

*Curriculum Vitae*

**Jeffrey T. Hansberger**

Army Research Laboratory – Human Research & Engineering Directorate

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**EDUCATION**

George Mason University  
Ph.D., Human Factors & Applied Cognition  
Fairfax, Virginia  
2003

George Mason University  
M.A., Human Factors & Applied Cognition  
Fairfax, Virginia  
1999

Mississippi State University  
B.S., Psychology with minor in Biology, Cum Laude  
Starkville, Mississippi  
1996

**EMPLOYMENT HISTORY**

Human Interface Inventor – Army Research Laboratory, Human Research and Engineering Directorate,  
1/03 - present

Adjunct Professor – University of Alabama in Huntsville, Department of Psychology, 2019 - present

Army Research Institute Consortium Fellow, George Mason University, Fairfax, VA, 8/98-5/99

Human Factors Research Assistant, George Mason University, Fairfax, VA, 5/96 – 12/03

**RESEARCH INTERESTS**

My research efforts have all dealt with how information in human-computer systems can be tailored to users given their goals, tasks, and work environment constraints. These efforts have developed in three primary areas: 1) how information is organized, 2) how information is shared, and 3) how information can be enhanced. My efforts investigating how information is organized within human-computer systems have included research on how information is distributed across people, technology, and the environment, and analytical methods to study the social and information networks within Command and Control (C2) structures. Efforts on how information is shared within human-computer systems have included the study of how information flows within C2 networks and the development of new technology to support transmission and sharing of needed information in crisis response situations. These efforts have contributed to my current research efforts on ways information can be enhanced within the human-computer system through the design of touch, spatial, and volumetric user interfaces and the use of multimodal human-computer interaction technologies.

## COMPETENCIES

Methodology - Experimental research design, social network analysis, structural knowledge measurement and assessment, internet experimentation, verbal protocol analysis, microgenetic methods, survey/questionnaire design and administration, cognitive walkthrough, heuristic evaluation, GOMS, and computational cognitive modeling

Statistics - Regression (Multiple, Logistic, Mediated, Moderated, Repeated Measures), ANOVA, ANCOVA, MANOVA, Factor Analysis, Trend Analysis

## JOURNAL PUBLICATIONS

Shanthakumar, V.A., Peng, C., Hansberger, J.T., Cao, L., Meacham, S., Blakely, V. (2020). Design and evaluation of a hand gesture recognition approach for real-time interactions. *Multimedia Tools and Applications*. 1-24.

Gibson, B.C., Mullins, T.S., Heinrich, M.D., Witkiewitz, K., Yu, A., Hansberger, J.T., Clark, V.P. (2020). Transcranial direct current stimulation facilitates category learning. *Brain Stimulation*, 13, 2. 393-400.

Cao, Lizhou, Chao Peng, and Jeffery T. Hansberger. "Usability and Engagement Study for a Serious Virtual Reality Game of Lunar Exploration Missions." *Journal of Informatics* 6. 4 (2019): Article ID 44. Web.

Gibson, B.C., Sanguinetti, J.L., Badran, B.W., Yu, A.B., Klein, E.P., Abbott, C.C., Hansberger, J.T., Clark, V.P. (2018). Increased Excitability Induced in the Motor Cortex by Transcranial Ultrasound Stimulation (tUS). *Frontiers in Neurology*, 28. <https://doi.org/10.3389/fneur.2018.01007>

Tate, A., Hansberger, J.T., Potter, S. and Wickler, G. (2014) Virtual Collaboration Spaces: Bringing Presence to Distributed Collaboration, *Journal of Virtual Worlds Research*, Assembled Issue 2014, Volume 7, Number 2.

Hansberger, J.T. (2014). The work activity observer: A tool for collecting real-time longitudinal data. *Ergonomics in Design*, 22 (1), 4-7.

Wickler, G., Tate, A. and Hansberger, J. (2013), Using Shared Procedural Knowledge for Virtual Collaboration Support in Emergency Management, in Special Issue on Emergency Response, *IEEE Intelligent Systems*, IEEE Computer Society.

Kott, A., Hansberger, J.T., Waltz, E., and Corpac, P. (2010). Whole-government planning and wargaming of complex international interventions: Experimental evaluation of methods and tools. *International C2 Journal* 4 (3). 1-25.

Hansberger, J.T., Schunn, C.D., Holt, R.W. (2006). Strategy variability: How too much of a good thing can hurt performance. *Memory & Cognition*, 34 (8). 1652-1666.

Holt, R.W., Hansberger, J.T., Boehm-Davis, D.A. (2002). Improving rater calibration in aviation: A case study. *The International Journal of Aviation Psychology*.

## BOOK AND BOOK CHAPTER PUBLICATIONS

Hansberger, J.T. (2012). How C2 communications evolve over time. In P. Savage-Knepshield, J. Martin, J. Lockett, and L. Allender (Eds.), *Designing Soldier Systems: Current Issues in Human Factors*. Surrey, U.K., Ashgate.

Moon, B., Hansberger, J.T., and Tate, A. (2011). Concept mapping in support of collaborative crisis response planning. In B. Moon, R. Hoffman, J. Novak, and A. Canas (Eds.), *Applied Concept Mapping: Theory, Techniques, and Case Studies in the Business Applications of Novakian Concept Mapping*. CRC Press.

Tate, A., Potter, S., Wickler, G. and Hansberger, J.T. (2011), Virtual Collaboration Spaces and Web 2.0: Bringing Presence to Distributed Collaboration. In M. Baker (Ed.), *Reshaping Research and Development Using Web 2.0-based Technologies*, Nova Science Publishers, 2011.

Hansberger, J.T. (2010). *Strategy Development in Dynamic Environments: A Study of Goals, Processes, Change, and Variability*. Lambert Academic Publishing.

Hansberger, J.T. (Ed.). (2008). *Proceedings of the Seventeenth Conference on Behavior Representation in Modeling and Simulation*. Orlando, FL: Simulation Interoperability Standards Organization.

## CONFERENCE PUBLICATIONS

Hansberger, J.T., Blakely, V. McArthur, J., Smith, J. (2020). Target detection performance for head mounted indirect vision displays. *Virtual, Augmented, and Mixed Reality (XR) Technology for Multi-Domain Operations*. June, 2020.

Hansberger, J.T., Peng, C., Blakely, V., Meacham, S.C., Cao, L., and Diliberti, N. (2019). A multimodal interface for virtual information environments. *20<sup>th</sup> International Conference on Human-Computer Interaction*. 26-31 July, 2019, Orlando, FL.

Cao, Lizhou, Chao Peng, and Jeffery T. Hansberger. "A Large Curved Display System in Virtual Reality for Immersive Data Interaction." *Proceedings of the 2019 IEEE Games, Entertainment, Media Conference*. Ed. GEM'19. New Haven, CT: IEEE, 2019. Web.

Diliberti, N., Peng, C., Cao, L., Hansberger, J.T. (2019). Real-time gesture recognition using 3D sensory data and a light convolutional neural network. *ACM Multimedia 2019 Conference*. 21-25 October, 2019. Nice, France.

Hansberger, J.T., Peng, C., Cao, L., Diliberti, N., Shanthakumar, V.A., Hansen, J. (2018). The design of a virtual information environment. *2018 Human Factors & Ergonomics Society Conference*. 1-5, October, 2018. Philadelphia, PA.

Hansberger, J.T. & Meacham, S.C. (2018). Designing data & dashboard visualizations for future UAV systems. *2018 Human Factors & Ergonomics Society Conference*. 1-5, October, 2018. Philadelphia, PA.

- Peng, C., Hansberger, J.T., Shanthakumar, V.A., Meacham, S.C., Blakely, V., Cao, L. (2018). A case study of user experience on hand-gesture video games. 2018 *IEEE Games, Entertainment, and Media Conference*. 15-17 August, 2018. Galway, Ireland.
- Hansberger, J.T., Peng, C., Mathis, S.L., Shanthakumar, V.A., Meacham, S.C., Cao, L., and Blakely, V. (2017). Dispelling the Gorilla Arm Syndrome: The viability of prolonged gesture interactions. *19<sup>th</sup> International Conference on Human-Computer Interaction*. 9-14 July, 2017, Vancouver, Canada.
- Tate, A. and Hansberger, J.T. (2017) Virtual Operations Centres for Coalition Operations and Distributed Team Collaboration, In Proceedings of the 22nd International Command and Control Research and Technology Symposium (ICCRTS 2017) and the 9th Knowledge Systems for Coalition Operations Conference (KSCO-2017), 6-8 November 2017, Los Angeles, CA, USA. Published by the International Command and Control Institute (IC2I) and the Knowledge Systems for Coalition Operations (KSCO) Community.
- Hansberger, J.T. (2015). Starting Over: A UAV Information Dashboard. *6th International Conf on Applied Human Factors and Ergonomics*, Las Vegas, NV.
- Tate, A., Hansberger, J.T., Potter, S., & Wickler, G. (2012). Support for Distributed Collaboration in the Dismounted Incident Collaboration Environment (DICE). *Proceedings of the Knowledge Systems for Coalition Operations 2012 Conference*. Pensacola, FL.
- Hansberger, J.T. and Adali, S. (2011). Human behavior modeling in network science II. In J. Hansberger, S. Adali (Chairs), *Proceedings of the 20th Behavior Representation in Modeling and Simulation Conference*. Provo, UT.
- Wickler, G., Potter, S., Tate, A. and Hansberger, J. (2011) The Virtual Collaboration Environment: New Media for Crisis Response, *Proceedings of the 8th International Conference on Information Systems for Crisis Response and Management (ISCRAM 2011)*, Lisbon, Portugal, May 2011.
- Hansberger, J.T. and Adali, S. (2010). Human behavior modeling in network science. In J. Hansberger, S. Adali (Chairs), *Proceedings of the 19th Behavior Representation in Modeling and Simulation Conference*. Charleston, SC.
- Tate, A. and Hansberger, J.T. (2010). Open Virtual Collaboration Environment for the Whole of Society Crisis Response Community. *Proceedings of the Knowledge Systems for Coalition Operations 2010 Conference*. Vancouver, British Columbia.
- Schreiber, C., Carley, K.M. and Hansberger, J.T. (2010). Shifts of critical personnel in network centric organizations. *Proceedings of the 19th Behavior Representation in Modeling and Simulation Conference*. Charleston, SC.
- Hansberger, J.T. (2010). Understanding distributed collaboration within virtual worlds. *Proceedings of the Sunbelt XXX Social Network Analysis Conference*. Trento, Italy.
- Tate, A., Chen Burger, Y-H., Dalton, J., Potter, S., Wickler, G., Carley, K.M., Kunkel, F., Cross, R., Hansberger, J.T. and Moon, B. (2010), Open Virtual Collaboration Environment for the Whole of Society Crisis Response Community, Proceedings of the Sixth International Conference on Knowledge Systems for Coalition Operations (KSCO-2010) (Lawton, J. (ed.)), Vancouver, B.C., Canada, September 21-23, 2010.

- Hansberger, J.T. (2008). The distributed cognitive components of C2. *13th International Command & Control Research & Technology Symposium*, June 17-19, Bellevue, WA.
- Hansberger, J.T., Schreiber, C., Spain, R.D. (2008). C2 network analysis: Insights into coordination & understanding. *13th International Command & Control Research & Technology Symposium*, June 17-19, Bellevue, WA.
- Wickler, G., Tate, A., & Hansberger, J. (2007). Supporting collaborative operations within a coalition personnel recovery center. Proceedings of the *Knowledge Systems for Coalition Operations 2007 Conference*, Waltham, MA.
- Gonzalez, C., Martin, M., and Hansberger, Jeffrey T. (2006). Feedforward effects on predictions in a dynamic battle scenario. Proceedings of the *Human Factors and Ergonomics Society*, San Francisco, CA.
- Hansberger, J.T. and Giammarese, W. (2006). Experimental methodologies for joint Command and Control (C2) capability development. Proceedings of the *Defense Analysis Seminar XIII*, Seoul, South Korea.
- Hansberger, J.T. and Barnette, B.D. (2005). Human performance modeling for operational command, control, and communication. *Proceedings of the 49<sup>th</sup> Annual meeting of the Human Factors & Ergonomics Society*, Orlando, FL.
- Hansberger, J.T. (2004). The effects of prior knowledge on strategy development and performance. *Proceedings of the 48<sup>th</sup> Annual meeting of the Human Factors & Ergonomics Society*, New Orleans, LA.
- Hansberger, J.T. (2003). Strategy development in a dynamic setting: A study of goals, processes, change, and variability. (Doctoral dissertation, George Mason University). Dissertation Abstracts International.
- Hansberger, J.T. (2003). Understanding and evaluating high level cognitive processes: Strategy selection in complex tasks. *Proceedings of the 2003 Conference on Behavior Representation in Modeling and Simulation*. Orlando, Florida: SISO Inc.
- Hansberger, J.T., and Holt, R.W. (2002). The effects of prior knowledge on goal variability & learning. *Proceedings of the 46<sup>th</sup> Annual meeting of the Human Factors & Ergonomics Society*, Baltimore, MD.
- Holt, R.W., Hansberger, J.T., Chong, R.S., and Boehm-Davis, D.A. (2002). Modeling aviation crew interaction using a cognitive architecture. *Proceedings of the 24<sup>th</sup> Annual meeting of the Cognitive Science Society*, Fairfax, VA.
- Boehm-Davis, D.A., Holt, R.W., Diez, M., and Hansberger, J.T. (2002). Developing and validating cockpit interventions based on cognitive modeling. *Proceedings of the 24<sup>th</sup> Annual meeting of the Cognitive Science Society*, Fairfax, VA.
- Hansberger, J.T., and Holt, R.W. (2001). The Implications of Goals and Experience for Driving Expertise. *Proceedings of the 45<sup>th</sup> Annual meeting of the Human Factors & Ergonomics Society*, Minneapolis/St. Paul, MN, 921-925.

- Diez, M., Boehm-Davis, D.A., Holt, R.W., Pinney, M.E., Hansberger, J.T., & Schoppek, W. (2001). Tracking pilot interactions with flight management systems through eye movements. *Proceedings of the 11th International Symposium on Aviation Psychology*. The Ohio State University: Columbus, OH.
- Boehm-Davis, D. A., Holt, R. W., Hansberger J. T., & Seamster, T. L. (1999). Overview of lessons learned developing ACRM for a regional carrier. *Proceedings of the Tenth International Symposium on Aviation Psychology*. Ohio State University: Columbus, OH.
- Holt, R.W., Boehm-Davis, D.A., and Hansberger, J.T. (1999). Evaluating effectiveness of ACRM using LOE and line-check data. *Proceedings of the Tenth International Symposium on Aviation Psychology*. Ohio State University: Columbus, OH.
- Hansberger, J.T., Holt, R.W., Boehm-Davis, D.A. (1999a). Instructor/Evaluator evaluations of ACRM effectiveness. *Proceedings of the Tenth International Symposium on Aviation Psychology*. Ohio State University: Columbus, OH.
- Hansberger, J.T., Holt, R.W., Boehm-Davis, D.A. (1999b). Comparing evaluator expectations to their evaluations. *Proceedings of the Tenth International Symposium on Aviation Psychology*. Ohio State University: Columbus, OH.
- Hansberger, J.T., Holt, R.W., Boehm-Davis, D.A. (1998). Proceduralizing aspects of teamwork in an aviation domain. *Proceedings of the 1998 Virginia Academy of Science*. Fairfax, VA.
- Boehm-Davis, D.A., Holt, R.W., and Hansberger, J.T. (1997) Pilot abilities and performance. *Proceedings of the Ninth International Symposium on Aviation Psychology*. Ohio State University: Columbus, OH.

## **POSTERS/PRESENTATIONS**

- Meacham, S., Hansberger, J.T., Blakely, V., McArthur, J., Kaufman, C. (in press). Nimbel fingered or all thumbs? The relationship between manual dexterity and touchscreen interaction. *9<sup>th</sup> International Conference on Applied Human Factors and Ergonomics*. 21-25 July, 2018. Orlando, FL.
- Blakely, V., Hansberger, J.T., Meacham, S., McArthur, J., Kaufman, C. (in press). Improving threat detection: Interface design changes for security surveillance. *9<sup>th</sup> International Conference on Applied Human Factors and Ergonomics*. 21-25 July, 2018. Orlando, FL.
- Hansberger, J.T. (2016, May). Information Overload: A User Interface for Intelligence Analysts. Joint Human Systems Integration Expo, Washington D.C.
- Hansberger, J.T. (2014, March). Situation Awareness in Extreme Environments: Humanitarian Assistance and Disaster Relief. Invited Panel conducted at the IEEE CogSIMA Conference, San Antonio, TX.
- Hansberger, J.T. (2012). Cognition in military wireless devices. Invited Panel conducted at the *IEEE Military Communications Conference*, Orlando, FL.
- Hansberger, J.T. (2012). Keystroke level modeling for UAV ground control stations. MANPRINT Workshop,

- Hansberger, J.T. (2011). The SNA observer: A tool for collecting real-time longitudinal SNA data. *Proceedings of the Sunbelt XXXI Social Network Analysis Conference*. St. Pete Beach, Florida.
- Hansberger, J.T. & Tate, A. (2010). Supporting crisis planning with virtual worlds. *Proceedings of the Federal Consortium for Virtual Worlds Conference 2010*. Washington, D.C.
- Hansberger, J.T., Tate, A., Moon, B. and Cross, R. (2010). Cognitively engineering a virtual collaboration environment for crisis response. *Proceedings of the 2010 ACM Conference on Computer Supported Cooperative Work*. Savannah, GA.
- Hansberger, J.T., Barnette, B.D., and Giammarese, W. (2005). *Joint Decision Superiority Experimentation*. Presentation at the 73<sup>rd</sup> Military Operations Research Symposium, West Point, NY.
- Boone, C.M., Gaskins, R.C., and Hansberger, J.T. (2005). *Information gathering strategies and critical decisions*. Poster session presented at the 2005 Conference on Behavior Representation in Modeling and Simulation, Universal City, CA.
- Diez, M., Schoppek, W., Boehm-Davis, D.A., Holt, R.W., Hansberger, J.T., & Pinney, M.E. (2001). *Simulating training interventions in the cockpit: A cognitive modeling approach*. Poster session presented at the APA Division 21/19 Mid-year Meeting, Arlington, VA.
- Hansberger, J.T. and Holt, R.W. (2000). *Using Web-based Technology to Facilitate Learning*. Poster session presented at the annual meeting of the American Psychological Association, Washington, DC.
- Boehm-Davis, D.A., Schoppek, W., Diez, M., Hansberger, J.T., Holt, R.W. (2000). *Cognitive modeling of airline crew automation errors*. Poster session presented at the 44<sup>th</sup> Annual meeting of the Human Factors & Ergonomics Society, San Diego, CA.
- Boehm-Davis, D.A., Holt, R.W., Hansberger, J., Diez, M., & Schoppek, W. (2000). Modeling aviation crew interactions with automation using cognitive task analysis. In D. Boehm-Davis (Chair), *Modeling knowledge and performance in the aviation domain*. Symposium conducted at the First International Conference on Human Performance, Situation Awareness and Automation: User-Centered Design for the New Millennium, Savannah, GA.
- Holt, R. W., Boehm-Davis, D. A., Hansberger, J.T., Seamster, T.L., Schultz, K., & Hamman, W. (2000). *Proceduralizing teamwork in aviation crews*. Poster session presented at the 44<sup>th</sup> Annual meeting of the Human Factors & Ergonomics Society, San Diego, CA.
- Holt, R. W., Boehm-Davis, D. A., Hansberger, J.T., Diez, M., Schoppek, W. & Ikomi, P. (2000). *Modeling aviation crew interactions with automation*. Paper presented at the meeting of the APA Annual Convention. Washington, D.C.
- Schoppek, W., Boehm-Davis, D.A., Diez, M, Hansberger, J., & Holt, R.W. (2000). *Letting ACT-R fly - A model of the interaction between trained airline pilots and the flight management system*. Paper presented at the meeting of the 7<sup>th</sup> Annual ACT-R workshop.

- Schoppek, W., Boehm-Davis, D. A., Hansberger, J.T., Holt, R. W., Diez, M., & Ikomi, P. (2000). *A cognitive modeling approach to the abatement of automation errors*. Paper presented at the meeting of the APA Annual Convention. Washington, D.C.
- Hansberger, J.T. (1999). *The varying levels of goal orientation specificity*. Paper presented at the meeting of the 14<sup>th</sup> Annual Society for Industrial and Organizational Psychology Conference, Atlanta, GA.
- Hansberger, J.T., Holt, R.W., Boehm-Davis, D.A. (1997). *Is less experience better among pilot evaluators?* Poster session presented at the 41<sup>st</sup> International Conference Proceedings of the Human Factors & Ergonomics Society, Atlanta, GA.
- Hansberger, J.T., Henley, T., & McCarley, N. (1996). *Jungian personality factors in human-computer interaction*. Poster session presented at the 1996 Southeastern Psychological Association Conference. Norfolk, VA.

### **TECHNICAL REPORTS**

- Hansberger, J.T., Schreiber, C., & Thomas, Jeffrey (2007). Conflict Modeling, Planning, and Outcomes Experimentation Program Phase 2, LOE 2-1 Report. (Available from DARPA, Information Exploitation Office).
- Hansberger, J.T., Spain, R.D., Johnson, M.T. (2007). Conflict Modeling, Planning, and Outcomes Experimentation Program Phase 2, LOE 2-3 Report. (Available from DARPA, Information Exploitation Office).
- Boehm-Davis, D.A., Holt, R.W., Hansberger, J.T. (2001). Evaluation of proceduralized CRM at a Regional and major carrier. Technical Report TR-GMU-01-P01. (Available from the ARCH Lab, George Mason University, MS 2E5, Fairfax, VA 22030-4444).
- Boehm-Davis, D.A., Holt, R.W., Ikomi, P.A., Hansberger, J.T., Beaubien, J.M., Incalcaterra, K.A., Seamster, T.L., Hamman, W.R., & Schultz, K. (1998). CRM procedures and crew performance: Executive summary of Advance Crew Resource Management.
- Boehm-Davis, D.A., Holt, R.W., Ikomi, P.A., Beaubien, J.M., Hansberger, J.T., Incalcaterra, K.A., Seamster, T.L., Hamman, W.R., & Schultz, K. (1998). Analysis of Cockpit Management System in Multiple Carrier Environments. (Available from the ARCH Lab, George Mason University, MS 2E5, Fairfax, VA 22030-4444).

### **PROFESSIONAL SERVICES**

- Co-Chair, Behavioral Representation in Modeling & Simulation (BRIMS) Conference, present
- Reviewer, Behavioral Representation in Modeling & Simulation (BRIMS) Conference, 2005-present
- Reviewer, International Journal of Applied Aviation Studies Journal, 2005-present
- Reviewer, Journal of Cognitive Engineering and Decision Making, 2010-present

### **PROFESSIONAL AFFILIATIONS**

- Human Factors and Ergonomics Society  
 American Psychological Association (APA)  
 Cognitive Science Society



Psi Chi Honorary Psychology Society

**HONORS/AWARDS**

Best paper award for the 9<sup>th</sup> Human-Computer Interaction International Conference in the Virtual, Augmented, and Mixed Reality domain, 2017.

Finalist and second place award in the “Federal Virtual World Challenge” for the design of the Virtual Collaboration Environment for Crisis Response - 2010

Vice-President of the Tidewater Human Factors and Ergonomics Society Chapter – 2006-present

Treasurer of the Human Factors and Ergonomics Society GMU Student Chapter – 2001

President of the Human Factors and Ergonomics Society GMU Student Chapter – 1997-2000