; Second major in psychology**, *Trinity University*, San Antonio, TX.

Experience

- 2006–present **Section Head for the Intelligent Systems Section**, *Naval Research Laboratory*, Washington, DC.
1995–2006 **Engineering Research Psychologist**, *Naval Research Laboratory*, Washington, DC.
1995–present **Affiliate/Adjunct Professor**, *George Mason University*, Fairfax, VA.

Research Interests

- Error prediction and prevention
- Human Robot Interaction
- Cognitive Robotics
- Interruptions and resumptions
- Scientific Visualizations and reasoning
- Graph Comprehension

Research Methods

- Computational Cognitive Modeling (primarily within ACT-R)
- Protocol Analysis
- Eye-tracking
- Gesture Analysis
- Traditional psychological experimentation

Teaching Experience

- Scientific Visualization
- An Introduction to Cognitive Science
- Learning Environment and HCI

Students

Susan Trickett (Affiliate Professor at the University of Denver)
Nick Cassimatis (Assistant Professor at Rensselaer Polytechnic Institute)
Chris Monk (Assistant Professor at George Mason University)
Melissa Beck (Assistant Professor at Louisiana State University)
Sarah Kriz (Assistant Professor at University of Washington)
Bill Kennedy (Research Professor at George Mason University)
Anthony Harrison (Postdoc at the Naval Research Laboratory)
Raj Ratwani (Postdoc at the Naval Research Laboratory)

Funding

Agent-Based Architectures. Office of Naval Research. 600K over 3 years (1997-1999). Aha, D., Ballas, J., & Trafton, J. G.

Improved Human System Process for METOC. Office of Naval Research. 60K. (1999). Ballas, J., & Trafton, J. G.

Spatial Transformations. Office of Naval Research. 31K. (1999). Trafton, J. G.

Language Understanding for Interactive Knowledge Management Naval Research Laboratory/Office of Naval Research. 550K over 2 years (1999-2000). Marsh, E., & Trafton, J. G.

Human Centered Scientific Visualization. Naval Research Laboratory/Office of Naval Research. 900K over 4 years (2000-2003). Trafton, J. G.

Learning new knowledge structures in a cognitive model. Office of Naval Research. 480K over 3 years (2000-2002). Schultz, A. C., & Trafton, J. G.

METOC Human-System Interaction Improvement. Office of Naval Research. 200K over 5 years (2000-2004). Ballas, J., & Trafton, J. G.

Managing Attention in Critical Event Systems. Office of Naval Research. 250K (2000). Schmidt-Nielsen, A., Ballas, J., & Trafton, J. G.

Managing Attention in Critical Event Systems. Office of Naval Research. 125K (2001). Trafton, J. G., & Ballas, J.

Managing Attention in Critical Event Systems. Office of Naval Research. 750K (2002-2004). Trafton, J. G., & Ballas, J.

Environmental Visualization. Office of Naval Research. 1.5 M over 5 years (2002-2007). Ballas, J., & Trafton, J. G.

Mixed initiative control. DARPA MARS 2010 Program. 250K (2003-2004). Schultz, A. C. & Trafton, J. G.

Control of hybrid embodied agents. DARPA COABS Program. 100K (2002-2003). Schultz, A. C. & Trafton, J. G.

Complex problem solving with certain representations of an uncertain world. Office of Naval Research. 92K (2003-2005). Trafton, J. G. (with C. Schunn and S. Kirschenbaum funded under separate grants).

- Reducing the disruptive effects of interruptions in complex systems. Office of Naval Research. 525K (2004-2007). Trafton, J. G.
- Coping with Information Uncertainty. 400K (2004-2008). Office of Naval Research. Trafton, J. G.
- Clutter in Complex Visualizations. 15K (2005). Office of Naval Research. Trafton, J. G.
- Clutter in Complex Visualizations. 50K (2006). Office of Naval Research. Trafton, J. G.
- Complex problem solving with certain representations of an uncertain world. Office of Naval Research. 280K (2006-2008). Trafton, J. G. (with C. Schunn and S. Kirschbaum funded under separate grants).
- Hybrid Cognitive / Reactive Mechanisms as Reasoning Modules for Collaborative Autonomous Systems . 450K (2006-2008). Office of Naval Research. Schultz, A. and Trafton, J. G.
- Multimodal interfaces for high-level human-robot collaborations. 450K (2006-2008). Office of Naval Research. Schultz, A. and Trafton, J. G.
- Computational Cognitive Models of Visualization Comprehension. 80K (2006). Office of Naval Research. Trafton, J. G.
- Clutter in Complex Visualizations. 50K (2007). Office of Naval Research. Trafton, J. G.
- Understanding color to improve performance. 780K (2007-2009). Office of Naval Research. Trafton, J. G.
- Robots modeling teammates for better teamwork. 300K (2007-2009). Office of Naval Research. Trafton, J. G.

Books

- 2007 McNamara, D. S., & Trafton, J. G. (2007). Proceedings of the 29th Annual Cognitive Science Society. Austin, TX: Cognitive Science Society

Journal Articles

- in press Breslow, L., Trafton, J. G., McCurry, J. M., & Ratwani, R. M. (in press). An Algorithm for Generating Color Scales for Coding Both Categories and Quantities. *Color Research and Applications*.
- Trafton, J. G. (in press). Theoretical and Practical Developments in Cognitive Models and Agent Technologies Research. *Cognitive Technology*. 13(2), 5-7.
- Breslow, L., Ratwani, R. M., & Trafton, J. G. (in press). Cognitive Models of the influence of type of color-scale on data visualization task performance. *Human Factors*.
- Trickett, S. B., Trafton, J. G., & Schunn, C. D., (in press). How Do Scientists Respond to Anomalies? Different Strategies Used in Theoretical and Applied Science. *Topics in Cognitive Science*.
- 2009 Lohrenz, M. C., Trafton, J. G., Beck, M. R., & Gendron, M. L. (2009). A Model of Clutter for Complex, Multivariate, Geospatial Displays. *Human Factors*. 51(1), 90-101.

- Breslow, L., Trafton, J. G., & Ratwani, R. M. (2009). A perceptual process approach to selecting color scales for complex visualizations. *Journal of Experimental Psychology: Applied*. 15 (1), 25-34.
- Kennedy, W. G., Bugajska, M. D., Harrison, A. M., Trafton, J. G. (2009). "Like-Me" Simulation as an Effective and Cognitively Plausible Basis for Social Robotics. *International Journal of Social Robotics*. 1(2), 181-194.
- 2008 Monk, C. M., Trafton, J. G., & Boehm-Davis, D. A. (2008). The Effect of Interruption Duration and Demand on Resuming Suspended Goals. *Journal of Experimental Psychology: Applied*. 14(4), 299-313. [Lead Article]
- Ratwani, R. M., & Trafton, J. G. (2008). Spatial memory guides task resumption. *Visual Cognition*. 16(8), 1001-1010. [Lead Article]
- Ratwani, R. M., & Trafton, J. G. (2008). Shedding Light on the Graph Schema: Perceptual features vs. invariant structure. *Psychonomics Bulletin and Review*. 15(4) 767-762.
- Ratwani, R. M., Trafton, J. G., & Boehm-Davis, D. A. (2008). Thinking Graphically: Connecting Vision and Cognition during Graph Comprehension. *Journal of Experimental Psychology: Applied*. 14(1) 36-49. [Featured on Cognitive Daily: <http://scienceblogs.com/cognitivedaily/2009/01/>]
- 2007 Altmann, E. M. & Trafton, J. G. (2007). Timecourse of Recovery from Task Interruption: Data and a Model. *Psychonomics Bulletin and Review*, 14(6), 1079-1084.
- Trickett, S. B. & Trafton, J. G. (2007). "What if...": The Use of Conceptual Simulations in Scientific Reasoning *Cognitive Science*, 31(5), 843-875.
- Kennedy, W. G., & Trafton, J. G. (2007). Long-Term Symbolic Learning. *Cognitive Systems Research*. 8, 237-247.
- 2006 Trafton, J. G., Trickett, S. B., Stitzlein, C. A., Saner, L., Schunn, C. D., & Kirschbaum, S. S. (2006). The relationship between Spatial Transformations and Iconic Gestures *Spatial Cognition and Computation*. 6(1), 1-29. [Lead Article]
- 2005 Trafton, J. G., Trickett, S. B., & Mintz, F. E. (2005). Connecting internal and external representations: Spatial transformations of scientific visualizations. *Foundations of Science*. 10(1), 89-106.
- Bogacz, S., & Trafton, J. G. (2005). Understanding Dynamic and Static displays: Using Images to Reason Dynamically. *Cognitive Systems Research*. 6(4), 312-319.
- Sofge, D., Bugajska, M., Trafton, J. G., Perzanowski D., Thomas S., Skubic M., Blisard S., Cassimatis N., Brock D., Adams W, & Schultz A. (2005). Collaborating with Humanoid Robots in Space. *International Journal of Humanoid Robotics*. 2(2), 181-201.
- Trafton, J. G., Cassimatis, N. L., Bugajska, M. D., Brock, D. P., Mintz, F. E., & Schultz, A. C. (2005). Enabling effective human-robot interaction using perspective-taking in robots *IEEE Transactions on Systems, Man, and Cybernetics—Part A: Systems and Humans*. 35(4), 460-470.
- Schultz, A. C., & Trafton, J. G. (2005). Towards collaboration with robots in shared space: Spatial perspective and frames of reference. *Interactions*. Xii.2 (March-April), 22-24.

- 2004 Cassimatis, N. L., Trafton, J., G., Bugajska, M. D., & Schultz, A. C. (2004). Integrating Cognition, Perception and Action through Mental Simulation in Robots. *Journal of Robotics and Autonomous Systems*. 49(1-2), 13-23.
- Monk, C., Boehm-Davis, D. A., & Trafton, J. G. (2004). Recovering from Interruptions: Implications for Driver Distraction Research. *Human Factors*. 46(4), 650-663.
- 2003 Trafton, J. G., Altmann, E. M., Brock, D. P., & Mintz, F. E. (2003). Preparing to resume an interrupted task: Effects of prospective goal encoding and retrospective rehearsal. *International Journal of Human Computer Studies*. 58(5), 582-602. [NRL Alan Berman Award Winner]
- 2002 Swoboda, N. & Trafton, J. G. (2002). Conference Report: Diagrams 2002: Theory and Application of Diagrams. *Künstliche Intelligenz* [Artificial Intelligence]. 4/02, p. 45.
- Altmann, E. M. & Trafton, J. G. (2002). Memory for goals: An activation-based model. *Cognitive Science*. 26(1), 39-83.
- 2001 Trafton, J. G. & Trickett, S. B. (2001). Note-Taking for self-explanation and problem solving. *Human Computer Interaction*. 16(1), 1-38. [Lead Article]
- 2000 Trafton, J. G., Kirschenbaum, S. S., Tsui, T. L., Miyamoto, R. T., Ballas, J. A., & Raymond, P. D. (2000). Turning Pictures into Numbers: Extracting and Generating Information from Complex Visualizations. *International Journal of Human Computer Studies* 53 (5), 827-850.
- before 2000 Lipps, A. W., Trafton, J. G., & Gray, W. D. (1998). Animation as documentation: A replication with reinterpretation. *Intercom*, 7, 199–201.
- Trafton, J. G. (1995). A hybrid model using neural networks and ACT-R. *Behavior Research Methods, Instruments, and Computers*, 27 (2), 183–186.
- Trafton, J. G. (1994). The contributions of studying examples and solving problems to skill acquisition. Ph.D thesis: Department of Psychology, Princeton University, Princeton, NJ.
- Merrill, D. C., Reiser, B. J., Ranney, M., & Trafton, J. G. (1992). Effective pedagogical strategies in human tutors and intelligent tutoring systems. *Journal of the Learning Sciences*, 2, 277–306.
- Klein, S. B., Loftus, J., Trafton, J. G., & Fuhrman, R. W. (1992). The use of exemplars and abstractions in trait judgments: A model of trait knowledge about the self and others. *Journal of Personality and Social Psychology*, 63, 739–753.

Journal Articles under review

- Beck, M. R., Lohrenz, M. C., & Trafton, J. G. (under review). A Measure of Search Efficiency in a Real World Search Task: Global and Local Clutter *Journal of Experimental Psychology: Applied*.
- Schunn, C. D., Saner, L. D., Trafton, J. G., Trickett, S. B., Kirschenbaum, S., K., Knepp, M. M., & Shoup, M. (under review). The evolution of spatial representations during complex visual data analysis: Knowing when and how to be exact. *Topics in Cognitive Science*.

LeGoullon, M. D., Boehm-Davis, D. A., & Trafton, J. G. (under review). Resumption Errors Following an Interruption in a Hierarchically Structured Task with Novices and Experts. *Journal of Experimental Psychology: Applied*.

Ratwani, R. M., & Trafton, J. G. (under review). An Eye Movement Analysis of the Effect of Interruption Modality on Primary Task Performance. *Human Factors*.

Book Chapters

- 2009 Trickett, S. B., & Trafton, J. G. (2009). A Primer on Verbal Protocol Analysis. In D., Schmorow, J., Cohn, & D. Nicholson (Eds.), *The PSI Handbook of Virtual Environments for Training and Education, Volume 1*. (pp. 332-346). Westport, CT: Praeger Security International.
- 2008 Trafton, J. G., & Monk, C. M. (2008). Task Interruptions. In D. A. Boehm-Davis (Ed.), *Reviews of Human Factors and Ergonomics, Volume 3*
- 2007 Trickett, S. B., Trafton, J. G., Saner, L., & Schunn, C. D. (2007). "I don't know what's going on there": The Use of Spatial Transformations to Deal With and Resolve Uncertainty in Complex Visualizations. In M. C. Lovett & Shah, P. (Eds.), *Thinking with data* (pp. 65-86). New York, NY: Lawrence Erlbaum Associates.
- Schunn, C. D., Saner, L. D., Kirschenbaum, S. K., Trafton, J. G., & Littleton, E. B. (2007). Complex visual data analysis, uncertainty, and representation. In M. C. Lovett & Shah, P. (Eds.), *Thinking with data* (pp. 65-86). New York, NY: Lawrence Erlbaum Associates.
- Trafton, J. G., & Hoffman, R. R. (2007). Computer-aided Visualization in Meteorology. In R. R. Hoffman (Ed.), *Expertise out of context* (pp. 337-358). New York, NY: Lawrence Erlbaum Associates.
- Kirschenbaum, S. S., Trafton, J. G., & Pratt, E. A. (2007). Comparative Cognitive Task Analysis. In R. R. Hoffman (Ed.), *Expertise out of context* (pp. 327-336). New York, NY: Lawrence Erlbaum Associates.
- 2006 Trickett, S. B. & Trafton, J. G. (2006). Toward a comprehensive model of graph comprehension: Making the case for spatial cognition. (pp. 286-300). In D. Barker-Plummer, R. Cox, & N. Swoboda (Eds.). *Diagrammatic Representation and Inference*.
- Trafton, J. G., Schultz, A. C., Cassimatis, N. L., Hiatt, L. M., Perzanowski, D., P., Brock D. P., Bugajska M., & Adams W. (2006). Communicating and collaborating with robotic agents (pp. 252-278). In R. Sun (Ed.), *Cognition and Multi-Agent Interaction: From cognitive modeling to social simulation*.
- 2004 Trickett, S. B., Schunn, C. D., & Trafton, J. G. (2004). Puzzles and Peculiarities: How Scientists Attend to and Process Anomalies During Data Analysis (2004). In M. E. Gorman, A. Kincannon, D. Gooding, & R. D. Tweney (Eds.), *Spherical horses and shared toothbrushes: Recent developments in scientific and technological thinking*.
- Trickett, S. B. & Trafton, J. G. (2004). Spatial Transformations in graph comprehension. In A. F. Blackwell, K. Marriott, and A. Shimojima (Eds.). *Diagrammatic Representation and Inference*.
- 2002 Trafton, J. G., Marshall, S., Mintz, F., & Trickett, S. B. (2002). Extracting explicit and implicit information from complex visualizations (pp. 206-220). In M. Hegarty, B. Meyer, & H. Narayanan (Eds.) *Diagrammatic Representation and Inference*.

- Bogacz, S., & Trafton, J. G. (2002). Understanding static and dynamic images (pp. 247–249). In M. Hegarty, B. Meyer, & H. Narayanan (Eds.) *Diagrammatic Representation and Inference*.
- Perzanowski, D., Schultz, A. C., Adams W., Bugajska M., Marsh, E., Trafton, J. G., Brock D., Skubic, M., & Abramson, M. (2002). Communicating with teams of cooperative robots (pp. 185–193). In A. C. Schultz and L. E. Parker (Eds.), *Multi-Robot Systems: From Swarms to Intelligent Automata*, Dordrecht, The Netherlands: Kluwer.
- 1999 Brock, D. & Trafton, J. G. (1999). Cognitive representation of common ground in user interfaces. In Judy Kay (Ed.), *User Modeling*, New York, NY: Springer-Wien. 287-289.

Conference presentations, papers, and technical reports

- under review Fransen, B. R., Bugajska, M., & Trafton, J. G. (under review). Non-rigid gesture recognition for embodied cognition.
- Fransen, B. R., Herbst, E., Harrison, A., & Trafton, J. G. (under review). Real time face and object tracking.
- in press Trafton, J. G., Harrison, A. M., Fransen, B., & Bugajska, M. (in press). An embodied model of infant gaze-following. International Conference of Cognitive Modeling 2009.
- Trafton, J. G., Altmann, E. M., & Ratwani, R. M. (in press). A memory for goals model of sequential action. International Conference of Cognitive Modeling 2009.
- Harrison, A. M., & Trafton, J. G., (in press). Gaze-following and awareness of visual perspective in chimpanzees. International Conference of Cognitive Modeling 2009.
- Ratwani, R. M., McCurry, J. M., & Trafton, J. G. (in press). Validating a Predictive Model of Postcompletion Errors. *Proceedings of the Human Factors and Ergonomics Society 53rd Annual Meeting*.
- Andrews, A. E., Ratwani, R. M., & Trafton, J. G. (in press). The Effect of Alert Type to an Interruption on Primary Task Resumption. *Proceedings of the Human Factors and Ergonomics Society 53rd Annual Meeting*.
- Salvucci, D., Monk, C., & Trafton, J. G. (in press). A Process-Model Account of Task Interruption and Resumption: When Does Encoding of the Problem State Occur? *Proceedings of the Human Factors and Ergonomics Society 53rd Annual Meeting*.
- Frost, W., Bugajska, M., & Trafton, J. G. (in press). Incremental Modeling of Language Understanding Using Speech Act Frames. *Cognitive Science* 2009.
- Ratwani, R. M. & Trafton, J. G. (in press). Developing a Predictive Model of Postcompletion Errors. *Cognitive Science* 2009. [Winner of the 2009 Cognitive Science Conference Applied Cognition Modeling Prize]
- Brock, D., McClimens, B., Waslylyshyn, C., Trafton, J. G., & McCurry, M. (in press). Evaluating listeners' attention to and comprehension of spatialized concurrent and serial talkers at normal and a synthetically faster rate of speech. *Proceedings of the 15th International Conference on Auditory Display (ICAD)*.
- 2009 Kriz, S., Anderson, G., Bugajska, M., & Trafton, J. G. (2009). Talking to Robots: Features of Robot-Directed Speech. *Human Robot Interaction*, 2009.

- Jacobs, A. M., Fransen, B., McCurry, J. M., Heckel, F. W. P., Wagner, A., R., & Trafton, J. G. (2009). A Preliminary System for Recognizing Boredom. *Human Robot Interaction*, 2009.
- 2008 Kennedy, W. G. and Trafton, J. G. (2008). The Mathematics of Novelty as the Basis of the Exponential Law of Learning, The 41st Annual Society for Mathematical Psychology Conference. Washington, DC.
- Kennedy, W. G., Bugajska, M., Adams, W., Schultz, A. C., & Trafton, J. G. (2008). Incorporating Mental Simulation for a More Effective Robotic Teammate AAAI 2008.
- Wickens, C. D., Kaber, D., Mosaly, P., Trafton, J. G., Ratwani, R. M., Strayer, D., Boehm-Davis, D. A., St. John, M., & Smallman, H. S. (2008). The red-line of workload: Theory, research, and design. [Dream Panel for Chris Wickens]. *Proceedings of the Human Factors and Ergonomics Society 52nd Annual Meeting*.
- Ratwani, R. M., Andrews, A. E., Sousk, J. D., & Trafton, J. G. (2008). The effect of interruption modality on primary task resumption. *Proceedings of the Human Factors and Ergonomics Society 52nd Annual Meeting*. [Best student paper]
- Cades, D. M., Werner, N., Trafton, J. G., Boehm-Davis, D. A., & Monk, C. A. (2008). Dealing with Interruptions can be Complex, but does Interruption Complexity Matter: a Mental Resources Approach to Quantifying Disruptions. *Proceedings of the Human Factors and Ergonomics Society 52nd Annual Meeting*.
- Trafton, J. G., Bugajska, M. D., Fransen, B. R., & Ratwani, R. M. (2008). Integrating vision and audition within a cognitive architecture to track conversations. *Human Robot Interaction 2008 (HRI 2008)*.
- Ratwani, R. M., McCurry, J. M. & Trafton, J. G. (2008). Predicting post completion errors using eye movements. *Computer Human Interaction 2008 (CHI 2008)*.
- Brock, D., McClimens, B., Trafton, J. G., McCurry, M., & Perzanowski, D. (2008). Evaluating listeners' attention to and comprehension of spatialized concurrent and serial talkers at normal and a synthetically faster rate of speech. *Proceedings of the 14th International Conference on Auditory Display (ICAD)*.
- 2007 Trickett, S. B., & Trafton, J. G. (2007). The use of spatial cognition in graph interpretation. In D. S. McNamara & J. G. Trafton (Eds.), *Proceedings of the 29th Annual Cognitive Science Society*. Austin, TX: Cognitive Science Society.
- Ratwani, R. M., & Trafton, J. G. (2007). Beyond the Time Cost of Interruptions on Primary Task Performance: Understanding Errors. In D. S. McNamara & J. G. Trafton (Eds.), *Proceedings of the 29th Annual Cognitive Science Society*. Austin, TX: Cognitive Science Society.
- Kriz, S., Trafton, J. G., & McCurry, J. M. (2007). The role of spatial information in referential communication: Speaker and addressee preferences for disambiguating objects. In D. S. McNamara & J. G. Trafton (Eds.), *Proceedings of the 29th Annual Cognitive Science Society*. Austin, TX: Cognitive Science Society.
- Brudzinski, M. E., Ratwani, R. M., & Trafton, J. G. (2007). Goal and spatial memory following interruption. In *Proceedings of the International Conference of Cognitive Modeling (ICCM)*.
- Kennedy, W. G., & Trafton, J. G. (2007). Using simulations to model shared mental models. In *Proceedings of the International Conference of Cognitive Modeling (ICCM)*.

- Kennedy, W. G., Bugajska, M., Marge, M., Adams, W., Fransen, B. R., Perzanowski, D., Schultz, A. C., & Trafton, J. G. (2007). Spatial Representation and Reasoning for Human-Robot Collaboration. *AAAI 2007*.
- Pfautz, J., Roth, E., Bisantz, A., Jackson, C., Thomas, G., Trafton, J. G., & Whitaker, R. (2007). Meta-information representation and communication. *Proceedings of the Human Factors and Ergonomics Society 51st Annual Meeting*
- Ratwani, R. M., Andrews, A., McCurry, M., & Trafton, J. G. (2007). Using Peripheral Processing and Spatial Memory to Facilitate Task Resumption. *Proceedings of the Human Factors and Ergonomics Society 51st Annual Meeting*.
- Cades, D. M., Trafton, J. G., Monk, C. M., & Boehm-Davis, D. A. (2007). Does the Difficulty of an Interruption Affect our Ability to Resume? *Proceedings of the Human Factors and Ergonomics Society 51st Annual Meeting*.
- 2006 Ratwani, R. M., & Trafton, J. G. (2006). Now, where was I? Examining the Perceptual Processes while Resuming an Interrupted Task. *The proceedings of the twenty-eighth annual conference of the cognitive science society*.
- Ratwani, R. M., & Trafton, J. G. (2006). Helpful or harmful? Examining the effects of interruptions on task performance. *Proceedings of the Human Factors and Ergonomics Society 50th Annual Meeting*.
- Cades, D. M., Trafton, J. G., & Boehm-Davis, D. A. (2006). Mitigating Disruptions: Can Resuming an Interrupted Task Be Trained? *Proceedings of the Human Factors and Ergonomics Society 50th Annual Meeting*.
- Kennedy, W. G., Trafton, J. G. (2006). Long-term symbolic learning in Soar and ACT-R. International Conference for Cognitive Modeling, 2006.
- Trafton, J. G., Schultz, A. C., Perzanowski, D., Bugajska, M. D., Adams, W., Cassimatis, N. L., & Brock, D. P. (2006). Children and robots learning to play hide and seek. *Human Robot Interaction*.
- Squire, P., Trafton, J. G., Parasuraman, R. (2006). Human Control of Multiple Unmanned Vehicles: Effects of Interface Type on Execution and Task Switching Times. *Human Robot Interaction*.
- 2005 Trafton, J. G., Schultz, A. C., Bugajska, M., Mintz, F. E. (2005). Perspective-taking with robots: Experiments and models. *Proceedings of the 14th IEEE International Workshop on Robot and Human Interactive Communication*.
- Fong, T., Nourbakhsh, I., Kunz, C., Fluckiger, L., Schreiner, J., Ambrose, R., Burridge, R., Simmons, R., Hiatt, L.M., Schultz, A., Trafton, J. G., Bugajska, M., & Scholtz, J. (2005). The Peer-to-Peer Human-Robot Interaction Project. *Proceedings of AIAA Space 2005*, AIAA-2005-6750.
- Trafton, J. G., Altmann, E. M., & Brock, D. P. (2005). The long-term disruption effect: A comparison of three memory models. *The proceedings of the 2005 ACT-R conference*.
- Trafton, J. G., Altmann, E. M., & Brock, D. P. (2005). Huh, what was I doing? How people use environmental cues after an interruption. *Proceedings of the Human Factors and Ergonomics Society 49th Annual Meeting*.
- Ratwani, R. M., & Trafton, J. G. (2005). Shedding Light on the Graph Schema. *The proceedings of the twenty-seventh annual conference of the cognitive science society*.

- Trickett, S. B., & Trafton, J. G. (2005). Representation Matters: The Effect of Graph Selection on Data Interpretation Among Experts and Novices. *The proceedings of the twenty-seventh annual conference of the cognitive science society*.
- Stitzlein, C. A. Trickett, S. B., & Trafton, J. G. (2005). Simple gesture analysis in narrative speech: Expert-novice differences. *The proceedings of the twenty-seventh annual conference of the cognitive science society*.
- 2004 Trafton, J. G. (2004). Uncertainty and Spatial Transformations in Complex Visualizations. NATO workshop on Visualisation and the Common Operational Picture (Viz-COP).
- Trafton, J. G. (2004). Dynamic Mental Models in weather forecasting. *Proceedings of the Human Factors and Ergonomics Society 48th Annual Meeting*.
- Ratwani, R. M., Trafton, J. G., & Boehm-Davis, D. A. (2004). From Specific Information Extraction to Inferences: A Preliminary Framework of Graph Comprehension. *Proceedings of the Human Factors and Ergonomics Society 48th Annual Meeting*.
- Mintz, F. E., Trafton, J. G., Marsh, E., & Perzanowski, D. (2004). Choosing frames of reference. *Proceedings of the Human Factors and Ergonomics Society 48th Annual Meeting*.
- Trafton, J. G., Hegarty, M., Tversky, B., Schunn, C. D., Cassell, J., & Alibali, M. (2004). The relationship between spatial cognition and gestures. *The proceedings of the twenty-fourth annual conference of the cognitive science society*.
- Altmann, E. M., & Trafton, J. G. (2004). Task interruption: Disruptive effects and the role of cues. *The proceedings of the twenty-sixth annual conference of the cognitive science society*.
- Ratwani, R. M., & Trafton, J. G. (2004). Making Graphical Inferences: A Hierarchical Framework. *The proceedings of the twenty-sixth annual conference of the cognitive science society*.
- Trickett, S. B., & Trafton, J. G. (2004). Use of Spatial Transformations in Graph Comprehension. *The proceedings of the twenty-sixth annual conference of the cognitive science society*.
- Ratwani, R. M., Trafton, J. G., & Boehm-Davis, D. A. (2004). Making inferences from graphs. Division 21/19 Mid Year meeting. [Best Student Paper Award.]
- Sofge, D. Trafton, J. G., Cassimatis, N., Perzanowski, D., Bugajsk, M. D., Adams, W., & Schultz, A. (2004). Human-Robot Collaboration and Cognition with an Autonomous Mobile Robot. *Proceedings of the 8th Conference on Intelligent Autonomous System*.
- 2003 Trickett, S. B., Watkins, T. E., & Trafton, J. G. (2003). How Novices Reason about Anomalies. *The proceedings of the twenty-fifth annual conference of the cognitive science society*.
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