

Greg Trafton

NRL, Code 5515
Washington, DC 20375
✉ greg.trafton@nrl.navy.mil
h-index: 52

Education

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

Experience

- 2024–present **Section Head for the Human and Machine Intelligence Section, Artificial Intelligence Center**, *Naval Research Laboratory*, Washington, DC.
2006–2024 **Section Head for the Intelligent Systems Section, Artificial Intelligence Center**, *Naval Research Laboratory*, Washington, DC.
1995–2006 **Computer Scientist**, *Naval Research Laboratory*, Washington, DC.
1995–present **Affiliate/Adjunct Professor**, *George Mason University*, Fairfax, VA.

Research Interests

Interaction Science
Human Robot Interaction
Low Power AI (Neuromorphic, HDC)
Cognitive Robotics
Computational Cognitive Modeling
Error prediction and prevention
Interruptions and resumptions
Scientific Visualizations and reasoning
Psychometrics / scale creation and validation

Students and Postdocs

- Student Susan Trickett (Deceased)
Postdoc Nick Cassimatis (Founder, Dry.ai)
Student Chris Monk (Senior Scientist, Exponent)
Postdoc Melissa Beck (Full Professor at Louisiana State University)
Postdoc Sarah Kriz (Principal Scientist, MITRE)
Postdoc Bill Kennedy (Associate Professor at George Mason University)
Postdoc Anthony Harrison (Government employee at the Naval Research Laboratory)
Student Raj Ratwani (Vice President of Scientific Affairs, MedStar Health Research Institute)
Postdoc Laura Hiatt (Government employee at the Naval Research Laboratory)
Postdoc Eric Martinson (Associate Professor at Lawrence Technological University)

Postdoc Lilia Moshkina (Research Scientist at May Mobility)
Postdoc Sangeet Khemlani (Government employee at the Naval Research Laboratory)
Student Dan Gartenberg (CEO Sleepspace)
Postdoc Frank Tamborello (Chief Scientist, Cogscent)
Postdoc Priya Narayanan (Government employee at the Army Research Laboratory)
Postdoc Laura Saad (Postdoc at NRL)

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. Kirschenbaum 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.

Robust gesture recognition on a mobile robot. 600K (2008-2010). Office of Naval Research. Trafton, J. G.

Sensor support for robotic triage. 200K (2008). Office of Naval Research. Trafton, J. G.

Predicting necessary Interaction time. 100K (2009). Office of Naval Research. Trafton, J. G.

Predicting and preventing errors in procedural tasks. 900K. (2009-2011). Office of Naval Research. Trafton, J. G.

Perception + context on a mobile robot. 600K (2010-2012). Office of Naval Research. Trafton, J. G.

Predicting SA through visual scanning metrics. 360K (2010-2012). Office of Naval Research. Trafton, J. G.

Predicting and preventing errors. 1050K (2012-2014). Office of Naval Research. Trafton, J. G.

Phenomenology of cognitive models for context and anticipation in HRI. 350K (2011). Office of Naval Research. Trafton, J. G.

Solving the 'status update' problem. 1200K (2013-2015). Office of Naval Research. Trafton, J. G.

Touch gestures on a mobile robot. 600K (2013-2016). Office of Naval Research. Trafton, J. G.

Realizing autonomy via intelligent adaptive hybrid control. 1110K (2014-2016). Office of Secretary of Defense. NRL Lead: Trafton, J. G.

Autonomous squad member. 750K (2014-2016). Office of Secretary of Defense. NRL Lead: Trafton, J. G.

Cognitive Modeling and Anticipation. 850K (2014-2016). Office of Secretary of Defense. Hiatt, L., M., & Trafton, J. G.

Realizing autonomy via intelligent adaptive hybrid control. 1110K (2014-2016). Office of Naval Research. NRL Lead: Trafton, J. G.

Contextual modeling and spatiotemporal reasoning for autonomous systems. 900K (2015-2018). Office of Naval Research. Trafton, J. G.

HRI for shipboard maintenance. 750K (2016-2019). Office of Naval Research. Trafton, J. G.

Combining cognitive and statistical models for teammate understanding. 1200K (2018-2020). Office of Naval Research. Hiatt, L. M., & Trafton, J. G.

Learning Interaction Signals 1.2M (2019-2022). Office of Naval Research. Trafton, J. G.

Humanoid Robotics in Complex Unstructured Environments. 600K (2020-2021). Office of Naval Research. Trafton, J. G.

AI for shipboard maintenance. 750K (2020-2023). Office of Naval Research. Trafton, J. G.

Establishing the critical tests for machine understanding for human teaming. 300K (2021-2022). Office of Secretary of Defense. Trafton, J. G.

Long term underwater autonomy and human robot interaction 500K (2022-2023). Office of Naval Research. Trafton, J. G.

Long term underwater autonomy and human robot interaction 1M (2022-2024). Office of Naval Research. Trafton, J. G.

Long term underwater autonomy and human robot interaction 500K (2023-2024). Office of Naval Research. Trafton, J. G.

Shipboard Safety. 1.8M (2024-2027). Office of Naval Research. Trafton, J. G.

Books

- 2017 Hoffman, R. R., LaDue, D. S., Mogil, H.M., Trafton, J. G., & Roebber, P. J. (2017). *Minding the Weather: How expert forecasters think*. Boston, MA: MIT Press.
- 2007 McNamara, D. S., & Trafton, J. G. (2007). *Proceedings of the 29th Annual Cognitive Science Society*. Austin, TX: Cognitive Science Society

Journal Articles

- 2025 Biro, J. M., Handley, J. L. McCurry, J. M., Visconti, A., Weinfeld, J., Trafton, J. G., & Ratwani, R. M. (in press). Opportunities and Risks of Artificial Intelligence in Patient Portal Messaging in Primary Care. *npj Digital Medicine*.
Misenti, S., Hertel, B., Weng, B., Donald, R. Jawaji, A., Kosoko-Thoroddsen, M-T, Trafton, J. G., Norton, A., Azadeh, R. & Gu, Y. (2025) Experimental Evaluation of Commercial Quadruped Robots: Stability and Performance in Accelerating Environments. *International Journal of Intelligent Robotics and Applications*.
- 2024 Trafton, J. G., McCurry, J. M., Zish, K., & Frazier, C. R. (2024). The perception of agency. *ACM Transactions on Human-Robot Interaction*, 13(1), pp. 1-23.
- 2022 Blaha, L.M., Abrams, M., Bibyk, S.A., Bonial, C., Hartzler, B.M., Hsu, C.D., Khemlani, S., King, J., St. Amant, R., Trafton, J.G. & Wong, R., 2022. Understanding is a process. *Frontiers in Systems Neuroscience*, 16.

- Hiatt, L. M., Brooks, C., & Trafton, J. G. (2022). Validating and Refining Cognitive Process Models Using Probabilistic Graphical Models. *Topics in Cognitive Science*, 14(4), pp. 873-888.
- 2021 Trafton, J. G., Raymond, P., & Khemlani, S. (2021). The power of theory. *ACM Transactions on Human-Robot Interaction (THRI)*, 10(1), 1-3.
Howe, J. L., Young, C. R., Parau, C. A., Trafton, J. G., & Ratwani, R. M. (2021). Accessibility and usability of state health department COVID-19 vaccine websites: A qualitative study. *JAMA Network Open*, 4(5), e2114861-e2114861.
- 2018 Gartenberg, D., Gunzelmann, G., Hassanzadeh-Behbahani, & Trafton, J. G. (2018). Examining the role of task requirements in the magnitude of the vigilance decrement. *Frontiers in Psychology*, 9.
- 2017 Laird, J. E., Gluck, K., Anderson, J., Forbus, K., Jenkins, O., Lebiere, C., Salvucci, D., Scheutz, M., Thomaz, A., Trafton, G., Wray, R. E., Mohan, S., Kirk, J. R. (2017). Interactive Task Learning. *IEEE Intelligent Systems*, 32(4), 6-21.
Altmann, E. M., Trafton, J. G., & Hambrick, D. Z. (2017). Effects of Interruption Length on Procedural Errors. *Journal of Experimental Psychology: Applied*, 23, 216-229.
Hiatt, L.M., Narber, C., Bekele, E., Khemlani, S. S., & Trafton, J. G. (2017). Human Modeling for human-robot collaboration. *International Journal of Research Robotics*, 36(5-7).
Hiatt, L. M., & Trafton, J. G. (2017). A familiarity, priming, and perceptual account of similarity judgments. *Cognitive Science*, 41(6), 1450-1484.
Tamborello, F. & Trafton, J. G. (2017). Human Error as an emergent property of action selection and task-place-holding. *Human Factors*, 59(3), 377-392.
Thomson, R., Harrison, A. M., Trafton, J. G., & Hiatt, L. M. (2017). An account of interference in associative memory: Learning the fan effect. *Topics in Cognitive Science*, 9(1), 69-82.
- 2015 Altmann, E. M. & Trafton, J. G. (2015). Brief lags in interrupted sequential performance: Evaluating a model and model evaluation method. *International Journal of Human-Computer Studies*. 79, 51-65.
Heitmeyer, C. L., Pickett, M., Breslow, L., Leonard, E. I., Archer, M. M., Ray, I., Aha, D. W., & Trafton, J. G. (2015). Building High Assurance Human-Centric Decision Systems *Journal of Automated Software Engineering*, 22, 159-197.
- 2014 Altmann, E. M., Trafton, J. G., & Hambrick, D. Z. (2014). Momentary interruptions can derail the train of thought. *Journal of Experimental Psychology: General*, 143(1), 215-226.
Gartenberg, D., Breslow, L. A., & Trafton, J. G. (2014). Situation Awareness Recovery. *Human Factors*, 56(4), 710-727.
Kirschenbaum, S. S., Trafton, J. G., Schunn, C. D., & Trickett, S. B. (2014). Visualizing Uncertainty: The impact on performance. *Human Factors*, (56(3) 509-520.
Breslow, L. A., Gartenberg, D, McCurry, J. M., & Trafton, J. G. (2014). Dynamic Operator Overload: A Model for Predicting Workload During Supervisory Control. *IEEE Transactions on Human-Machine Systems*, 44(1).

- 2013 Trafton, J. G., Hiatt, L. M., Harrison, A. M., Tamborello, F. P., Khemlani, S. S., & Schultz, A. C. (2013). ACT-R/E: An embodied cognitive architecture for Human-Robot Interaction. *Journal of Human Robot Interaction*, 2(1), 30-55.
- 2012 Hiatt, L. M., Khemlani, S. S. & Trafton, J. G. (2012). An explanatory reasoning framework for embodied agents. *Biologically Inspired Cognitive Architectures*, 1(1), 23-31.

Jang, J., Trickett, S. B., Schunn, C. D., & Trafton, J. G. (2012). Unpacking the temporal advantage of distributing complex visual displays. *International Journal of Human Computer Studies*, 70, 812-827.

Trafton, J. G., Jacobs, A., Harrison, A. M. (2012). Building and verifying a predictive model of interruption resumption. *Transactions of IEEE*, 100(3), 648-659.
- 2011 Trafton, J. G., & Harrison, A. M. (2011). *Embodied Spatial Cognition. Topics in Cognitive Science.* 3, 686-706

Ratwani, R. M., & Trafton, J. G. (2011). A Real-Time Eye Tracking System for Predicting Postcompletion Errors. *Human Computer Interaction.* 26(3), 205-245.

Thompson, J. C., Trafton, J. G., & McKnight, P. (2011). The perception of humanness from the movement of synthetic agents. *Perception* 40(6). 695-704.

Kennedy, W. G., & Trafton, J. G. (2011). How long is a moment: Reality and perception in the performance of a task involving walking. *International Journal of Social Robotics.* 3. 243-252.

Cades, D. M., Boehm-Davis, D. A., Monk, C. A., & Trafton, J. G. (2011). Mitigating Disruptive Effects of Interruptions through Training: What Needs to be Practiced? *Journal of Experimental Psychology: Applied.* 17(2), 97-109.

Trafton, J. G., Altmann, E. M., & Ratwani, R. M. (2011). A memory for goals model of sequential action. *Cognitive Systems Research.* 12, 134-143.
- 2010 Ratwani, R. M., & Trafton, J. G. (2010). An Eye Movement Analysis of the Effect of Interruption Modality on Primary Task Performance. *Human Factors.* 52(3), 370-380.

Beck, M. R., Lohrenz, M. C., & Trafton, J. G. (2010). Measuring Search Efficiency in Complex Visual Search Tasks: Global and Local Clutter. *Journal of Experimental Psychology: Applied.* 16(3), 238-250.

Ratwani, R. M., & Trafton, J. G. (2010). A generalized model for predicting postcompletion errors. *Topics in Cognitive Science.* 2(1), 154-167.

Breslow, L., Trafton, J. G., McCurry, J. M., & Ratwani, R. M. (2010). An algorithm for generating color scales for both categorical and ordinal coding. *Color Research and Applications.* 35(1), 18-28.
- 2009 Trickett, S. B., Trafton, J. G., & Schunn, C. D., (2009). How Do Scientists Respond to Anomalies? Different Strategies Used in Basic and Applied Science. *Topics in Cognitive Science.* 1(4), 711-729.

Breslow, L., Ratwani, R. M., & Trafton, J. G. (2009). Cognitive Models of the influence of type of color-scale on data visualization tasks. *Human Factors.* 51(3), 321-338.

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. [NRL Alan Berman Award Winner]

- 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) 757-762.
- 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/>]
- Trafton, J. G. (2008). Theoretical and Practical Developments in Cognitive Models and Agent Technologies Research. *Cognitive Technology*. 13(2), 5-7.
- 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., & Kirschenbaum, 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.

Major Videos

- 2014 Harrison, A. M., Hiatt, L. M., Adams, W. L., Lawson, W., Khemlani, S. S., Tamborello, F., & Trafton, J. G. (2014). Robotic Secrets Revealed, Episode 3: The Furlough Gambit.
- 2012 Martinson, E., Lawson, W., Blisard, S., Harrison, A. M., & Trafton, J. G. (2012). Fighting Fires with Human Robot Teams, IEEE/RSJ International Conference on Intelligent Robots and Systems.
- 2011 Hiatt, L. M., Harrison, A. M., Lawson, W., Martinson, E., & Trafton, J. G. (2011). Robotic Secrets Revealed, Episode 002: The trouble begins. [Won AAAI's "Most Educational Award."]
- Lawson, W., Martinson, E., Apker, T., Walker, P., Bradel, C., & Trafton, J. G. (2011). RobotBusters.

- 2009 Harrison, A. M., Fransen, B. R., Bugajska, M., & Trafton, J. G. (2009). Robotic Secrets Revealed, Episode 001. [Won IJCAI's "Most Informative" Award.]

Book Chapters

- 2019 Salvucci, D., Laird, J. E., Chang, F., Forbus, K. D., Kordjamshidi, P., Mitchell, T. M., Mohan, S., Spranger, M., Stevenson, S., Stocco, A., & Trafton, J. G. (2019). Learning Task Knowledge. In J. E. Laird & Gluck, K. (Eds.), *Interactive Task Learning: Humans, robots, and agents acquiring new tasks through natural interactions*. Boston, MA: MIT Press.
- 2009 Trickett, S. B., & Trafton, J. G. (2009). A Primer on Verbal Protocol Analysis. In D., Schmorrow, 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.
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Conference presentations, papers, and technical reports

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Conference Chairs

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