

VITA
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Born October 11, 1950

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BIOSKETCH

Robert R. Hoffman is a recognized world leader in cognitive systems engineering and Human-Centered Computing. He is a Senior Member of the Association for the Advancement of Artificial Intelligence, Senior Member of the Institute of Electrical and Electronics and Engineers, Fellow of the Association for Psychological Science, Fellow of the Human Factors and Ergonomics Society, and a Fulbright Scholar. His Ph.D. is in experimental psychology from the University of Cincinnati. His Postdoctoral Associateship was at the Center for Research on Human Learning at the University of Minnesota. He served on the faculty of the Institute for Advanced Psychological Studies at Adelphi University. He has been Principal Investigator, Co-Principal Investigator, Principal Scientist, Senior Research Scientist, or Principal Author on over 60 grants and contracts including alliances of university and private sector partners. He has been a consultant to numerous government organizations. He has co-authored and co-edited 18 scholarly books and is co-author on over 100 publications in peer-reviewed journals. He has been recognized internationally in the fields of psychology, remote sensing, human factors engineering, intelligence analysis, weather forecasting, and artificial intelligence—for his research on the psychology of expertise, the methodology of cognitive task analysis, human-centering issues for intelligent systems technology, and the design of macrocognitive work systems. His current work focuses on Cybersecurity, "Explainable AI" and the Theory of Macrocognitive Work Systems.

[www.ihmc.us/users/rhoffman/main]

PREVIOUS EMPLOYMENT

Massachusetts State College, Dept. of Psychology, Instructor, 1976-1978.
Adelphi University, Dept. of Psychology and Derner Institute for Advanced Psychological Studies,
Asst. Professor 1981-1985. Tenure received Spring, 1984; Promotion to Assoc. Professor, 1985.

HIGH SCHOOL EDUCATION AND RESEARCH

Walnut Hills High College Preparatory School, Cincinnati OH. Advanced Placement in Biology.
Graduated 1968.
Research Assistant, Laboratory of Mr. Russell Tye, the Kettering Laboratory, Cincinnati, OH (Summer, 1967). "Liquid Phase Separation of Polycyclic Aromatic Hydrocarbons in Columns Containing s-Trinitrobenzene."

UNDERGRADUATE EDUCATION AND RESEARCH

B.A. June 1972. Psychology Major, University of Cincinnati.
Research Assistant, Laboratory of Professor R. J. Senter, Department of Psychology, University of Cincinnati (1970-1972). "Research on the Development of an Animal Model of Alcohol Addiction."

GRADUATE EDUCATION AND RESEARCH

Teacher's Assistant to Professor Daniel Wheeler, Practicum in Thinking and Problem Solving
Teacher's Assistant to Professor Donald Schumsky, Experimental Psychology
M.A. June 1974. Experimental Psychology, U. of Cincinnati.
"Preliminary Observations on Conceptual Similarity"
Ph.D. August 1976. Experimental Psychology, U. of Cincinnati.
"Conceptual Similarity Among the Interpretations of Anomalous Sentences"

POSTDOCTORAL TRAINING AND RESEARCH

Postdoctoral Associate 1978-1980, Center for Research in Human Learning, University of Minnesota (James J. Jenkins, sponsor).
Research on the psycholinguistics of figurative language and the ecological foundations for cognitive psychology.

ADMINISTRATIVE APPOINTMENTS

IHMC

Chair, Institutional Review Board, 1999-2019

University of West Florida

Search Committee for Associate Vice President for Research/Dean of Graduate Studies, 2004-2005
Search Committee for Provost Search Committee, 2003 - 2004

Adelphi University

Interim Grants Officer, 1997 - 1998

Chair, Institutional Review Board, 1998

Member, Task Force on Corporation/Foundation Strategy, 1998

AWARDS and HONORS

"Top Viewed Article" in the journal, *Risk Analysis*. April 2025

"Robert R. Hoffman Award for Contributions to Methodology", awarded at Meetings of the Naturalistic Decision Making Association

"Titan of Human Factors." Human Factors and Ergonomics Society, February, 2022

Senior Member, Institute of Electrical and Electronics and Engineers, elected 2017

Senior Member of the Association for the Advancement of Artificial Intelligence, elected May 2014

Fellow of the Human Factors and Ergonomics Society, elected 2013

Fellow of the Association for Psychological Science, elected 1995

Fulbright Scholar, awarded in 1994-1995

Outstanding Contribution to the 2015 Information Sciences Campaign Technical Advisory Board Review, for the presentation on "Assessing the Value of Information in Information Graphics Understanding." Army Research Laboratory, Aberdeen MD, July 2016.

"Five Million Dollar Research Hall of Fame" Award, University of West Florida, 2011.

Recognition of Excellence for an Outstanding Instructional Presentation at the Cognitive Systems Engineering Seminar, sponsored by the Information Directorate of the Air Force Research Laboratory, August, 2003

Commendation for Support of the US Army Research Laboratory Collaborative Technology Alliance, June 2003

Honorary Fellow of The British Library, Eccles Center for American Studies, appointed 1994

Adelphi University Merit Award for Outstanding Scholarship and Service, 1989

Adelphi University Merit Award for Outstanding Teaching and Scholarship, 1988

Acknowledgement of Service and Contributions at the Engineer Topographic Laboratory, U. S. Army Research Office, Washington, DC, 1983

Sigma Xi, University of Cincinnati, 1974

McMicken Scholar Award, University of Cincinnati, 1972

Delta Tau Kappa, University of Cincinnati, 1972

INTELLECTUAL PROPERTY DISCLOSURES

Hoffman, R.R., and Bunch, L. (2016). "The AQUARIUM Design Concept." A system for visualizing, integrating and managing multiple perspectives in network-based complex work.

Hoffman, R.R., and Marx, M. (2011). "i-bar Modeling Tool." A computational aid to support the exact modeling of discrete non-Gaussian distributions in the evaluation of software usability and learnability.

Hoffman, R.R. (2011). "Knowledge Loss Risk Calculator." A scheme for estimating the risk that organizations face from loss of retiring expertise.

Hoffman, R. R. (2008). "The Hancock Switch." A device and protocol for measuring the negative hedonicity of computer-supported cognitive work.

PROFESSIONAL SOCIETY MEMBERSHIPS

Institute for Electrical and Electronics Engineers (2001 - 2020)
American Psychological Society (1990 - 2020)
Human Factors and Ergonomics Society (1990 - 2020)
Association for the Advancement of Artificial Intelligence (1986 - 2021)
American Meteorological Society (Associate Member) (1992 - 2020)
American Society for Photogrammetric Engineering and Remote Sensing (1989 - 2006)
International Society for Ecological Psychology (1981 - 1985)

BOARD MEMBERSHIPS

Member, Advisory Board, *The Journal of Cognitive Engineering and Decision Making*, Human Factors and Ergonomics Society.
Member, Human Factors Engineering Technical Advisory Group, Department of Defense, Washington, DC (2007 -)
Member of the Board of Directors (1981-1985), International Society for Ecological Psychology

AWARD COMMITTEE MEMBERSHIPS

Member, Ely Award Committee, Human Factors and Ergonomics Society (2011 - 2014)

CONFERENCE BOARD MEMBERSHIPS

International Conferences on Naturalistic Decision Making 2003 -
International Conferences on Concept Mapping 2004 -

EDITORIAL BOARD MEMBERSHIPS

Book Series Editor, *Expertise Studies: Research and Applications*. Boca Raton, FL: Taylor and Francis.
Advisory Board Member, *Journal of Cognitive Engineering and Decision Making* (2010 -)
Member of Boards of Editors:
 Journal of Cognitive Engineering and Decision Making (2004 -)
 IEEE Intelligent Systems (2001 -)
 Human Factors (2000-2014)
 Expertise: Research and Applications (book series) (1994-)
 Cognitive Technology (1995-)
 Thinking and Reasoning (1995-1999)
 The Journal of Mind and Behavior (1983-1994)

AUTHORED BOOKS

Hoffman, R.R., LaDue, D., and Mogil, H.M., Roebber, P., and Trafton, J.G. (2017). *Minding the Weather: How Expert Forecasters Think*. Cambridge, MA: MIT Press.

Hoffman, R.R., Ward, P., DiBello, L., Feltovich, P.J., Fiore, S.M., and Andrews, D. (2014). *Accelerated Expertise: Training for High Proficiency in a Complex World*. Boca Raton, FL: Taylor and Francis/CRC Press.

Hoffman, R.R. (Au., Ed.) (2012). *Collected Essays on Human-Centered Computing, 2001-2011*. New York: IEEE Computer Society Press.

Hoffman, R.R. and Militello, L.G. (2008). *Perspectives on Cognitive Task Analysis: Historical Origins and Modern Communities of Practice*. Boca Raton, FL: CRC Press/Taylor and Francis.

Crandall, B., Klein, G., and Hoffman R.R. (2006). *Working Minds: A Practitioner's Guide to Cognitive Task Analysis*. Cambridge, MA: MIT Press.

BLOGS, WEB POSTINGS, WEBCASTS and WEBINARS

Klein, G. , Borders, J., Hoffman, R.R., & Mueller, S.T. (2023). AIQ (Artificial Intelligence Quotient): Helping people get smart about the smart machines they are using. *Medium.com* [<https://medium.com/about-work/helping-people-get-smart-about-smart-machines-they-are-using-f9e0095846fe>]

Hoffman, R.R. (2023, January). "The Declaration of Interdependence." Concept Blog of the Naturalistic Decision Making Association [<https://naturalisticdecisionmaking.org/2022/12/14/ndma-concept-blog-1-the-declaration-of-interdependence/>]

Hoffman, R.R. (2023, January). "0.01 and 0.05." Concept Blog of the Naturalistic Decision Making Association [<https://naturalisticdecisionmaking.org/2022/12/14/ndma-concept-blog-1-the-declaration-of-interdependence/>]

Klein, G. and Hoffman, R.R. (2022) "MNR: Minimum Necessary Rigor." *Psychology Today* Blog. [<https://www.psychologytoday.com/us/contributors/gary-klein-phd>]

Hoffman, R.R. and Johnson, M. (2018, September). Automation myths and human-machine teaming virtues. Human Factors Webcast for the NASA Engineering and Safety Center Academy. [<https://go.nasa.gov/2oeoI2i>]

Hoffman, R. R. (2018). "Human Factors and Cyberwork: Opportunities and Challenges." Webinar sponsored by the Human Factors and Ergonomics Society.

Hoffman, R.R., Crandall, B., and Klein, G. (2008). "Protocols for Cognitive Task Analysis." Report, Florida Institute for Human and Machine Cognition, Pensacola FL. [Download at <https://apps.dtic.mil/sti/citations/ADA475456>]

Hoffman, R. R. (2005). "The Psychology of Intelligence Analysis Revisited: An Update from Cognitive Science Post-1980." Report, Florida Institute for Human and Machine Cognition, Pensacola FL. [Download at <http://www.ihmc.us/groups/rhoffman/>]

EDITED BOOKS

- White, R.A., Çoltekin, A., and Hoffman, R.R. (Eds.) (2018). *Remote sensing and cognition: Human factors in image interpretation*. Boca Raton, FL: CRC Press.
- Ward, P., Hoffman, R.R. Conway, G.E., Schraagen, J.M., Peebles, D., Hutton, R.J.B., & Petushek, E.J. (Eds.) (2018). *Macro cognition: The science and engineering of sociotechnical work systems*. Frontiers Media. [doi: 10.3389/978-2-88945-418-1]
- Ericsson, K.A., Hoffman, R.R., Kozbelt, A., and Williams, M. (2018). *Cambridge handbook of expertise and expert performance* (2nd. ed.). Cambridge: Cambridge University Press.
- Smith, P. and Hoffman, R.R. (Eds.) (2017). *Cognitive systems engineering: The future for a changing world*. Boca Raton, FL: Taylor & Francis.
- Hoffman, R.R., Hancock, P., Scerbo, M., Parasuraman, R. and Szalma, J. (Eds.) (2015). *Cambridge Handbook of Applied Perception Research*. Cambridge: Cambridge University Press.
- Moon, B.M., Hoffman, R.R., Cañas, A.J., and Novak, J.D. (Eds.) (2011). *Applied concept mapping: Capturing, Analyzing and Organizing Knowledge*. Boca Raton, FL: Taylor and Francis.
- Hoffman, R.R. (Ed.) (2007). *Expertise Out of Context: Proceedings of the Sixth International Conference on Naturalistic Decision Making*. Boca Raton FL: Taylor and Francis.
- Ericsson, K.A., Charness, N., Feltovich, P.J. and Hoffman, R.R., (Eds.) (2006). *Cambridge Handbook of Expertise and Expert Performance*. New York: Cambridge University Press.
- Hoffman, R.R. and Markman, A.B. (Eds.) (2001). *The Interpretation of Remote Sensing Imagery: The Human Factor*. Boca Raton, FL: Lewis Publishers.
- Hoffman, R.R., Sherrick, M. and Warm, J.S. (Eds.) (1998). *Viewing Psychology as a Whole: The Integrative Science of William N. Dember*. Washington, DC: American Psychological Association.
- Feltovich, P.J., Ford, K.M. and Hoffman, R.R. (Eds.) (1997). *Expertise in context*. Cambridge, MA: The MIT Press.
- Hoffman, R.R. (Ed.) (1992). *The Psychology of Expertise: Cognitive Research and Empirical AI*. Mahwah, NJ: Erlbaum.
- Hoffman, R.R. and Palermo, D.S. (Eds.) (1991). *Cognition and the Symbolic Processes: Applied and Ecological Perspectives*. Mahwah, NJ: Erlbaum.
- Gorfein, D.S. and Hoffman, R.R. (Eds.). (1987). *Learning and Memory: The Ebbinghaus Centennial Conference*. Mahwah, NJ: Erlbaum.
- Honeck, R.P. and Hoffman, R.R. (Eds.) (1980). *Cognition and Figurative Language*. Mahwah, NJ: Erlbaum.

EDITORSHIPS

- Ward, P., Hoffman, R.R., Conway, G., Schraagen, J.-M., Peebles, D., Hutton, R.J.B., and Perushek, E.J.

- (Eds.) (2017). *Macro cognition: The science and engineering of sociotechnical work systems. Frontiers in Psychology*. [<https://doi.org/10.3389/fpsyg.2017.00515>]
- Hoffman, R. R. (with M. Shafto and M. Sierhuis) (Guest Editor) (2010, September/October). *AI In Space. IEEE Intelligent Systems*.
- Hoffman, R. R., and Shafto, M. (Eds.) (2002, September/October). Special Issue: Human-Centered Computing at NASA. *IEEE Intelligent Systems*.
- Hoffman, R. R. (Ed.) (2001 -). "Human-Centered Computing." Regular Department, *IEEE Intelligent Systems*.
- Hoffman, R. R. (Senior Editor and Series Founder). "Expertise: Research and Applications." Book Series, Taylor and Francis.
- Hoffman, R. R., and Woods, D. D. (Guest Editors) (2000). "Cognitive Task Analysis." Special Issue of *Human Factors*, 42 (No. 1), 1-95.
- Gilhooly, K. and Hoffman, R. R. (Guest Editors) (1997). "Expert Thinking." Special Issue of *Thinking and Reasoning*, 3 (No. 4). Hove, UK: Erlbaum.
- Hoffman, R. R. (Guest Editor) (1993). "Metaphor and Expertise." Special Issue of *Metaphor and Symbolic Activity*, 7, (No. 3 and 4).
- Co-founder and Associate Editor, *Metaphor and Symbol*. Mahwah, NJ: Erlbaum.
- Co-editor and Co-founder, *The Metaphor Research Newsletter*. Produced at Adelphi University, the University of Tennessee, and the University of Illinois, 1982-1985.

GRANT REVIEWING

Reviewer of proposals for the following agencies and organizations:

The Directorate of Biological, Behavioral and Social Sciences of the NSF
The Human Cognition and Perception Program of The NSF
National Science Foundation, Panelist
European Commission Joint Research Center, Institute for the Protection and Security of the Citizen
United Kingdom Economic and Social Research Council
Belgian Earth Observation Program
National Aeronautics and Space Administration
State of Washington Sea Grant Program
Israel Science Foundation
Natural Sciences and Engineering Research Council of Canada
City University of New York Research Foundation
Australian Research Council

GRANTS and CONTRACTS

Hoffman, R.R. (PI) (2019-2020). "Naturalistic Decision Making Foundations of Explainable AI." Award FA8650-17-2-7711, DARPA. \$2,325,390.

Hoffman, R.R. (PI) (2018-2019). "Performance Assessment Suite for the Cyber Mission Force." Contract with the U.S. Army Research Laboratory. \$170,000.

Hoffman, R. R. (PI) (2017). "SC2RAM Agent Network Discovery and Exploitation Visualization." Subcontract to Soar Technology, Inc. on a contract from the Office of Naval Research. \$40,000.

Hoffman, R. R. (PI). (2016-17). "Cognitive work analysis for USCYBERCOM." Subcontract from the Applied Physics Laboratory, Johns Hopkins University, under a contract from USCYBERCOM. \$210,039.

Hoffman, R.R. (IHMC PI). (2016-17). "Coordination and performance metrics in command and control environments." USAF SBIR AF16-AT09, Aptima, Inc., Prime. \$54,973.

Hoffman, R.R. (PI) (2015). Evaluating the Impacts of Network Mapping Tools on Situational Awareness in Cyberspace Operations. USCYBERCOM (Agreement Number N00014-15-P-5091). \$60,587.

Hoffman, R.R. (Peer) (2014-15). Peer Reviewer for the Army Research Laboratory's International Technology Alliance. Scientific Services Program Performance Work Statement 14-051. \$36,000.

Hoffman, R.R. (PI) (2014-15). Human-Machine Teaming for Intelligence, Surveillance and Reconnaissance Analysis (HMTISRA). Subaward with Prime Contractor, Wright State Research Institute. AFOSR BAA-HPW/RHXM-2015-0002. \$45,220.

Hoffman, R.R. (Research Scientist) (2013-2014). Simulated Cognitive Cyber Red-team Attacker Model. Office of Naval Research SBIR Topic N132-132, "Cognitive Modeling for Cyber Defense." SOARTech, Inc., Prime. ONR, Washington DC. \$20,000.

Hoffman, R. R. (Principal Scientist for Experimental Design and Methodology; S.A. Heise, IHMC PI). (2013-2014). Campaign of Experimentation for the Integrated Global Command and Control, STRATCOM, US Department of Defense. \$250,000.

Hoffman, R.R. (IHMC PI) (2014). Microgame-based Interventions and Robust Analyses of Cognitive and Logical Skill Enhancers (MIRACLE). IARPA-BAA-13-06, "Strengthening Human Adaptive Reasoning and Problem-solving." Charles River Analytics, Prime. Intelligence Advanced Research Projects Activity, Washington, DC. \$400K.

Hoffman, R.R. (PI) (2012). "Cognitive Task Analysis Product Development Training." Air Force Research Laboratory, Wright-Patterson AFB, OH \$45,000.

Hoffman, R.R. (PI) (2012-15). "State-of-The-Art Report: Accomplishments of Naturalistic Decision Making Research and Applications to Emerging Defense Challenges." Grants from the Air Force Office of Scientific Research, and the Office of Naval Research, totaling \$35,000.

Hoffman, R.R. (Principal Consultant) (2012-2013). "Information Salience Modeling for Decision Support Systems." Subcontract to Adaptive Cognitive Systems, LLC on DoD SBIR OSD11-TD1. \$30,000.

Hoffman, R.R. (Senior Research Scientist) (Y. Wilks, IHMC Prime) (2012-2016). "Metaphor Extraction via Targeted Analysis of Language." Subcontract under Carnegie-Mellon University, funded by IARPA-BAA-11-04. IHMC funding of \$3,286,925.

Hoffman, R.R. (Principal Consultant). (2011). "Cognitive Approaches to Integrated Intelligence Production." US Air Force Research Lab SBIR AF112-026. 361LLC, Prime

Hoffman, R.R. (IHMC PI) (2011-2016). "Heuristica: Serious Game for Training Complex Cognitive Skills." Subcontract under ARA Cognitive Solutions Division, funded by Air Force Contract FA8650-11-C-7177. \$100K for each of five years.

Hoffman, R. R. (Principal Consultant) (2010-2011). Influence Support Concepts. Contract with QinetiQ, Farnborough, Hampshire, United Kingdom. \$40,000.

Hoffman, R. R. (Principal Consultant) (2009-10). "Human Total Cost of Ownership." Sub-contract with Chi Systems, Inc., Ft. Washington, PA, on an SBIR Phase I contract with the Office of Naval Research, Decision Support Aiding for Human-Systems Acquisition. \$13,500.

Hoffman, R. R. (PI) (2009). "Concept Mapping Workshop." School of Nursing, Pensacola Junior College, Pensacola FL. \$6500.

Hoffman, R. R. (PI) (2009). "Working Meeting on the Active Management of Trust in Cyberdomains." Sponsored by the Air Force Research Laboratory, subcontract with Systems Research and Applications Corporation, Dayton, OH. \$70,400.

Hoffman, R. R. and Feltovich, P. J. (co-PIs) (2009-10). "Technical Community Research Agenda For Facilitating the Achievement and Retention of Expertise." Award No. FA8650-09-2-6033, 711 HPW RH, Air Force Research Laboratory, Wright-Patterson Air Force Base, OH. \$150,000.

Hoffman, R. R. (2009-10). "Representational Systems for Information Operations." Contract with QinetiQ, Farnborough, Hampshire, United Kingdom. \$33,000.

Hoffman, R. R. (2008-10). "Naturalistic Model of Causal Reasoning: Developing an Experiential User Guide to Understand Fusion Algorithms and Simulation Models." For the United States Air Force, Commander's Predictive Environment Program, Human Effectiveness Division, Wright-Patterson AFB, OH, subcontract through Northrup-Grumman Corporation and in a partnership with Klein Associates Division of ARA, Inc. \$174,000.

Hoffman, R. R. (2008). "Cognitive Work Analysis for Live, Virtual, and Constructive (LVC) Training." Department of Defense STTR to Charles River Analytics, Inc., Boston MA, R. R. Hoffman principal subcontractor. \$40,000.

Hoffman, R. R. (Principal Author; Co-PI). (2008). "The Science and Applications of Perception Psychology." Conference held at the University of Cincinnati, May 2008. Funding from the Air Force Research Lab, Wright-Patterson Air Force Base, OH, \$4,500, and funding from the American Psychological Association, Washington DC, \$10,000.

Hoffman, R. R. (PI) (2008). "Concept Maps for Analytical Exploration and Knowledge Sharing." Subcontract to Perigean Technologies, Inc, on the SBIR, "Rapid and Accurate Idea Transfer SBIR Program," DARPA, Washington DC. \$33,000.

Hoffman, R. R. (PI). (2007). "Knowledge Capture by Concept Maps for Southern Nuclear." Contract to Ceryph, Inc., LLC. \$24,000.

Hoffman, R. R. (PI) (2008). "Representational Systems for Intelligence Operations." Contract with QinetiQ, Farnborough, Hampshire, United Kingdom. \$41,000.

Hoffman, R. R. (PI) (2007-08). "State of the Art Report: Accelerating the Achievement of Expertise in the Electric Utilities." Contract with the Electric Power Research Institute. \$72,000.

Hoffman, R. R. (IHMC PI) (2001-09). "Advanced Decision Architectures Collaborative Technology Alliance." An alliance of universities and private sector companies. Funded by the U. S. Army Research Laboratory under cooperative agreement DAAD19-01-2-0009. IHMC funding of \$5,018,000.

Hoffman, R. R., and Wright, T. (Co-PIs) (2007). Knowledge Elicitation Workshops in Support of the Commander's Predictive Environment. Air Force Research Laboratory. "Commander's Predictive Environment" Program. \$55,000.

Hoffman, R. R. and Wright, T. (Co-PIs) (2006-07). Toolkit for Role Aware Exchange of Knowledge. Subcontract to Charles River Analytics, Inc., on a contract from The USAF Program "Network Centric Warfare." \$247,506.

Hoffman, R. R. (PI) (2006-07). "Knowledge Elicitation Workshop for Gulf Power and Southern Company." \$12,609.

Hoffman, R. R. (IHMC PI) (2006-07). Joint Systems Engineering Methodology. Subcontract to Chi Systems, Inc., on the USAF AFRL Program, "Embedding Cognitive Systems Engineering into Systems Engineering Practice." \$100,000.

Feltovich, P. J. (IHMC PI) (2006); Hoffman, R. R., and Bradshaw, J. (IHMC Senior Personnel). "On the Effects of Culture and Society on Adversarial Attitudes and Behaviors." Subcontract to Dartmouth University on AFOSR Adversarial Intent MURI Program Agreement Number 9550-06-1-0169. \$40,000.

Hoffman, R. R. (PI) (2005-06). "Concept Mapping of Expert Knowledge for Equipment Maintenance." Contract with Lockheed-Martin Corporation, 2005-2006. \$50,000.

Hoffman, R. R. (PI). "Demonstration of Cmapping Knowledge Elicitation for Boeing Space Station Systems Engineering." Contract with Boeing Corporation. \$65,689.

Hayes, P. (IHMC PI), and Hoffman, R. R. (IHMC Co-PI) (2005). Subcontracted to R. Fikes and C. Welty (Co-PIs, MITRE) "Interoperable Knowledge Representation for Intelligence Support" (IKRIS), A "Challenge Workshop." Sponsored by ARDA, Department of Defense. \$120,000.

Moon, Brian (PI; Klein Associates, Inc.), R. R. Hoffman (Principal Consultant) (2005). "Cognitive Metrics." DARPA Contract. \$5,000.

Feltovich, P. (IHMC PI) (2005); Hoffman, R., Bradshaw, J. (IHMC Senior Personnel). "On the effects of culture and society on adversarial attitudes and behaviors." Air Force Office of Scientific Research. \$120,000.

Daniel Serfaty (PI; Aptima, Inc.) (2004). R. R. Hoffman (Principal Consultant) "Portraying uncertainty in battlefield weather situational awareness." Phase 1 SBIR, Army Research Laboratory. \$100,000.

Hoffman, R. R. (Principal Author), Eduardo Salas (PI, University of Central Florida) (2003-04). Florida Alliance for the Study of Expertise. Catalyst Grant in the Sciences of Learning Program, National Science Foundation. \$219,980.

Hoffman, R. R. and Cañas, A. (Co-PIs) (2003-04). "Human-Centered Computing for the Intelligence Community." Contract with the Department of Defense. \$800,000.

Hoffman, R. R. and Cañas, A. (Co-PIs) (2002-03). "Knowledge Elicitation Procedures Recommended For NIMD." Subcontract to the Palo Alto Research Center (PARC) on the Project, "Theory and Design of Adaptable Human Information Interaction Systems for Intelligence Work," Novel Intelligence From Massive Data (NIMD) Program, Advanced Research and Development Activity (ARDA), Department of Defense, Washington, DC. \$35,979.

Hoffman, R. R. (PI) (2002). "The 6th International Conference on Naturalistic Decision Making." Grants from the US Navy (Office of Naval Research), the U.S. Army (The Army Research Institute, The Army Research Laboratory), the U.S. Air Force (The Air Force Office of Scientific Research, The Air Force Research Laboratory-Rome NY), and the NASA-Ames Research Center. \$60,000.

Hoffman, R. R. (PI) (2001). "Application of Concept Map Method to Elicit Tacit Knowledge at a Utility." Contract, Electric Power Research Institute, Palo Alto, CA. \$20,000.

Ford, K.M. and Hoffman, R.R. (1999-2001). "Human-Centered System Research." National Center for Applied Technology (NCAT).

Markman, A. B., Hoffman, R. R. and Carnahan, W. C. (1997). "Human cognitive performance in the interpretation of false-color non-literal imagery." Defense University Research Instrumentation Program, Air Force Office of Scientific Research, 1997. \$73,931.

Hoffman, R. R. (PI) (1996). "Facilitating the acquisition of knowledge in domains involving perceptual skill, situational awareness, and high mental workload." Conducted for Epistemics, Ltd., under a contract from the Defense Research Agency, The Ministry of Defense, United Kingdom. \$9,000.

Hoffman, R. R. (PI) (with Michael Sherrick, Memorial University and Joel Warm (University of Cincinnati) (1996). "Psychology Beyond the Threshold." Conference supported by a grant from the American Psychological Association, and held at the University of Cincinnati, Spring 1996. \$10,000.

Hoffman, R. R. (PI) (1995). Grant-in-Aid from the Office of the President, Adelphi University. Support for Fulbright activities. \$3,000.

Hoffman, R. R. (PI) (1995). Institutional Grant from the Office of the Provost, Adelphi University. Support for Fulbright activities. \$3,000.

Hoffman, R. R. (PI) (1995). "A review of Naturalistic Decision Making on the Critical Decision Method of Knowledge Elicitation and the Recognition-Priming Model of Decision-making, with a Focus on

Implications for Military Proficiency." Conducted for Epistemics, Ltd., under a contract from the Defense Research Agency, The Ministry of Defense, United Kingdom. \$9,000.

Hoffman, R. R. (PI) and Shadbolt, N. (Sponsor) (1995). "Facilitating the acquisition of expertise in domains involving perceptual skill, mental workload, and situation awareness." Contract No. ASF/2819U, Defense Research Agency, Ministry of Defense, United Kingdom. \$9,000.

Hoffman, R. R. (PI) (1987). "A human factors approach to the process of designing the advanced meteorological processing system." Research conducted at the USAF Geophysics Laboratory, with the support of the U.S. Air Force Office of Scientific Research, Contract No. F49620-85-0013. \$9,125.

Russell, W. (PI), Hoffman, R. R. and Palermo, D. S. (1986). "Speaking, reading, thinking and development: A conference on the accomplishments and goals of modern research." Supported by the National Institute of Child Health and Human Development and by the U.S. Office of Naval Research. \$14,240.

Hoffman, R. R. (PI) (1986). "Extracting experts' knowledge." Research conducted at the MITRE Corporation with the support of the U.S. Air Force Summer Faculty Research Program. \$8,556.

Hoffman, R. R. (PI) (1985). "Symbolic image interpretation techniques." Research conducted at the Engineering Topographic Laboratories, under a Scientific Services Contract from Battelle Laboratories. \$6,946.

Hoffman, R. R. (PI) (1983). "Methodological preliminaries to the development of an expert system for aerial photo interpretation." U. S. Army Summer Faculty Research and Engineering Program. \$6,770.

Hoffman, R. R. (PI) (1982). "Psycholinguistic experiments on the regional dialect." Adelphi University Summer Faculty Research Grant. \$1,000.

SELECTED GRANT REPORTS

Hoffman, R.R., Klein, G., Mueller, S.T., and Clancey, W.J. (2021). "Recommendations for the Empirical Assessment of Human-AI Work Systems: A Contribution to AI Measurement Science." Technical Report from Task Area 2 to the DARPA Explainable AI Program. [<https://www.ihmc.us/technical-reports-on-explainable-ai/>]

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Consultant to the Institute of Medicine, National Academies of Science, Workshop on NASA's Evidence Report on Risk of Inadequate Human-Computer Interaction in Spaceflight, 2014.

Reviewer of Intramural Basic Research Proposals, US Air Force Research Laboratory, 2013.

Consultant to the Geo-Spatial Information Analysis for Global Security and Stability Research Center of the Institute for the Protection and Security of the Citizen (ISFEREA), Joint Research Centre (JRC), European Commission. Ispra, Italy. 2009.

Consultant to the National Science and Engineering Research Council of Canada, 2007.

Consultant to the Strategic Studies Group, Office of the Chief of Naval Operations, Naval War College, Newport, RI. 2002 - 2005, 2013, 2015.

Consultant to the Electric Power Research Institute, Knowledge Management Project, 2001.

Gratis Consultant to the Tallahassee Weather Forecasting Office (National Weather Service). Concept-Mapping the domain of hydrometeorology, 2001.

Gratis consultant to Her Majesty the Queen of Thailand, for the "Thailand National Knowledge Base" Project. 2000 - 2001.

External peer reviewer for Technical Review of Human Factors Programs, NASA-Ames Research Center, Moffett Field, CA, 1999.

Consultant to the Evaluation Methods Division, U. S. General Accounting Office, concerning expert knowledge elicitation methods for the domain of toxicological assessment, 1989.

Gratis Consultant to the Applications Division of the Canadian Centre for Remote Sensing, concerning the use of color in satellite image displays, 1986.

Gratis Consultant to the Human Factors Group of the NEXRAD Operational Support Facility, National Weather Service, NOAA, concerning the design of the graphics for products and for the user interface for the Unit Control Position of the NEXRAD (WSR-88D) Doppler Weather Radar, 1996 - 1997.

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Bradshaw, J. M., Beautement, P., Breedy, M., Bunch, L., Drakunov, S. V., Feltovich, P. J., Hoffman, R. R., Jeffers, R., Johnson, M., Kulkarni, S., Lott, J., Raj, A., Suri, N. and Uszok, A. (2004). Making agents acceptable to people. In N. Zhong and J. Liu (Eds.), *Intelligent Technologies for Information Analysis: Advances in Agents, Data Mining, and Statistical Learning* (pp. 355-4000). Berlin: Springer Verlag.

Bradshaw, J.M., Sierhuis, M., Acquisti, A., Feltovich, P., Hoffman, R.R., Jeffers, R., Prescott, D., Niranjan Suri, Uszok, A., and Van Hoof, R. (2003). Adjustable autonomy and human-agent teamwork in practice: An interim report on space applications. In H. Hexmoor, R. Falcone and C. Castelfranch (Eds.), *Agent Autonomy* (pp. 243-280). Dordrecht, The Netherlands: Kluwer.

Bradshaw, J. M., Suri, N., Breedy, M., Cañas, A., Davis, R., Ford, K., Hoffman, R., Jeffers, R., Kulkarni, S., Lott, J., Reichherzer, T. and Uszok, A. (2002). Terraforming cyberspace. In D. Marinescu and C. Lee (Eds.), *Process coordination and ubiquitous computing* (pp. 165-185). Boca Raton, FL: CRC Press.

Hoffman, R.R., Bamberg, M. and Yerkes, J. (2001). Hermann Ebbinghaus. In L. Nadel (Ed.), *The Encyclopedia of Cognitive Science*. London: Macmillan.

Hoffman, R. R. (1998). Whom (or What) do you (mis)trust?: Historical reflections on the psychology and sociology of information technology. In J.M. Flach (Ed.), *Proceedings of the Fourth Symposium on Human Interaction With Complex Systems* (pp. 27-36). Los Alamitos, CA: IEEE Computer Society Press.

Hoffman, R.R. (1998). How can expertise be defined?: Implications of research from cognitive psychology. In R. Williams, W. Faulkner and J. Fleck (Eds.), *Exploring expertise* (pp. 81-100). New York: Macmillan.

Hoffman, R.R., Feltovich, P.J. & Ford, K.A. (1997). A general framework for conceiving of expertise and expert systems. In P.J. Feltovich, K.M. Ford and R.R. Hoffman, (Eds.) *Expertise in context* (pp. 543-580). Cambridge, MA: The MIT Press.

Hoffman, R. R. (1997). American cognitive psychology. In W. G. Bringmann, H. E. Luck, R. Miller and C. E. Early (Eds.), *A pictorial history of psychology* (pp. 594-598). Chicago: Quintessence Publishing.

Hoffman, R.R. and Pike, R.J. (1995). On the specification of the information available for the perception and description of the natural terrain. In P. Hancock, J. Flach, J. Caird and K. Vicente (Eds.), *Local applications of the ecological approach to human-machine systems* (pp. 285-323). Mahwah, NJ: Erlbaum.

Hoffman, R.R., Waggoner, J.E. and Palermo, D.S. (1991). Metaphor and context in the language of emotion. In R.R. Hoffman and D.S. Palermo (Eds.), *Cognition and the symbolic processes: Applied and ecological perspectives* (pp. 163-186). Mahwah, NJ: Erlbaum.

Hoffman, R.R. (1991). What is a hill? Computing the meanings of topographic and physiographic terms. In A. Kunz and U. Schmitz (Eds.), *Linguistic approaches to artificial intelligence* (pp. 97-128). Frankfurt, Germany: Verlag Peter Lang.

Hoffman, R. R. (1990). The cognitive psychology of expertise: A review of the recent research literature. In M. B. Fishman (Ed.), *Proceedings of the 3rd Florida Artificial Intelligence Research Symposium* (pp. 57-59). Gainesville, FL: Florida AI Research Society.

Hoffman, R.R., Cochran, E.L. and Nead, J.M. (1990). Cognitive metaphors in the history of experimental psychology. In D. Leary (Ed.), *Metaphors in the history of psychology* (pp. 173-209). Cambridge, England: Cambridge University Press.

Hoffman, R.R. (1989). A survey of methods for eliciting the knowledge of experts. In C. Westphal and K. McGraw (Eds.), Special Issue on Knowledge Acquisition, *SIGART NEWSLETTER* (No. 108) (pp. 19-27). New York: Special Interest Group on Artificial Intelligence, Association for Computing Machinery. Reprinted in C.R. Westphal and K. McGraw (Eds.), *Readings in knowledge acquisition: Current practices and trends* (pp. 7-20). Chichester England: Ellis Horwood.

Hoffman, R.R. (1989). Some ambiguities in the study of ambiguity. In D. S. Gorfein (Ed.), *Resolving semantic ambiguity* (pp. 204-222). New York: Springer-Verlag.

Hoffman, R.R., Bringmann, W., Bamberg, M. and Klein, R. (1987). Some historical observations on Ebbinghaus. In D.S. Gorfein and R.R. Hoffman (Eds.) *Memory and Learning: The Ebbinghaus Centennial Conference* (pp. 77-88). Hillsdale, NJ: Lawrence Erlbaum Associates.

Hoffman, R.R. and Honeck, R.P. (1987). Proverbs, pragmatics, and the ecology of abstract categories. In R. Haskell (Ed.), *Cognition and symbolic structures: The psychology of metaphoric transformations* (pp. 121-140). Norwood, NJ: Ablex.

Hoffman, R.R. (1986). A "Gestalt" on Gibson. In J. M. McGaugh (Ed.), *Contemporary psychology: Biological processes and theoretical issues: Proceedings of the 23rd International Congress of Psychology* (pp. 331-356). Amsterdam: North-Holland.

Hoffman, R.R. (1985). Some implications of metaphor for philosophy and psychology of science. In W. Paprotte and R. Dirven (Eds.), *The ubiquity of metaphor: Metaphor in language and thought* (pp. 327-380). Amsterdam: John Benjamins.

Farber, C., et al., inc. Hoffman, R.R. (1985). Report of the workgroup on "event cognition." In R. Shaw and W. Warren (Eds.), *Persistence and change: Proceedings of the 1st International Conference on Event Perception* (pp. 299-306). Mahwah, NJ: Erlbaum.

Hoffman, R.R. (1980). Metaphor in science. In R. P. Honeck and R. R. Hoffman (Eds.), *Cognition and figurative language* (pp. 393-423). Mahwah, NJ: Erlbaum.

Hoffman, R. R. and Honeck, R.P. (1980). A peacock looks at its legs: Cognitive science and figurative language. In R.P. Honeck and R.R. Hoffman (Eds.), *Cognition and figurative language* (pp. 3-24). Mahwah, NJ: Erlbaum.

Honeck, R.P., Voegtle, K., Dorfmueller, M.A. and Hoffman, R.R. (1980). Proverbs, meaning, and group structure. In R.P. Honeck and R.R. Hoffman (Eds.), *Cognition and figurative language* (pp. 127-161). Mahwah, NJ: Erlbaum.

PUBLISHED REPORTS AND REVIEWS

Hoffman, R.R. (2015). Review of *Where metaphors come from: Reconsidering metaphor in Context*, by Zoltán Kövecses. *Metaphor and Symbol*, 31, 50-52.

Hoffman, R.R. (2013). Review of *Life and Death in a Time of Terror*, by Pollio, Stoitstova, and Snellen. *Metaphor and Symbol*, 28, 213-217.

Bradshaw, J., Hoffman, R. et al. (2003). "Living with agents and liking it: Addressing the Technical and Social Acceptability of agent technology." AAAI Technical Report SS-04-04. Menlo Park, CA: Association for the Advancement of Artificial Intelligence.

Hoffman, R.R. (1997). Review of *Poetics of Mind: Figurative Thought, Language, and Understanding*, by Raymond W. Gibbs. *Metaphor and Symbol*, 12, 81-84.

Hoffman, R.R. (1997). Review of *Idioms: Structural and Psychological Perspectives*, Edited by M. Everaert, E.-J. van der Linden, A. Schenk and R. Schneider. *Metaphor and Symbol*, 12, 85-87.

Hoffman, R.R. (1994, Winter). The 1994 Florida AI Research Symposium. *The AI Magazine*, 14, 74.

Hoffman, R.R., and Dietrich, E. (1994, Winter). Expertise in context: Report on the Third International Workshop on Human and Machine Cognition. *The AI Magazine*, 14, 67-68.

Hoffman, R.R. (1994). Review of *Idioms: Processing, Structure, and Interpretation*, by C. Cacciari and P. Tabossi. *Metaphor and Symbolic Activity*, 9, 241-246.

Hoffman, R.R. (1987). Review of *Contextualism and Understanding in Behavioral Science*, by R. L. Rosnow and M. Georgoudi. *The Journal of Mind and Behavior*, 8, 167-170.

Hoffman, R.R. (1987). Review of *Metaphor: A Bibliography of Post-1970 Publications*, by J.-P. van Noppen, S. DeKnopp and R. Jongen. *Metaphor and Symbolic Activity*, 2, 139-141.

PUBLICATIONS IN ELECTRONIC MEDIA

"The Empirical Comparison of CTA/CWA Methods." (January, 2003). Aptima Cognitive Task Analysis On-line Seminar Series. <http://www.ctaresource.com>

Hoffman, R. R. (1997). A proposed paradigm for the experimental comparison of KA software tools. EVALKA (Evaluation of Knowledge Acquisition), Computer Science and Engineering, U. of New South Wales: <http://www.cse.unsw.edu.au/~timm/pub/eval>

Hoffman, R. R. (1997). Review of Aspects of Metaphor, edited by Jaakko Hintikka. Metaphor and Symbol: <http://citd.scar.utoronto.ca/Metaphor.Metaphor.html>

Hoffman, R. R. (1997). Review of Advances in Connectionist and Neural Computation Theory, vol. 2: Analogical Connections, edited by K. J. Holyoak and J. A. Barnden, and vol. 3: Analogy, Metaphor, and Reminding, edited by J. A. Barnden and K. J. Holyoak. Metaphor and Symbol: <http://citd.scar.utoronto.ca/Metaphor.Metaphor.html>

Hoffman, R. R. (1997). Review of Worlds of Sense: Exploring the Senses in History and Across Cultures, by C. Classen. Metaphor and Symbol: <http://citd.scar.utoronto.ca/Metaphor.Metaphor.html>

THESIS AND DISSERTATION COMMITTEES AND GRADUATE SUPERVISION

External Reader for Doctoral Dissertation of Oscar Bjurling, Department of Information and Computer Science, Linköping University, Linköping Sweden.

External Committee Member for Doctoral Dissertation of Adam Johs, College of Computing and Informatics, Drexel University, 2022.

Outside Reader for Masters Thesis of Britany Nelson, Michigan Technical University, 2017.

Title: "Helping Bridge the Gap Between Micro and Macro-Cognition: A System Error Detection, Diagnosis, and Correction Task."

Outside Reader for Doctoral Dissertation of Gabrielle Hancock, University of Central Florida, 2015-16.

Title: "Exploration of the Feasibility of Functional Near-Infrared Spectroscopy as a Neurofeedback Cueing System for the Mitigation of the Vigilance Decrement."

Committee Member for Master's Thesis for Jennifer Thompson, National Intelligence University, 2012.

Title: "Cultivating Expertise in Intelligence Community Analysts: A Necessary Training Paradigm Shift."

Outside Reader for Doctoral Dissertation of Claire Johnson, La Trobe University, Australia, 2011.

Title: "Worst Case Scenarios in Fire Fighter Decision Making."

Supervisor to Postdoctoral Associate David Eccles, Ph.D. Research conducted with the support of the US Army Research Laboratory, Advanced Decision Architectures Alliance. 2001-2003.

Reader for Doctoral Dissertation of Alan H. Cooper, Psychology, Adelphi University, April 1995.

Title: "Physiological and cognitive factors in the perception of lightness contrast and lightness assimilation."

Supervisor, Atmospheric Sciences Internship, Joseph Chirco, Department of Atmospheric Sciences, State University of New York-Albany, 1994.

Invited Outside Reader for Doctoral Dissertation of Mary Elizabeth Walsh, Psychology, University of Western Ontario, 1988.

Title: "The role of imagery and abstraction in proverb comprehension."

Invited Outside Reader for Master's Thesis of William Walsh, Computer Science, University of Guelph, Ontario, 1988.

Title: "A computational approach to metaphor."

Committee Member for Doctoral Dissertation of Jane A. Conway, Psychology, Adelphi University, 1987.

Title: "The Interaction of Color Code Type And Information Type On The Interpretation of Visual Displays."

Reader for Doctoral Dissertation of Andrea H. Bubka, Psychology, Adelphi University, 1988.

Title: "A Self-Terminating Race Model FOR Lexical Access in Ambiguity Processing."

INVITED CONFERENCE, WORKSHOP, AND CONVENTION PRESENTATIONS and POSTERS

"Macro cognition." Invited seminar, Department of Computer Science, Linkoping University, Sweden. March 2025.

Naturalistic Decision Making" Invited presentation at the Future Ready Forum, MITRE Corporation, McLean, VA October, 2024.

"Concepts of Human-Centered Work Systems Design." Presentation to the Department of Robotics, University of Michigan. April, 2024.

"Old Lessons Uncovered, New Lessons Discovered: Capturing Knowledge for Explainable AI." Invited Keynote Address, The 12th International Conference on Knowledge Capture, Pensacola, FL. December, 2023.

"Decision Superiority: the View of Naturalistic Decision Making." Presentation at the Chief Scientist Seminar Series, US Air Force Research Laboratory, Wright-Patterson Air Force Base, OH. November 2023.

"A Method for Calculating Practical Significance." Presentation at the First Annual Cognitive Systems Engineering Summit." Cognitive Systems Engineering Laboratory, The Ohio State University, Columbus, OH. November 2023

"Tools and Methods for AI Measurement Science." Invited presentation at the AI Metrology Colloquium Series, National Institute for Standards and Technology, Gaithersburg, MD, January 2023.

"Modeling Trust in Automation." Invited presentation at the 2022 AI2ES Workshop on Trust and Trustworthy AI/ML. Sponsored by the NSF AI Institute for Research on Trustworthy AI in Weather, Climate, and Coastal Oceanography.

"Expertise at Weather Forecasting." Invited Presentation at the "Open House" of the Naturalistic Decision Making Association, April, 2022.

"Cognitive Systems Engineering: An Integration?" Invited Presentation for the "Titans of Human Factors Symposium," Human Factors and Ergonomics Society, February, 2022.

"Psychometrics for Explainable AI." Invited presentation at the MITRE STEP XAI Workshop, July 2021.

"Issues in AI Measurement and Evaluation." Invited participation in the panel on Measuring with Humans in the Mix, presented at the NIST AI Measurement and Evaluation Workshop, June 2021.

"Explainable AI." Invited Presentation to the Research Methods in Intelligent Systems and Robotics Program, University of West Florida, April 2021.

"Accelerated Expertise." Presentation at the Annual Convention of the American Psychological Association, August, 2020.

"Training and Re-Training for Accelerated Expertise." Invited presentation to the Training Technical Group, Human Factors and Ergonomics Society 63rd International Meeting, Seattle, WA. October, 2019.

"The Theoretical Foundation of Macrocognition." (With G. Klein and D. Woods). Presentation at the 2019 International Conference on Naturalistic Decision Making. San Francisco, CA.

"Conceptual model and measurement issues for Explainable AI." Presentation at the International Command and Control Research Symposium, Institute for Human and Machine Cognition, Pensacola, FL. November, 2019.

"Are the Tools We Imagine the Tools They Need?" Invited Presentation, NDIA Symposium on Cyber-Enabled Technologies. Sponsored by the National Defense Industry Association, Arlington, VA, March 2018.

"Modeling the Cognitive Work of Cyber Protection Teams." (with S. Trent, D. Merritt and S.J. Smith) Presented at the NDIA Symposium on Cyber-Enabled Technologies. Sponsored by the National Defense Industry Association, Arlington, VA, March 2018.

"Issues of Trust in Automation From the Perspective of Human-Centered Computing." Invited Keynote Address, Workshop on The Future of Trust, sponsored by The Information Assurance Advisory Council (IAAC) and the British Computer Society. London, England, February 2017.

"Myths of Automation: The Quest for Alternatives to Levels and Allocation." Presentation at the International Symposium on Human Factors, TNO, Soesterberg, The Netherlands. October 2016.

"Accelerated Proficiency." Invited Presentation to the Technical council of the U.S. Navy Meteorology and Oceanography Command, Stennis AFB, MS. June 2016.

"Expertise, Proficiency Scaling, and Training." Invited Presentation at the to the Joint Academic Advisory Board at the GEOINT 2016 Symposium. Sponsored by The United States Geospatial Intelligence Foundation (USGIF), Orlando, FL, May 2016.

"Measurement of High-level Analytic Skills: Accelerated Proficiency." Presentation at the Special Session on High-Level Learning at the GEOINT 2016 Symposium. Sponsored by The United States Geospatial Intelligence Foundation (USGIF), Orlando, FL. May 2016.

"Challenges for a Theory of Complex Cognitive Work Systems." Presented at the 2015 Conference on Complex Adaptive Systems, sponsored by the University of Missouri, MITRE Corp. and the International Council on Systems Engineering, San Jose, CA. November 2015.

"Accelerated Expertise: What is Practical and Feasible?" Invited Presentation at the Military Intelligence Innovation Day, sponsored by the US Army Military Intelligence Center of Excellence, Ft. Huachuca, AZ., July 2015.

"Robotics Science State-of-the-Art" Presentation at Pensacon (The Pensacola Convention for Comics and Science Fiction). Pensacola FL, March 2015.

"Frameworks Accelerated Learning." Invited Presentation for the Information Science and Technology (ISAT)/DARPA Workshop on "Toward Optimal Learning: Opportunities, Challenges, and Limits" Washington, DC, December 2014.

"Determining the Goodness of Cognitive Task Analysis Activities" Presentation in the Discussion Panel: How To Tell a "Good" Cognitive Task Analysis, E. M. Roth (Chair), Discussion Panel: How To Tell a "Good" Cognitive Task Analysis? Proceedings of the 2014 International Annual Meeting of the Human Factors and Ergonomics Society. Santa Monica, CA: Human Factors and Ergonomics Society. October 2014.

"The Borg Hypothesis" Presentation as Pensacon (The Pensacola Convention for Comics and Science Fiction). Pensacola FL, February 2014.

"Cognitive Work Analysis for Air Operations" Presentation at the Cognitive-Adaptive Processing Technical Meeting, Georgia Tech Research Institute, Atlanta GA, May 2014.

"An Integrated Model of Macrocognitive Work and Trust in Automation." Presentation at the AAAI 2013 Trust and Autonomous Systems Symposium, Stanford University, March, 2013.

Hoffman, R.R. (2012) (Invited Participant) Workshop on Intelligent Human-Machine Collaboration. The National Academy of Sciences, Washington, DC.

"Range statistics and the exact modeling of discrete non-Gaussian distributions on learnability data." In A. Marcus (Ed.): Design, user experience, and usability, Pt II, Proceedings of the Conference on Human-Computer Interaction-2011, LNCS 6770, pp. 421–430, Berlin: Springer-Verlag.

Moore, D.T. and Hoffman, R.R. (2011, November). "How might critical thinking and structured analytic techniques improve intelligence? Or..." Presentation at the General Intelligence Training Council (GITC)/5 Eyes Intelligence Conference. Bolling AFB, DC.

"Cognitive Task Analysis and Knowledge Capture Methodology." Invited Presentation at the European Commission Joint Research Center, Ispra, Italy, October 2010.

"The Cognition of Experts: Perceptual Learning and Remote Sensing." Invited Presentation at VALgEO 10 (2nd International Workshop on Validation of Geo-Information Products for Crisis Management). Sponsored by the European Commission Joint Research Center and held in Ispra, Italy, October 2010.

"Measures and Metrics for Macrocognitive Work Systems." Keynote presentation at the Workshop on Advances in Macrocognition Measures for Real-World Teams." Sponsored by the 711 Human Performance Wing, Air Force Research Laboratory, Wright-Patterson Air Force Base, OH, July 2010.

"Cognitive Task Analysis for Creating Macrocognitive Work Systems." Invited Presentation at the Annual Conference of the International Technology Alliance, sponsored by the Army Research Laboratory and The Ministry of Defense (United Kingdom). University of Maryland Conference Center, College Park, MD, September 2009.

"Measurement and Metrics Issues for Cognitive Work." Invited presentation in the course, Military Psychology (S. Kass, Instructor), Department of Psychology, University of West Florida, Pensacola FL, April, 2009.

"The Metrics Problem in the Study of Cognitive Work: A Proposed Class of Solutions." Invited presentation at the Meeting of the Southern Ohio Chapter of the Human Factors and Ergonomics Society, Wright State University, Dayton OH, April, 2009.

"Background on Macrocognition." Presentation at the Workshop on Developing and Understanding Computational Models of Macrocognition. Harve de Grace, MD, with sponsorship by Alion MAAD Operation and the ARL Advanced Decision Architectures Collaborative Alliance, May, 2008.

"Human-Centering: Definitions, Laws, and Prospects" Invited Keynote Address at the 2008 Conference on Human-Centered Processes, Delft, The Netherlands, June 2008.

"Concept Mapping for Intelligence Operations." Invited presentation at the MITRE Corporation, Bedford, MA, December 2007.

"Issues in Human-Centering and Human-System Integration." Invited presentation to the Human Factors Engineering Technical Advisory Group, Department of Defense, November 2007.

"Performance Measurement." Presentation at the Conference, "Macrocognitive Metrics" held at the Ohio State University, June 2007, with the sponsorship of the AFRL/HE Commander's Predictive Environment Program.

"Macrocognition: Perspective, Methodology and Metrics." Presented at the ONR Workshop on Collaboration and Knowledge Interoperability, Orlando, FL, January 2007.

"Lessons Learned in Proficiency Scaling and Knowledge Elicitation for Intelligent Systems." Presented at the Berlin Conference on Expertise in Context, Humboldt University, Berlin, German. July 2006.

"Evaluating The effectiveness of a joint cognitive system: Metrics, techniques, and frameworks." (With Scott Potter, David Woods, Emilie Roth, and Jennifer Fowlkes). Panel Presentation at the 50th Annual Meeting of the Human Factors and Ergonomics Society. San Francisco CA. October, 2006.

"STEM: Science, Technology, Engineering and Mathematics Crisis." Presentation at the 2006 Learning Strategies Consortium, held on Orlando FL and sponsored by the Naval Education and Training Command. June, 2006.

"Laws, Entailments, and a Metatheory of Complex Cognitive Systems." Presented at the International Workshop on Intelligent Decision Support Systems: Retrospects and Prospects." Sponsored by the Scientific Program of the Advanced Studies Institute of NATO and held in Siena, Italy. Aug-Sept 2005.

"Human-Centered Computing Implications for FCS Robotics." Presentation at the National Academy Of Sciences Workshop on Scalable Interfaces For Air And Ground Military Robots. Sponsored by the Human Research and Engineering Directorate, Army Research Laboratory. November, 2004. Washington, DC.

"Knowledge Recovery" (with Eccles, D. and Feltovich, P.) Invited Keynote Address presented at the KCAP-03 Workshop, "Capturing Knowledge from Domain Experts: Progress and Prospects." October 27, 2003, Sanibel Island, FL.

"Human Centered Computing: Human Factors in Creating Decision Aids for Battlespace Weather." (with Coffey, J. W., Novak, J. D., and Carnot, M. J.) Presented at the Conference on Battlespace Atmospheric and Cloud Impacts on Military Operations (BACIMO). Sponsored by the Naval Research Laboratory, Monterey CA. September 9, 2003.

"The Borg Hypothesis." Invited lecture at COASTCON XXVI, Biloxi MS. March 22, 2003.

"AI and the World-Wide Web." Invited lecture at COASTCON XXVI, Biloxi MS. March 22, 2003.

Coffey, J.W., Hoffman, R.R., Cañas, A.J., and Ford, K.M. "A concept map-based knowledge modeling approach to expert knowledge sharing." Paper presented at the International Conference on Information and Knowledge Sharing. March 2002.

"STORM-LK: A Human-Centered Knowledge Model For Weather Forecasting." (with J. W. Coffey, K. M. Ford, and M. J. Carnot). Presentation at the "Second Workshop on Interactive Meteorology and Oceanography," held at the Naval Pacific Meteorology and Oceanography Center (NPMOC), North Island Naval Air Station, California, on August 29 – August 31, 2001. Supported by the Future Naval Capability Program, Office of Naval Research.

"Knowledge Modeling and Knowledge Sharing in Human-Computer Interaction" Presented at the Office of Naval Research Workshop on Human-Systems Integration, Crystal City, VA. November 2001.

"Revealing the reasoning and knowledge of expert weather forecasters." Presented at the Fourth International Conference on Naturalistic Decision Making, Warrenton, VA. May 1998.

"A case study in cognitive task analysis." (with B. Crandall and N. Shadbolt). Presented at the NATO/USAF Workshop on Cognitive Task Analysis, Washington DC. October 1997.

"Human factors in radar meteorology." Presented at the Short Course on Human Factors Applied to Graphical User Interface Design, held at the 28th Conference on Radar Meteorology, Austin, TX. September 1997.

"Some prospects for software-assisted knowledge acquisition from the perspective of experimental psychology." Invited Plenary Talk presented at the 2nd Workshop on Software-Assisted Knowledge

Acquisition, held at the Department of Psychology, University of Nottingham, UK; sponsored by the Engineering and Physical Science Research Council of the United Kingdom. April 1997.

"An overview of the history of cognitive technology." Presented at the 1997 Conference on Cognitive Technology, Indiana State University, Terre Haute, IN. April 1997.

"Cognitive task analysis and cognitive field research." Presented at the 1997 Conference on Cognitive Technology, Indiana State University, Terre Haute, IN. April 1997.

"Human factors in meteorology." Presented at the Short Course on Human Factors Applied to Graphical User Interface Design, held at the 77th Annual Meeting of the American Meteorological Society, Los Angeles, CA. February 1997.

"Some questions about methodology in the study of expertise in simultaneous translation." Workshop on Methodological Issues in Interpreting Research, held in Ascona, Switzerland, Supported by the Swiss National Science Foundation and the School of Translation and Interpretation, Univ. of Geneva. January 1997.

"Constructivism versus realism or constructivism and realism?" Paper presented at the 1994 Florida AI Research Symposium, sponsored by the Florida AI Research Society at held at Pensacola Beach FL. May 1994.

"Expertise in context: Perceptual expertise in the interpretation of satellite images." Presented at the Third International Workshop on Human and Machine Cognition, sponsored by the Assoc. for the Advancement of Artificial Intelligence and the Institute for Human and Machine Cognition of the University of West Florida, and held at Seaside FL. May 1993.

"Cognitive science approaches to expertise." Keynote address presented at the Conference, "Exploring Expertise", University of Edinburgh, Scotland. November 1992.

"Images of Earth from Space." Presented at the State University of New York-Stony Brook Science Fiction Conference (I-CON). March 1992.

"The perceptual skills of expert meteorologists." Poster presented at the Sixth Conference on Satellite Meteorology, held in conjunction with the 72nd annual meeting of the American Meteorological Society (Boston, MA), held in Atlanta GA. January 1992.

"Novice and expert interpretation of meteorological satellite images." Paper presented at the session on "Severe Weather Effects and Reporting" held at the 21st Broadcast Meteorology, sponsored by the American Meteorological Society, and held in Washington DC. October 1991.

"The cognition of experts." A Keynote Address presented at the Conference for Intelligent Systems Technology, Syracuse, NY. March 1991.

"Human factors in the design of resource technology." Presented at The 2nd International Symposium on Advanced Technology in Natural Resource Management, Washington, DC. November 1990.

"The cognitive psychology of expertise: A review of the recent research literature." Presented at The 3rd Florida Artificial Intelligence Research Symposium, Cocoa Beach FL. April 1990.

"The design of advanced meteorological information processing workstations." Presented at Electronic Imaging Expo '89. Boston MA. October 1989.

"Human factors psychology in the support of forecasting: The design of advanced meteorological workstations." Presented at the conference, Artificial Intelligence Research in Environmental Science, Baltimore MD. May 1989.

"Expert systems from a human factors perspective." Presented at the Convention of the American Society for Photogrammetry and Remote Sensing, Washington DC. April 1989.

"Viewing Earth from space." Presented at the State University of New York-Stony Brook Science Fiction Conference (I-CON). March 1989.

"On the meanings of topographic terms: A case study in applied psycholinguistics." Presented at the conference, The Application of Linguistics to Artificial Intelligence, University of Duisburg, West Germany, April 1988.

"Problems in the definition of 'literal' meaning." Presented at the Symposium on Metaphor (E. MacCormac, Organizer) held at The Annual Meeting of the Southern Society for Philosophy and Psychology, Atlanta GA. April 1987.

"Methods for extracting the knowledge of experts." Presented at the First Annual Conference on Artificial Intelligence Applications in Environmental Science, held at the Environmental Research Laboratories of the National Oceanic and Atmospheric Administration, Boulder CO. May 1985.

"A 'Gestalt' on Gibson." Presented at the Symposium on Gestalt Psychology (J. Perzel, Organizer), The 23rd International Congress of Psychology, Acapulco Mexico. September 1984.

CONFERENCE/WORKSHOP PRESENTATIONS AND POSTERS (Peer Reviewed)

Hoffman, R.R., Jalaeian, M., Klein, G., Jentsch, F., Clancey, W.J., and Mueller, S.T. (2022). Ten recommendations for the development and assessment of AI systems. *Proceedings of the 27th International Command and Control Research and Technology Symposium (ICCRTS 27)*. International Command and Control Institute [info@internationalc2institute.org]

Mamun, T., Baker, K., Malinowski, H., Hoffman, R., R., and Mueller, S.T. (2021). Assessing collaborative explanations of AI using the Explanation Goodness criteria. In *Proceedings of the 2021 Human Factors and Ergonomics Society Annual Meeting* (pp. 988-993). Santa Monica, CA: Human Factors and Ergonomics Society.

Hoffman, R.R., Mueller, S.T., Klein, G., & Litman, J. (2019, June). Metrics for Explainable AI: Challenges and Prospects. In *Proceedings of the International Conference on Naturalistic Decision Making*. San Francisco, CA.

Hoffman, R.R., Trent, S. Smith, S.J., & Merritt, D. (2019, June). Modeling the cognitive work of cyber protections teams. Presentation at the *International Conference on Naturalistic Decision Making*. Dayton, OH: Shadowbox LLC.

Hoffman, R.R. (2019, June). Introduction to explainable AI. Presentation at the *International Conference on Naturalistic Decision Making*. Dayton, OH: Shadowbox LLC.

Hoffman, R. R., Klein, G., & Woods, D.D. (2019, June). Theoretical foundations of macrocognition. In *Proceedings of the International Conference on Naturalistic Decision Making*. Dayton: OH Shadowbox LLC.

Hoffman, R.R., Klein, G. & Mueller, S.T. (2018, October). Explaining Explanation for "Explainable AI." In *Proceedings of the Human Factors and Ergonomics Society 2018 Annual Meeting* (pp. 197-202). Santa Monica, CA: Human Factors and Ergonomics Society.

Trent, S., Hoffman, R.R., Merritt, D., & Smith, S.J. (2018), March). Modeling the cognitive work of cyber protection teams. Presented at the Human Systems Conference, Sponsored by the National Defense Industry Association.

LaDue, D., Karstens, C.D., Rorreira, J., Ling, C., & Hoffman, R.R. (2017). Designing research to co-create a new paradigm for a continuous flow of information during severe weather. Presentation at the 97th American Meteorological Society Annual Meeting. Boston, MA: American Meteorological Society.

Hutton, R., Ward, P., Gore, J., Turner, P., Hoffman, R., Legatt, A, and Conway, G. (2017). Developing Adaptive Expertise: A Synthesis of Literature and Implications for Training. Presentation at the Thirteenth International Conference on Naturalistic Decision Making. University of Bath, England [https://www.eventsforce.net/uob/media/uploaded/EVUOB/event_2/GoreWard_NDM13Proceedings_2017.pdf]

Hoffman, R. R. (2017). Extending and integrating macrocognition models and concepts. Presentation at the Thirteenth International Conference on Naturalistic Decision Making. University of Bath, England [https://www.eventsforce.net/uob/media/uploaded/EVUOB/event_2/GoreWard_NDM13Proceedings_2017.pdf]

LaDue, D., Karstensm C.D., Correia, J., Ling, C., Hoffman, R.R., & Gerald, A. (2017). Designing research to co-create a new paradigm for a continuous flow of information during severe weather. Presentation at the Annual Meeting of the American Meteorological Society. Seattle, WA.

Lathrop, S.D., Trent, S., and Hoffman, R.R. (2016). Applying human factors research towards cyberspace operations: A practitioner's perspective. Proceedings of the 7th International Conference on Applied Human Factors and Ergonomics (AHFE 2016). Orlando, FL.

Trent, C. and Hoffman R.R. (Co-Chairs) (2016, September). Cyberspace operations and the people who perform them. Panel presented at the Annual Meeting of the Human Factors and Ergonomics Society. Santa Monica, CA: Human Factors and Ergonomics Society.

Trent, S. and Hoffman, R.R. (2016, September). Experimentation in Cyber: Tightening the feedback between operations and research. *Proceedings of ICCRTS 2016: The First International Command and Control Research and Technology Symposium: C2 in A Complex Battlespace*. London, UK. Sponsored by the US Department of Defense Command and Control Research Program and the International Command and Control Institute [info@internationalc2institute.org]

Trent, S., Hoffman, R.R. and Haney J. (2016, February). Metrics and measures of operational fit for Cyber Mission Forces. Presentation at the 2016 Human Systems Conference, Springfield, VA. Sponsored by The National Defense Industrial Association, Arlington, VA.

Trent, S. and Hoffman, R.R. (2016, February). Measures and metrics: The need for consistency in HSI measurement terminology. Presentation at the 2016 Human Systems Conference, Springfield, VA. Sponsored by The National Defense Industrial Association, Arlington, VA.

Ward, P., & Hoffman, R. (2015, July). Reflections on the science of perceptual-cognitive expertise in sport: Where have we been and where are we going? In A. M. Williams (Chair), Perceptual-Cognitive Expertise in Sport. Symposium conducted at the 14th Annual European Congress on Sport Psychology (FEPSAC), Bern, Switzerland.

Jones, R.R., O'Grady, R., Nicholson, D., Hoffman, R.R., Bunch, L., Bradshaw, J., and Bolton, A. (2015, November). Modeling and integrating cognitive agents within the emerging cyber domain. Presentation at the Interservice/Industry Training, Simulation and Education Conference (I/ITSEC 2015). Paper # 15232. Arlington, VA: National Training and Simulation Association.

Hoffman, R. R. (2015). Taking "Systems" Seriously: Principles and Measures. In K.P. Kaste (Organizer), Introducing change into complex cognitive work systems. Panel held at the 59th Annual Meeting of the Human Factors and Ergonomics Society. Proceedings of the 59th Annual Meeting of the HFES (pp. 409-412). Santa Monica: HFES.

Zachary, W., Johnson, M., Hoffman, R.R., Thomas, T., Rosoff, A., and Santarelli, T. (2015). A context-based approach to human-robot interaction. *Proceedings of the 6th International Conference on Applied Human Factors and Ergonomics*. [Downloaded 5 August 2015 from ScienceDirect; www.elsevier.com/locate/procedia].

Zachary, W.W., Johnson, M., Thomas, T., Rosoff, L. and Hoffman, R.R. (March, 2015). Cognitively-inspired context models can improve robot and virtual agent interactive behavior. Poster presented at The 2015 International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction (SBP15) held in conjunction with The 24th Conference on Behavior Representation in Modeling and Simulation, Sponsored by the Army Research Office and the National Science Foundation and held at the University of California DC Center, Washington, DC [<http://sbp-conference.org/sbp2015>].

Henderson, S. Hoffman, R.R., Bunch, L., and Bradshaw, J. (2015, June). Applying the principles of magic and the concepts of macrocognition to counter-deception in cyber operations. *Proceedings of the 12th International Meeting on Naturalistic Decision Making*, McLean, VA: MITRE Corp.

Hoffman, R. R., Best, B., and Klein, G. (2015, June). Trust and reliance as emergent phenomena in macrocognitive work: An integrated model. *Proceedings of the 12th International Meeting on Naturalistic Decision Making*, McLean, VA: MITRE Corp.

Zachary, W., Johnson, M., & Hoffman, R.R. (2015, July). A context-based approach to robot-human interaction. Presentation at the Sixth 6th International Conference on Applied Human Factors and Ergonomics (AHFE 2015). Some City: Elsevier Science Direct.

Hoffman, R. R. (2014). Transfer of learning in serious games. In B. Veinott (Chair), Panel on Gaming Technology for Critical Thinking: Engagement, Usability, and Measurement. Proceedings of the 57th Annual Meeting of the Human Factors and Ergonomics Society. Santa Monica, CA: Human Factors and Ergonomics Society.

Hoffman, R.R. (with Bradley Best and Gary Klein) (2014). Trust and Reliance as Emergent Phenomena in Macrocognitive Work: An Integrated Model. Presentation at the Annual Meeting of the Human Factors and Ergonomics Society. Santa Monica, CA: Human Factors and Ergonomics Society.

Moon, B., Hoffman, R.R., Lacroix, M., Fry, E., & Miller, A. (2014). Exploring macrocognitive healthcare work: Discovering seeds for design guidelines for clinical decision support. In T. Ahram, W. Karwowski and T. Marek (Eds.), *Proceedings of the 5th International Conference on Applied Human Factors and Ergonomics (AHFE 2014)* (pp.####-###). Krakow, Poland: Applied Human Factors and Ergonomics International Association.

Carvalho, M., Eskridge, T.C., Bunch, L., Dalton, A., Hoffman, R.R., Bradshaw, J.M., Feltovich, P.J., Kidwell, D., and Shanklin, T. (2013). MTC2: A Command and Control Framework for Moving Target Defense and Cyber Resilience. In *Proceedings of the Sixth International Symposium on Resilient Control Systems (ISRCS)* (pp. 175 - 180). New York: IEEE [DOI: 10.1109/ISRCS.2013.6623772]

Mukomel, A., Gershman, A., MacWhinney, B., Fromm, D. & Hoffman, R. (2013, June). Interpretation of Metaphors in Four Languages: Some Psycholinguistic Experiments. Presentation at the Fifth Interdisciplinary Workshop on Corpus-Based Approaches to Figurative Language: Metaphor and Austerity. Held in conjunction with Corpus Linguistics 2013. Sponsored by the University Centre for Computer Corpus Research on Language, Lancaster University, England. [<http://ucrel.lancs.ac.uk/cl2013/metaphorandausterity.php>]

Carvalho, M., Eskridge, T., Bunch, L., Dalton, A., Hoffman, R.R., Bradshaw, J., Feltovich, P., Kidwell, D. & Shankin, T. (2013, August). MTC2: A Command and Control Framework for Moving Target Defense and Cyber Resilience. The 6th International Symposium on Resilient Control Systems, Sponsored by the IEEE, San Francisco, CA.

Mukomel, H., Fromm, D., MacWhinney, B., Gershman, A., & Hoffman, R.R. (2013). Interpretation of Metaphors in Four Languages: Some Psycholinguistic Experiments. In G. Philip (Ed.), *Proceedings of the Fifth Interdisciplinary Workshop on Corpus-Based Approaches to Figurative Language*. Newcastle Upon Tyne, UK: Cambridge Scholars Publishing.

Heinselman, P., LaDue, D., Kingfield, D., and Hoffman, R.R. (2013). Proficiency scaling of warning forecasters. Presentation at the Eighth Symposium on Policy and Socio-economic Research, 93rd Annual Meeting of the American Meteorological Society (Austin TX). Boston, MA: American Meteorological Society.

Heinselman, P., LaDue, D., Kingfield, D., Hoffman, R., & MacAloney, B.W. (2013). Simulated NWS tornado warning decisions using rapid-scan radar data. Presentation at the 29th Conference on Environmental Information Processing Technologies, 93rd Annual Meeting of the American Meteorological Society (Austin TX). Boston, MA: American Meteorological Society.

Hoffman, R.R. (Chair) (2013). Panel: Approaches to cognitive bias in serious games for critical thinking. In *Proceedings of the Human Factors and Ergonomics Society 56th Annual Meeting* (pp. 272-276). Santa Monica, CA: Human Factors and Ergonomics Society.

Hoffman, R.R. (Chair) (2013). Panel: the origins of cognitive systems engineering: Looking back after 30 years. Presented at the Human Factors and Ergonomics Society 56th Annual Meeting. Santa Monica, CA: Human Factors and Ergonomics Society.

Hoffman, R. R., & McCloskey, M.J. (2013). The macrocognitive decision ladder. In *Proceedings of the Human Factors and Ergonomics Society 57th Annual Meeting* (pp. 245-250). Santa Monica, CA: Human Factors and Ergonomics Society.

Hoffman, R.R. (2011). Range Statistics and the Exact Modeling of Discrete non-Gaussian Distributions of Learnability Data. In "Panel on Rigor or Rigor Mortis in Usability Analysis," R. Bias (Chair). First International Conference on Design, User Experience, and Usability. Theory, Methods, Tools and Practice: DUXU 2011. Held in conjunction with The International Conference on Human-Computer Interaction, Orlando, FL.

Hoffman, R.R. and Woods, D. D. (2011, May). "Simon's slice: Five fundamental tradeoffs that bound the performance of human work systems." Presentation at the 10th International Conference on Naturalistic Decision Making. Orlando, FL.

Hoffman, R. R., Andrews, D., Fiore, S. M., Goldberg, A. Andre, T., Freeman, J., and Klein, G. (2010). "Accelerated learning: Prospects, issues and applications." In *Proceedings of the 54th Annual Meeting of the Human Factors and Ergonomics Society* (pp. 399-402). Santa Monica, CA: Human Factors and Ergonomics Society.

Hoffman, R.R., and Moon, B. (2010). "Knowledge Capture for the Utilities." Proceedings of the 7th Meeting on Conference on Nuclear Plant Instrumentation, Control and Human-Machine Interface Technologies. La Grange, IL: American Nuclear Society.

Schraagen, J. M., van de Ven, J., Hoffman, R. R., and Moon, B. M. (2009, October). Using a knowledge elicitation method to specify the business model of a human factors organization. In *Proceedings of the Annual Meeting of the Human Factors and Ergonomics Society* (pp. 309-313). Santa Monica, CA: Human Factors and Ergonomics Society.

Klein, G., and Hoffman, R. R. (2009, June). "Causal Reasoning: Initial report of a naturalistic study of causal reasoning." Presentation at the 9th International Conference on Naturalistic Decision Making. London, England. Sponsored by Middlesex University and hosted by the British Computer Society.

Hoffman, R. R., Marx, M., McDermott, P., and Amin, R. (2009, October). The metrics problem in the study of cognitive work and a proposal for a family of solutions. In *Proceedings of the Annual Meeting of the Human Factors and Ergonomics Society* (pp. 324-328). Santa Monica, CA: Human Factors and Ergonomics Society.

Hoffman, R. R. (2008). The forgotten history of cognitive task analysis. In *Proceedings of the Human Factors and Ergonomics Society 52nd Annual Meeting*, pp. 383-387.

Hoffman, R. R., Zachary, W., Burns, J., Drillings, M., Hale, C. and Linegang, M. (2008). Human Total Cost of Ownership: Measuring the Impact of Human Factors on System Engineering. In *Proceedings of the Human Factors and Ergonomics Society 52nd Annual Meeting* (pp. 202-205). Santa Monica, CA: Human Factors and ergonomics Society.

Moon, B. M., Hoffman, R. R., Shattuck, L. G., Coffey, J. W., Goodman, P., Linn, R., Lang, J. and Sullivan, M. (2008). Rapid and accurate idea transfer: Evaluating Concept Maps against other formats for the transfer of complex information. In A. Cañas, M. Åhlberg and P. Reiska (Eds.), *Proceedings of the Third International Conference on Concept Mapping* (pp. 86-93). Tallinn University, Helsinki, Finland.

Fowlkes, J. E., Neville, K., Hoffman, R. R. and Zachary, W. (2007). The problem of designing complex systems. In H. R. Arabnia and H. Valafar (Eds.), *Proceedings of the 2007 International Conference on Software Engineering Research and Practice (SERP'07)*. Bogart, GA: Computer Science Research, Education, and Applications (CSREA) Press. [<http://www.world-academy-of-science.org/worldcomp07/ws>]

Kaste, R., Heilman, E., and Hoffman, R. (2007). "Concept Map value propagation for tactical intelligence." In *Proceedings of the 12th International Command and Control Research and Technology Symposium*. (Newport, RI). Washington, DC: Command and Control Research Program, Department of Defense. [http://www.dodccrp.org/html4/events_past.html#2007]

Hoffman, R. R., Feltovich, P. J. and Eccles, D. D. (2007). The cost of knowledge recovery. In *Proceedings of the 51st Annual Meeting of the Human Factors and Ergonomics Society* (pp. 328-332). Santa Monica, CA: Human Factors and Ergonomics Society.

Fowlkes, J., Neville, K., Hoffman, R.R. and Owens, J. (2006). Checks and measures to support design teams in building complex systems. Presentation in the Panel, "Evaluating the Effectiveness of a Joint Cognitive System: Metrics, Techniques, and Frameworks." Human Factors and Ergonomics Society 48th Annual Meeting. Santa Monica, CA: Human Factors and Ergonomics Society.

Eskridge, T., Hayes, P., Hoffman, R. and Warren, M. (2006). Formalizing the informal: A confluence of Concept Mapping and the semantic web. In A. Cañas (Ed.), *Proceedings of the Second International Conference on Concept Mapping* (Vol. 1, pp. 247-254). San Jose, Costa Rica: Universidad de Costa Rica.

Hoffman, R. R., Neville, K. and Fowlkes, J. (2006). Using Concept Maps to integrate results from a cognitive task analysis of system development. In A. Cañas (Ed.), *Proceedings of the Second International Conference on Concept Mapping*, San Jose, Costa Rica.

Moon, B. and Hoffman, R. (2005). How might "transformational" technologies and concepts be barriers to sensemaking in intelligence analysis. Presentation at the Seventh International Conference on Naturalistic Decision Making. Amsterdam, The Netherlands.

Hoffman, R.R. (2005). Making good decisions about decision aiding. Presentation in Panel, "Beyond Requirements: Improving Software Tools for Intelligence Analysts," In *Proceedings of the 49th Annual Meeting of the Human Factors and Ergonomics Society* (pp. 932-935). Santa Monica, CA: Human Factors and Ergonomics Society.

Hoffman, R.R. (2005). Use of Concept Mapping and the Critical Decision Method to Support Human-Centered Computing for the Intelligence Community. Presentation in Panel, "Beyond Requirements: Improving Software Tools for Intelligence Analysts," In *Proceedings of the 49th Annual Meeting of the Human Factors and Ergonomics Society* (pp. 932-935). Santa Monica, CA: Human Factors and Ergonomics Society.

Hoffman, R. R. (2005). Biased About biases: The Theory of the Handicapped Mind in the Psychology of Intelligence Analysis. In the Panel "Designing Support For Intelligence Analysts" (p. 409) (S. Potter, Chair). In *Proceedings of the 48th Annual Meeting of the Human Factors and Ergonomics Society* (pp. 406-410). Santa Monica, CA: Human Factors and Ergonomics Society.

Hoffman, R. R. and Coffey, J. W. (2004). Weather forecasting and the principles of complex cognitive systems. In *Proceedings of the 48th Annual Meeting of the Human Factors and Ergonomics Society* (pp. 315-319). Santa Monica, CA: Human Factors and Ergonomics Society.

Hoffman, R. R., Feltovich, P. J., and Roetzer, L. (2004). The high cost of knowledge recovery. In A. Cañas, J. D. Novak and F. M. González (Eds.), *Proceedings of the First International Conference on Concept Mapping: Concept Maps: Theory, Methodology, Technology* (pp. 341-347). Navarra, Spain: Dirección de Publicaciones de la Universidad Pública de Navarra.

Hoffman, R. R. (2004) "Biased About biases: The Theory of the Handicapped Mind in the Psychology of Intelligence Analysis." *Proceedings of the 48th Annual Meeting of the Human Factors and Ergonomics Society* (pp. 406-410). Santa Monica, CA: Human Factors and Ergonomics Society.

Fiore, S. M. and Hoffman, R. R. (2003, May). "Naturalistic Decision Making and the Practice of Science in National Security Research." Poster presented at the 6th International Conference on Naturalistic Decision Making, Hosted by the University of West Florida, Pensacola FL.

Bradshaw, J., Hoffman, R. et al. (2003). "Living with agents and liking it: Addressing the Technical and Social Acceptability of agent technology." AAAI Technical Report SS-04-04. Menlo Park, CA: Association for the Advancement of Artificial Intelligence.

Coffey, J. W., Cañas, A. J., Novak, J. D., Hoffman, R. R., Carnot, M. J. and Jost, A. (2003, July). "Facilitating the Creation of Graphical Knowledge Representations for Brainstorming and Decision Support." Presentation at the 7th World Multiconference on Systemics, Cybernetics and Informatics (SCI 2003), sponsored by the International Institute of Informatics and Systemics, and held in Orlando, FL.

Eccles, D. W., Feltovich, P. J. and Hoffman, R. R. (2003, April). Modeling Terrain Analysis Expertise to Support Command and Control in the Field. In *Proceedings of the 2003 Collaborative Technology Alliances Symposium*. Sponsored by the Army Research Laboratory and held at the University of Maryland, College Park, MD.

Bradshaw, J. M., Sierhuis, M., Acquisti, A., Feltovich, P., Hoffman, R., Jeffers, R., Suri, N., Uszok, A. and Van Hoof, R. (2003). "Living with agents and liking it: Addressing the technical and social acceptability of agent technology." Presented at the Spring 2003 AAAI Symposium on Human-Agent Interaction in Complex Environments. Menlo Park, CA: AAAI.

Coffey, J. W., Hoffman, R.R., Cañas, A.J. and Ford, K.M. (2002, November). A Concept Map-based knowledge modeling approach to expert knowledge sharing. In *Proceedings of IKS2002 (International Conference on Information and Knowledge Sharing)* (pp. 212 - 217). New York: ACTA Press.

Fiore, S. M., Hoffman, R. R. and Rubenstein, J. (2002, October). "Science Policy and Science Practice in Homeland Security." Poster presented in the Session, "Cognitive Engineering and Decision Making Applied to Homeland Defense." Hosted by the Cognitive Engineering and Decision Making Technical Group and held at the Annual Meeting of the Human Factors and Ergonomics Society, Baltimore, Maryland.

Hoffman, R. R., Coffey, J. W., Carnot, M. J. and Novak, J. D. (2002, September). "An Empirical Comparison of Methods for Eliciting and Modeling Expert Knowledge." In *Proceedings of the 46th Meeting of the Human Factors and Ergonomics Society* (pp. 482-486). Santa Monica, CA: Human Factors and Ergonomics Society.

Hoffman, R. R. (2002, September). "The Relation Among Laws of Cognition, Principles of Work and Tool Design, and Benchmarks for Cognitive Engineering." Presentation in the Panel Session, "GUTs or No

GUTs (Grand Unified Theories): Does/Can/Should Cognitive Engineering Have GUTs?" (David D. Woods, Organizer), 46th Annual Meeting of the Human Factors and Ergonomics Society, Baltimore, MD.

Hoffman, R. R. (May, 2002). "Human-Centered Computing." Presented at the North American Meeting of the International Society for Ecological Psychology, Miami University, Oxford OH.

Hoffman, R. R. (2002). Institutionalizing the field of Expertise Studies and its applications to computer science. In J. Kolen (Ed.), *Proceedings of FLAIRS 2004* (The Florida AI Research Society). Menlo Park, CA: AAAI Press.

Hoffman, R. R., Coffey, J. W., Hayes, P. J., Cañas, A. J., Ford, K. M. and Carnot, M.J. (2002, May). "One small step for a diagram, one giant leap for meaning." In M. Hegarty, B. Meyer, and N. H. Narayanan (Eds.), *Diagrammatic Representation and Inference: Proceedings of Diagrams 2002: The Second International Conference on Theory and Application of Diagrams* (pp. 344-346). Berlin: Springer.

Hoffman, R.R., Coffey, J.W., Ford, K.M. and Carnot, M.J. (2001, October) "STORM-LK: A human-centered knowledge model for weather forecasting." In *Proceedings of the 45th Annual Meeting of the Human Factors and Ergonomics Society* (p. 752). Santa Monica, CA: HFES.

Hoffman, R. R. (2001, April). WorkGroup 2: "Human-Machine Systems Engineering in Safety-Critical Systems." (M. Shafto, Chair). Held at the Human and Organizational Risk Management Workshop, NASA Ames Research Center.

Hoffman, R. R., Coffey, J. W. and Carnot, M. J. (2001, February). "The Cognitive Styles of Expert Weather Forecasters." Paper presented in the symposium on Human Factors Psychology at the annual meeting of the South Eastern Psychological Association, Atlanta, GA.

Hoffman, R. R., Coffey, J. W. and Carnot, M. J. (2000, November). "Is there a "fast track" into the black box?: The Cognitive Modeling Procedure." Poster presented at the 41st Annual Meeting of the Psychonomics Society, New Orleans, LA.

Hoffman, R. R. and Coffey, J. W. (2000). "The cognitive styles of expert weather forecasters." Poster presented at the convention of the American Psychological Society, Miami, FL.

Hoffman, R. R. (1998). "Whom (or what) do you trust: Historical reflections on the psychology and sociology of information technology." In J. M. Flach (Ed.), *Proceedings of the Fourth Annual Symposium on Human Interaction with Complex Systems* (pp. 27-36). Los Alamitos, CA: IEEE Computer Society.

Hoffman, R. R. (March 1998). "Historical reflections on the psychology and sociology of information technology." The Fourth Symposium on Human Interaction With Complex Systems." Wright State University, Dayton OH.

Hoffman, R. R. and Zaslow, G. (May 1992). "Ecological psychology in the service of ecological science: Human factors of remote sensing." Meeting of the International Society for Ecological Psychology, Seton Hall University, South Orange NJ.

Hoffman, R. R. (June 1991). "The cognitive psychology of expertise." Convention of the American Psychological Society, Washington DC.

Conway, J. A., Hoffman, R. R., Cochran, E. and Balzer, R. (May 1984). "Research on perceptual learning and the interpretation of thermograms." Presented at the Meeting of the International Society for Ecological Psychology, Trinity College, Hartford CN.

Conway, J. A., Cochran, E., Skene, H. and Hoffman, R. R. (June 1983). "Perceptual learning and the interpretation of thermograms." Presented at the Conference on the Design and Analysis of Information for Perceiving and Acting, Department of Psychology, Vanderbilt University, Nashville TN.

Hoffman, R. R. and Berg, S. (June 1983). "Perceptual learning of a skill: Hand-whistling." Presented at the Conference on the Design and Analysis of Information for Perceiving and Acting, Department of Psychology, Vanderbilt University, Nashville TN.

Hoffman, R. R. (October 1982). "Perceptual learning and the interpretation of remote sensing computer graphics displays." Presented at the Meeting of the International Society for Ecological Psychology, Trinity College, Hartford CN.

Hoffman, R. R., Fenning, A. and Kaplan, T. (November 1981). "Bizarre imagery and memory: There is an effect." Presented at the Meeting of the Psychonomic Society, Philadelphia PA.

Hoffman, R. R. and Nead, J. M. (August 1981). "Contextualist ontology: A new metaphor for cognitive science." Presented in the Symposium 'Recent Directions in Metaphor Research,' sponsored by the Division of Experimental Psychology and held at the Annual Convention of the APA, Los Angeles CA.

Hoffman, R. R. (August 1977). "Conceptual base hypotheses and the problem of anomalous sentences." Presented in the Symposium 'Recent Research on Metaphor' (W. Kintsch, Chairman), sponsored by the Division of Experimental Psychology and held at the Annual Convention of the APA, San Francisco CA.

Hoffman, R. R. and Senter, R. J. (August 1977). "Mnemonics and the cognitive revolution." Presented in the Symposium, 'History of Psychology' (R. I. Watson, Chairman), held at the Annual Convention of the APA, San Francisco CA.

Riechmann, P., Honeck, R. P. and Hoffman, R. R. (1974). "Retention of metaphor: The role of interpretation and prompt type." Presented at the Convention of the Southern Society for Philosophy and Psychology, Tampa, FL.

Hoffman, R. R. (1972). "The homeostatic model: A logical analysis." Presented at the Psi Chi Session of the Convention of the Midwestern Psychological Association, Chicago IL.

Hoffman, R. R. and Senter, R. J. (1971). "The learning of paired-associates by approximations to a bizarre imagery technique." Presented at the Convention of the Southern Society for Philosophy and Psychology, Athens GA.

INVITED COLLOQUIA, SEMINARS, AND PUBLIC LECTURES

"Myths of Automation and Explainable AI." Invited talk, Intelligent Systems and Robotics Program, University of West Florida, April 2020.

"Extending and Integrating Macrocognition Models and Concepts." Invited colloquium, Department of Psychology. University of Florida, Gainesville, FL. October 2019

“IHMC Knowledge Modeling and Robotics Related Technologies for Space Exploration,” Invited lecture to the Northwest Florida Chapter of the IEEE, March, 2016.

“Human Factors and Usability Analysis.” Invited presentation, School of Information, University of Texas-Austin. October 2017.

Panelist, “Local Employer and Alumni Panel,” held at the University of West Florida Student Scholars Symposium, April, 2016.

“Tutorial on Concept Mapping.” Presentation to the Human-Systems Integration Program, Naval Postgraduate School, Monterey, CA, March 2016.

"Naturalistic Investigations and Models of Reasoning about Complex Indeterminate Causation." Invited Seminar at Charles River Analytics, Inc., Cambridge, MA, July 2015.

"Expertise and Knowledge Elicitation." Invited presentation to The Department of Information Systems, Universidad EAFIT, Medellin, Colombia. March, 2013

"Military Psychology Applications of Experimental Psychology." Invited talk at the Human Factors course, Dr. S. Kass Instructor, University of West Florida. March, 2012.

"Reinventing Statistics to Address the Problems of our Age." Invited colloquium, Department of Cognitive and Learning Sciences, in Michigan Technological University, Houghton, MI. November, 2011.

"When Wisdom Walks out the Door." Presentation to the Leisure Learning Society, Sponsored by the Office of University-Community Partnerships, University of West Florida. November, 2011.

"Measurement and Metrics for Evaluating Performance, Software Learnability, and the Resilience of Methods of Cognitive Work." (June 2010). Invited presentation at Aptima, Inc, Cambridge MA.

“Is the path now clear to a theory of macrocognitive work systems?” (December 2009). Invited Presentation, Department of Psychology, Wright State University, Dayton, OH.

“Recent Research and Development Efforts in Human-Centered Computing at the Institute for Human and Machine Cognition” (June 2008). Invited Presentation at TNO Human Factors, Soesterberg, The Netherlands.

"Concept Mapping Applications in Expertise Studies and Cognitive Systems Engineering" (April 2007). Invited Colloquium at the Center for Decision Making and Cognition, Arizona State University, Phoenix AZ.

"Historical Relations of Psychology and Astronomy" (April 2007). Invited Presentation to the Honors Seminar, Pres. Morris Marx, Instructor, University of West Florida, Pensacola FL

"Macrocognition and Metrics for Advanced Decision Architectures" (April 2007). Colloquium at the Applied Psychology Unit, Arizona State University Polytechnic, Tempe, AZ.

"Macrocognition" (January 2007). Presented at the CKI Workshop (Collaboration and Knowledge Interoperability). Sponsored by the Office of Naval Research. Orlando, FL.

"Toward a Metatheory for the Theory of Complex and Cognitive Systems" (May, 2006). Invited Colloquium, Department of Psychology, University of Cincinnati, Cincinnati, OH

"The Theory of Complex and Cognitive Systems" (April 2006). Invited Talk, Psi Chi Annual Meeting, University of West Florida, Pensacola, FL

"Concept Maps: Foundations and Applications" (2006, April), Invited Talk, Office of the Vice Provost for Faculty Development, University of Cincinnati.

"Workforce Development" (2006, April). Invited Talk, Showcase 2006: Creativity, Innovation and Imagination, University of Cincinnati, Sponsored by the Office of Entrepreneurial Affairs.

"Human-Centered Computing: Complex Cognitive Systems for Coping with Global Terrorism." Presentation to the Strategic Studies Group, Naval War College, Newport, RI. December 2004.

"Knowledge Modeling." Presentation to the Seminar on Judgment and Decision Making, Department of Psychology, University of West Florida, Pensacola FL November 2004.

"Theoretical Issues in the Design of Complex Cognitive Systems." Invited presentation, Klein Associates, Inc., Fairborn OH. May 2004.

"Models of Procurement: Handcuffs on the Design of Complex Cognitive Systems." Invited presentation, Cognitive Systems Engineering Lab, Ohio State University, Columbus OH May 2004.

"Toward a Metatheory for the Theory of Complex Cognitive Systems." Invited colloquium, Department of Psychology, New Mexico State University, Las Cruces NM. April 2004.

"Can Cognitive Engineering Contribute to Environmental Forecasting?" (with D. Serfaty and J. MacMillan). Seminar presented at the Office of Hydrologic Development, National Weather Service, National Oceanic and Atmospheric Administration. Silver Spring MD. April 2004.

"Toward a Metatheory for the Theory of Complex Cognitive Systems." Invited presentation at Chi Systems, Inc., Orlando FL. April 2004.

"Toward a Metatheory for the Theory of Complex Cognitive Systems." Invited seminar, Naval Research Laboratory, Washington DC. April 2004.

"Eliciting, Preserving, and Sharing the knowledge and skills of experts." Invited presentation at the Seminar on Knowledge Management, Joint Warfare Analysis Center, Dahlgren, VA. April, 2004.

"Varieties of knowledge elicitation experiences: A knowledge engineer's perspective" (with J. W. Coffey). Presentation in the Seminar on Expertise (N. Charness, Instructor), Department of Psychology, Florida State University, Tallahassee, FL. March 2004.

"Origins of Psychology in the History of Astronomy." Invited Lecture to the Senior Seminar, President Morris Marx (Instructor), University of West Florida, Pensacola FL. February 2004.

"Human-Centered Computing: Implications for the Design and Procurement of Complex Cognitive Systems" Presentation to the Strategic Studies Group, Naval War College, Newport, RI. November, 2003.

Presentation at the US Air Force Cognitive Systems Engineering Seminar, Sponsored by the Decision Sciences Work Group, USAF Research Lab, Rome, NY. "Overview of Methods and Tools." August, 2003.

Presentation to the Escambia County Youth Leadership Summit, Pensacola, FL. "About the IHMC." July 2003.

Brown Bag Presentation at Aptima, Inc, Woburn, MA. "An Empirical Comparison Of Methods For Eliciting And Modeling Expert Knowledge." June 2003.

Presentation to the Leisure Learning Society, Sponsored by the Office of University-Community Partnerships, University of West Florida. "When Expertise Walks Out the Door." February, 2003.

Medin Lecture presented at the Institute for Simulation and Training and the Department of Psychology, University of Central Florida. "Human Centered Computing: A View from the Emerald Coast." December, 2002.

School of Electrical Engineering and Computer Science, Tulane University. "Human-Centered Computing: A View from the Emerald Coast." March 2002.

Department of Psychology, Florida State University. "The cognitive styles of expert weather forecasters." October 1999.

Information Technology Division, Ames Research Center. A Seminar in the "New Technology" Series, titled, "Cognitive task analysis and knowledge acquisition methodology for supporting the design of cognition-friendly complex information processing systems." June 1998.

Department of Psychology, Mississippi State University. "The sky's (not the) the limit: Applied cognitive psychology and environmental science." Spring 1996.

New York City/Long Island Chapter, American Meteorological Society. "Forecasting operations at the Meteorological Office of the United Kingdom." Fall, 1995.

Offshore Management Center, Robert Gordon University, Aberdeen, Scotland. "Expertise." July 1995.

School of Social Sciences, University of Bath, England. "Expertise and perceptual skill." July 1995.

MRC Applied Psychology Unit, Cambridge, England. "Expert and novice interpretation of aerial thermograms." June 1995.

Defense Research Agency, Ministry of Defense, United Kingdom. "Naturalistic decision making, the Critical Decision Method, and the Recognition-Priming model in the investigation of military proficiency." May 1995.

Division of Cognitive and Instructional Science, Educational Testing Service, Princeton NJ. "Methods for eliciting the knowledge of experts." February 1993.

Department of Artificial Intelligence, University of Edinburgh, Scotland. "Knowledge acquisition for expert systems." November 1992.

National Environmental Satellite Data and Information Center, Camp Springs MD. "Research on the perception of meteorological satellite images." June 1991.

School of Management, Syracuse University. "The cognition of experts." March 1991.

Graduate School of Education, Fordham University. "Expertise in remote sensing." October 1990.

Department of Psychology, Pennsylvania State University, Hazleton PA. "Human factors in remote sensing." October 1990.

Department of Psychology, University of Toronto, Toronto Ontario. "Expertise in remote sensing." March 1990.

Departments of Computer Science and Psychology, Trent University, Peterborough Ontario. "Human factors in remote sensing: A case study in applied psychology." March 1990.

IBM Technical Education Center, Thornwood NY. "Psychological factors in knowledge elicitation." June 1990.

Adelphi University. The 1989 Provost's Colloquium. "The psychology of expert knowledge." April 1989.

IBM Technical Education Center, Thornwood NY. "Methods for extracting the knowledge of experts." November 1989.

Department of Computer Science, University of Guelph, Ontario. "Expert knowledge in remote sensing." September 1988.

Department of Psychology, University of Guelph, Guelph Ontario. "On the meanings of 'literal'." September 1988.

Department of Psychology, University of Western Ontario, London Ontario. "Perceptual learning and the interpretation of remote sensing imagery." April 1988.

Department of Psychology, University of North Carolina, Greensboro NC. "Perceptual learning and the interpretation of remote sensing imagery." November 1987.

GTE Laboratories, Waltham MA. "Methods for extracting the knowledge of experts." July 1987.

Computing Research Laboratory, New Mexico State University, Las Cruces NM. "Extracting the knowledge of experts." November 1986.

Department of Computer Science, University of New Hampshire, Durham NH. "Metaphors in artificial intelligence." April 1985.

Department of Psychology, State University of New York-Stony Brook. "Experimental psychology goes into space: Human factors and remote sensing." April 1984.

Department of Educational Psychology, New York University. "Recent research on metaphor." June 1984.

Department of Psychology, Pennsylvania State University, University Park PA. "Recent research on metaphor." February 1983.

Division of Life Sciences, University of Toronto, West Hill Ontario. "What are reaction-time studies telling us about metaphor?" February 1983.

United Nations Linguistics Club, New York. "Metaphor: Important new research." November 1982.

Department of Psychology, Wheaton College, Norton MA. The Andrew W. Mellon Lecture, "The contextualist or ecological approach in cognitive psychology." November 1982.

IBM Systems Research Institute, New York, Workshop on Semantics and The Representation of Knowledge. "Metaphor and scientific problem solving." March 1982.

Department of Psychology, University of Kentucky, Lexington KY. "Recent research on metaphor." November 1981.

Department of Psychology, Nason College, Springvale ME. "Ecological psychology." December 1981.

REVIEWING SERVICE

Reviewer for:

AI Applications in Natural Resource Management
AI in Medicine
Animal Cognition
Annals of Emergency Medicine
Applied Cognitive Psychology
Applied Ergonomics
Applied Research in Memory and Cognition
Artificial Intelligence
Association for Psychological Science Observer
Behavior Research Methods
Bulletin of the American Meteorological Association
Cognition, Technology and Work
Cognitive Engineering and Decision Making
Cognitive Systems Research
Current Directions in Psychological Science
Developmental Psychology
Ergonomics
HCI - AERO
Human Factors
IEEE Expert
IEEE Intelligent Systems
IEEE: Transactions on Systems, Man and Cybernetics
Instructional Science
International Journal of Disaster Risk Reduction
International Journal of Expert Systems
International Journal of Human-Computer Studies
International Journal of Human-Computer Interaction
Technology Studies
Journal of Applied Ergonomics

Journal of Behavioral Decision Making
Journal of Experimental Psychology: Applied
Journal of Experimental Psychology: Learning, Memory and Cognition
Journal of Experimental Child Psychology
Journal of Expertise
Journal of Occupational and Organizational Psychology
Journal of Operational Meteorology
Knowledge Management and e-Learning
Learning and Instruction
Memory
Perceptual and Motor Skills
Psychological Bulletin
Psychological Reports
Psychological Review
Psychonomic Bulletin and Review
Teaching and Learning in Medicine
Theoretical Issues in Ergonomic Science
Thinking and Reasoning
Computers and Geoscience
Weather and Forecasting
Weather, Climate, and Society

Consulting reviewer for the following publishers:

Harcourt Brace Jovanovich; Harper and Row; Holt, Rinehart, and Winston; Houghton-Mifflin; McGraw-Hill; The MIT Press; West Educational Publishers; John Wiley and Sons; D.C. Heath; Taylor & Francis.

SERVICE TO PROFESSIONAL ORGANIZATIONS

Advisor to the Color Standards Subcommittee of the Committee on Interactive Information Processing Systems for Meteorology, Oceanography, and Hydrology, American Meteorological Society (1992-1993).

Vice-Chairman, Committee on Knowledge-based systems, American Society for Photogrammetry and Remote Sensing (1989 - 1990).

Secretary, Adelphi University Chapter, Sigma Xi (1986-1990).

ORGANIZING OF CONFERENCES

Member, Program Committee, and Co-organizer, "2015 International Conference on Naturalistic Decision Making." McLean, VA, May, 2015.

Member, Program Committee, "Eighth International Conference on Naturalistic Decision Making." Monterey, CA, May, 2007.

Co-Organizer, "Workshop on Merging Cognitive Systems Engineering into Systems Engineering: Implications for Large-Scale Information Systems Procurement," Co-organized with CHI Systems, Inc., on the Contract. "Joint Systems Engineering Methodology," from the US Air Force Research Laboratory. Pensacola Beach FL, Fall 2007.

Member, Program Committee, "Third International Conference on Human Centered Processes." Vilnius, Lithuania.

Organizer (with G. Klein and E. Salas), "NDM6: The Sixth International Conference on Naturalistic Decision Making." Held at Pensacola Beach, FL, Spring 2002.

Organizer (With Michael Sherrick of Memorial University and Joel Warm of the University of Cincinnati), "Psychology Beyond the Threshold". Held at the University of Cincinnati, Spring 1996.

Organizer, "Conference on Expert Systems and the Psychology of Expertise," the 7th Annual Adelphi Conference on Applied Experimental Psychology, May 1989.

Organizer (with David Palermo of the Pennsylvania State University and Dean Wallace Russell of the University of South Florida), "Speaking, Reading, Thinking, and Development: A Conference on the Accomplishments and Goals of Modern Research." Held at the University of South Florida, Tampa FL, January 1987.

Organizer (with D. Gorfein), "One-hundred Years of Memory: The Ebbinghaus Centennial Conference," Adelphi University, April 1985.

Organizer (with D. Gorfein), "The Annual Adelphi University Conferences on Applied Experimental Psychology," 1982-1988.

ORGANIZING OF SYMPOSIA and CONFERENCE PANELS

Panel Chair (D.D. Woods, co-organizer), "The Origins of Cognitive Systems Engineering: Looking Back after 30 Years." Held at the annual meeting of the Human Factors and Ergonomics Society, Boston, MA, October 2012.

Panel Chair and Organizer, "Trust In Computers And Robots: The Uses And Boundaries Of The Analogy To Interpersonal Trust." Held at the annual meeting of the Human Factors and Ergonomics Society, Boston, MA, October 2012.

Panel Chair and Organizer, "Trust In Computers And Robots: The Uses And Boundaries Of The Analogy To Interpersonal Trust." Held at the annual meeting of the Human Factors and Ergonomics Society, Boston, MA, October 2012.

Organizer and Chairman, "The Expertise Bend." A Workshop held in conjunction with "Flairs 2002: The Florida AI Research Society," Pensacola Beach, FL. May 2002.

Organizer and Chairman, "Symposium: Recent Research on Metaphor," sponsored by the Division of Experimental Psychology and held at the Annual Convention of the APA, August 1983.

Organizer, "Symposium: Topic-vehicle Relations in Metaphor Comprehension," sponsored by the Division of Experimental Psychology and held at the Annual Convention of the APA, August 1982.

Organizer (with B. Chandrasekaran, Department of Computer Science, Ohio State University), "Symposium: Metaphor, Analogy, and Scientific Problem Solving," sponsored by the Systems, Man, and

Cybernetics Society and held at the Annual Convention of the Institute of Electrical and Electronics Engineers, October 1982.

Organizer, "Symposium: Recent Directions in Metaphor Research" sponsored by the Division of Experimental Psychology and held at the Annual Convention of the APA, August 1983.

Organizer and Chairman, "Symposium: Metaphor as Knowledge," sponsored by the Division of Experimental Psychology and held at the Annual Convention of the APA, August 1980.

Organizer, "Symposium: Metaphor as Process," sponsored by the Division of Experimental Psychology and held at the Annual Convention of the APA, August 1980.

Organizer, "Symposium: Metaphor Comprehension by Children," sponsored by the Division of Developmental Psychology and the Division of Experimental Psychology and held at the Annual Convention of the APA, August 1979.

Organizer and Chairman, "Symposium: Metaphor and Image: Recent Psycholinguistic Research," sponsored by the Division of Experimental Psychology and held at the Annual Convention of the APA, August 1978.

Organizer, "Symposium: Recent Psycholinguistic Research With Metaphors," sponsored by the Division of Experimental Psychology and held at the Annual Convention of the American Psychological Association, August 1977.

CONTRIBUTIONS AT IHMC

Chairman, IHMC Institutional Review Board, 2005 - 2019

CONTRIBUTIONS AT THE UNIVERSITY OF WEST FLORIDA

Mentor to Undergraduate Students, University of West Florida Anchor Down Mentoring Program, 2018.
Member, Associate Vice President for Research/Dean of Graduate Studies Search Committee, 2004-2005.
Member, Provost Search Committee, 2002- 2004.
Member, Department of Psychology Department Chair Search Committee, 2000.

PUBLIC SERVICE

Ambassador to the Santa Rosa County District Schools STEAM Program (Science, Technology, Engineering, Arts, and Mathematics) (2016 –

Judge for the 57th Annual West Panhandle Regional Science and Engineering Fair, Hosted at the University of West Florida, Pensacola, FL (March 2012).

Member, Pace Area Plan Land Use Workgroup, "Pace Area Plan Implementation Report: Future Land Use." Santa Rosa County, FL. 2007.

Member, Information Technology Advisory Council, Escambia County School District, Escambia County, FL (2006 -)

Gratis Consultant to the 450th Anniversary of the Founding of Pensacola Celebration Committee. "Concept Mapping the History of Pensacola." (Fall, 2007 -).

CONTRIBUTIONS AT ADELPHI UNIVERSITY

Principal Author:

Grant Writing Handbook, 1998.

Manual of Policies and Procedures (DRAFT), The University Committee on Human Participation in Research, 1998.

Proposed Adelphi University Policy on Sponsored Projects and Scholarly Development, 1986, 1992, 1997.

Proposal for An Adelphi University Research Institute, 1991.

Proposal for a Program in Cognitive Science, 1991.

Department of Psychology Self-Study, New York State Review of Graduate Psychology Programs, 1986.

Handbook for Psychology Majors, 1983, 1984, 1988, 1991.

Handbook for Psychology Graduate Students, 1984, 1987.

Chair, University Committee on Human Participation in Research, 1998 - the present.

Chair, Faculty Senate Committee on Sponsored Projects and Scholarly Development, 1983-1999.

Chair, Department of Psychology Committee on Human Participation in Research, 1983-1999

Member, Committee on the Environmental Science Program, 1990 –1999.

Advisor, Psi Chi, 1981 to 1983; 1990-1999.

Member, University Committee on Educational Strategy, Quality Instruction, and Career Preparation, 1996-1997.

Member, Ad Hoc Committee on Retention, 1996.

Member, Faculty Senate, 1988 to 1991, 1995.

Advisor, Psychology Club, 1983 - 1995.

Member, University Grants Committee, 1992-1993.

Advisor, Adelphi Science Fiction Society, 1983 to 1991.

Member, University Admissions Committee, 1989 to 1991.

Member, University Council, 1983 - 1986.

TEACHING EXPERIENCE AND CURRICULUM DEVELOPMENT

University of West Florida (1999- the present)	
<u>Graduate Level</u>	<u>Undergraduate Level</u>
Cognitive Psychology History of Psychology	History of Psychology
Adelphi University (1980-1999)	
<u>Graduate Level</u>	<u>Undergraduate Level</u>
Scientific Methods History of Psychology Research Seminar* Seminar: Cognitive Psychology Seminar: Theories of Human Nature* Seminar: Philosophy of Science Seminar: Experimental Design* Seminar: Ecological Psychology* Remote Sensing*	General Psychology Developmental Psychology Introduction to Psychology Laboratory History of Psychology Cognitive Psychology Cognitive Psychology Laboratory Experimental Methods Psychology of Consciousness* Psycholinguistics* Practicum in Experimental Psychology* Remote Sensing*
University of Minnesota (1978 - 1980)	
<u>Graduate Level</u>	<u>Undergraduate Level</u>
Seminar: William James* Seminar: Contextualism*	History of Psychology*
Massachusetts State College (1976-1978)	
General Psychology Cognitive Psychology* History of Psychology	Child Psychology Psychology of Adolescence Research Methods
University of Cincinnati (1968-1974)	
Classroom Applications of Mnemonic Techniques* Practicum in Thinking and Problem Solving (Teacher's Assistant) Honors Experimental Psychology (Teacher's Assistant)	
NOTE: Courses noted with an asterisk were designed, proposed, and instituted by R. Hoffman.	

Through the 1990s, as my research took a more applied focus, I began to offer workshops to professionals. In the first of these I was Co-Instructor of a Short Course on Human Factors Applied to Graphical Interface Design. This course was presented at the 77th Annual Meeting of the American Meteorological Association in February 1997. Since joining the IHMC in 1999 I have taught occasionally for the Department of Psychology at the University of West Florida. However, my "teaching" has primarily taken the form of providing training workshops in cognitive task analysis (CTA) and knowledge elicitation methodology to professionals in various sectors of the

economy. Many of these have been for workers in the electric utilities, but CTA workshops have also been provided to diverse groups including human factors researchers at TNO (The Netherlands), nursing professionals, various groups in the Department of Defense, and human resources personnel in major corporations.

