

---

**DAVID B. KABER, Ph.D., CHFP**

Distinguished Professor and Director of the Occupational and Safety & Ergonomics Program  
Edward P. Fitts Department of Industrial & Systems Engineering  
North Carolina State University (NCSU)  
Raleigh, North Carolina 27695-7906  
Tel.: (919) 515-0312, FAX: (919) 515-5281, E-mail: dbkaber@eos.ncsu.edu

---

**EDUCATION:**

**Ph.D. Industrial Engineering.** Texas Tech University (TTU), Lubbock, TX, *August 1996*.

Major Area of Specialization: Human Factors Engineering/Cognitive Ergonomics.

Dissertation: The Effects of Level of Automation and Adaptive Automation on Human Performance in Multitask Environments.

**M.S. Industrial Engineering.** University of Central Florida (UCF), Orlando, FL, *May 1993*.

Major Area of Specialization: Ergonomics.

Thesis: Human Performance of Overhead Work: Design and Experimental Analysis.

**B.S. Industrial Engineering.** UCF, Orlando, FL, *August 1991*.

**REGISTRATION:**

Associate Safety Professional (ASP), Board of Certified Safety Professionals – Certificate No. ASP-23763 (6/1/15)

Certified Human Factors Professional (CHFP), Board of Certified Professional Ergonomists – Certificate No. 1386 (6/7/06).

Engineer Intern, State of Florida - Registration No. 1091ET247.

**WORK EXPERIENCE:**

*March 2015-Present.*

**Distinguished Professor.** NCSU, Edward P. Fitts Department of Industrial & Systems Engineering, Raleigh, North Carolina.

*August 2014-Present.*

**Director of Research.** NCSU, The Ergonomics Center of North Carolina, Raleigh, North Carolina.

*May 2011-Present.*

**Visiting Professor.** Khon Kaen University (KKU), Faculty of Associated Medical Sciences, Khon Kaen, Thailand.

*October 2010-Present.*

**Associate Faculty.** NCSU, Department of Biomedical Engineering, Raleigh, North Carolina.

*January 2010-Present.*

**Graduate Faculty.** NCSU, Department of Psychology, Raleigh, North Carolina.

*August 2007-March 2015.*

**Professor.** NCSU, Edward P. Fitts Department of Industrial & Systems Engineering, Raleigh, North Carolina.

*August 2004-Present.*

**Visiting Professor.** University of Rostock (URO), College of Engineering, Institute for Automation, Rostock, Germany.

*August 2003-January 2010.*

**Associate Faculty.** NCSU, Department of Psychology, Raleigh, North Carolina.

*August 2002-August 2007.*

**Associate Professor.** NCSU, Edward P. Fitts Department of Industrial & Systems Engineering, Raleigh, North Carolina.

---

<i>August 2000-August 2002.</i>	<b>Assistant Professor.</b> <u>NCSU</u> , Department of Industrial Engineering, Raleigh, North Carolina.
<i>July 1996-August 2000.</i>	<b>Assistant Professor.</b> <u>Mississippi State University (MSU)</u> , Department of Industrial Engineering, Mississippi State, Mississippi.
<i>August 1994-June 1996.</i>	<b>Research Assistant.</b> <u>TTU</u> , Department of Industrial Engineering, Lubbock, Texas.
<i>May 1994-December</i>	<b>Instructor.</b> <u>Amarillo College</u> , Amarillo, Texas.
<i>August 1991-May 1993.</i>	<b>Research Assistant.</b> <u>UCF/NASA</u> , Orlando, Florida.

**RESEARCH EXPERIENCE (descriptions of some projects also listed in Grants section):**

**National Institute for Occupational Safety & Health (NIOSH), Education and Research Centers program (conducted at NCSU, Raleigh, NC). *July 2012-June 2017.***

Five-year grant for training graduate engineering students in occupational safety and ergonomics. Provides support for 3-5 masters and/or PhD students to take courses in areas of occupational biomechanics, human factors in systems design, human information processing and occupational and systems safety. Also provides support for student preparation of theses and dissertations based on studies through Ergonomics Lab.

**NC Department of Transportation (DOT), Traffic Mobility and Safety Branch (conducted at NCSU, Raleigh, NC). *July 2012-September 2013.***

Driving simulator study of driver visual behavior and performance in use of conventional destination guide signs and specific service (business) logo signs. Test conditions included driving while using a navigation aid for route planning. Drivers were exposed to normal freeway driving and hazard conditions, including construction zone navigation. Results are to be used by the DOT for decision making regarding logo sign content.

**Federal Highway Administration (in progress at NCSU). *October 2010-November 2014.***

Four-year research project involving field evaluation of safety of double-crossover diamond interchanges. One aspect of project is focused on recognition, evaluation and control of human factors issues in driver and pedestrian negotiation of interchanges. Specific problems to be addressed include driver and pedestrian attention to traffic flows and novel alerting mechanisms.

**National Science Foundation (NSF), Human-Centered Computing Research Award – Information & Intelligent Systems Division (in progress at NCSU and Duke University Medical Center, NC). *July 2009-April 2014.***

Four-year research program aimed at designing virtual reality-based simulations integrating haptic control devices for motor rehabilitation and fine motor skill training. Collaboration with Duke University and Durham Veterans Administration Medical Center to prototype computer-based systems using novel hardware and software technologies to assess motor capabilities of veterans suffering from minor traumatic brain injuries, and to support design of advanced therapy regimens for skill recovery. Prototypes included haptic controls allowing precision and power grip. Motor-task simulation software provided passive, resistive and assistive modes of skill development. Impact of technologies on human capability was assessed using neuropsychological tests and electromyography.

**NC DOT, Traffic Mobility and Safety Branch (conducted at NCSU, Raleigh, NC). *June 2010-April 2011.***

---

Comparison of highway logo signs, including nine-panel, overflow mixed-use signs and six-panel logo, in terms of driver visual distraction and performance using interactive driving simulation. Eye tracking system used with simulator to determine driver glance frequency and dwell time for each sign type. Performance impacts of nine-panel logo signs were measured for comparison with conventional six-panel signs. Results to be used as basis for DOT decision making on implementation of nine-panel logo signs at major interchanges throughout State.

**NASA, Langley Research Center - Aviation Safety Program (conducted at NCSU, Raleigh, NC).** *October 2006-September 2009.*

Three-year research project aimed at defining objective measure of aviation display clutter and assessing relationship with pilot performance. First phase of research defined physical dimensionality of clutter in visual displays and determined associated perceptual dimensions of clutter for aviation display users. Multi-dimensional scaling methodology was used in second phase to define model of clutter. Third phase established threshold values for perceptual dimensions of clutter leading to degradations in performance. NASA and avionics manufacturers may ultimately use threshold values for decisions regarding designs of new synthetic vision displays for pilots.

**NSF, Information Technology Research Award - Human-computer Interaction Program/Office of International Science and Engineering (conducted at NCSU, Raleigh, NC).** *October 2004-September 2007.*

Three-year research program to design and investigate intelligent and adaptive human-machine interfaces and automated control technologies for supporting supervisory controllers in biochemical screening (testing) towards development of new drug components. Project involved collaborative research with URO Center for Life Sciences Automation. Major steps of research included: (1) cognitive task analysis of screening operations with biochemists; (2) cognitive modeling of supervisory controller behavior; (3) process interface prototyping and usability evaluation; (4) development of remote process control applications (middleware) and approaches to assessing operator functional states during screening operations; and (5) development of a user interface management system for adaptation of interface content during actual chemical screening operations.

**ONR, Basic Research Grant - Human-Machine Systems Program (#342) (conducted at NCSU, Raleigh, NC).** *February 2001-December 2001.*

Research project to determine effectiveness of sensory cueing of automation-state changes in complex teleoperation system control on human performance. Study assessed effects of shifts in level of complex system automation (e.g., manual control versus supervisory control) on operator situation awareness and performance. Work specifically examined symbolic visual cues, complex auditory cues (earcons) and bimodal cues of system state changes. Major steps of project included: (1) enhancing existing virtual reality simulation of remote-control of robotic rover for land mine disposal; and (2) experiment for systematic assessment of dynamic changes in state of robot automation on control performance and SA, as well as identification of superior modal and bimodal cues on changes.

**NASA, Langley Research Center, Cooperative Agreement – Crew/Vehicle Integration Branch, Psychological/Physiological Stressors & Factors program (conducted at NCSU, Raleigh, NC).** *January 2001-May 2005.*

Four-year research program to study implications of adaptive automation in air traffic control on human performance, situation awareness and workload. First year involved evaluation of automation of information acquisition and analysis, decision-making and response execution aspects of air traffic

---

control. Results demonstrated adaptive automation of functions could be used effectively, in comparison to static automation, to manage controller workload. Second year involved assessment of various levels of computer authority in facilitating dynamic allocations of air traffic control information processing functions between human operators and machine systems. Third year of project involved exploring controller situation awareness a basis for describing implications of adaptive automation in complex systems control. Fourth year project involved use of neural networks for classification of operator functional states (workload and performance levels) during air traffic control simulation based on physiological measures. Networks were designed to predict most appropriate form of automation.

**NASA, Langley Research Center, New NASA Research Cooperative Agreement – Crew/Vehicle Integration Branch (conducted at MSU and NCSU). *January 1999-December 2001.***

Three-year research program involving study of modes of pilot-automation interaction in McDonald Douglas MD-11 aircraft. Research categorized 17 modes of MD-11 automation according to a theoretical taxonomy of levels of automation. Low-fidelity virtual environment simulation of MD-11 cockpit was developed and used as a test-bed for human factors experiments describing effects of various modes of MD-11 automation on pilot performance, situation awareness and workload. Research validated new measure of commercial pilot situation awareness.

**NSF, Faculty Early CAREER Development Award – Human Computer Interaction Program (conducted at MSU and NCSU). *May 1998-August 2003.***

Five-year research program involving study of telepresence, “sense of being present at a remote worksite,” in context of human control of teleoperated robots. Experiments were conducted to assess effect of technological and psychological factors on presence with virtual environments/virtual interfaces including: display and hand-control configuration; time lags and spatial-positioning disturbances in teleoperation; user training and expertise; and task difficulty and importance. Model of telepresence was developed in factors affecting incidence and strength of qualitative and quantitative telepresence measured through presence questionnaires and signal detection measures. Model was applied to different teleoperator setups and design guidelines formulated for virtual interface design promoting telepresence. Model was also used to describe the telepresence effect on teleoperator performance.

**MSU Office of Research, Research Initiation Program Grant (conducted at MSU, Mississippi State, MS). *January 1998-December 1999.***

Investigation of effect of visual display type, navigational aid and user spatial abilities on navigation training in virtual environment. Compared effect of immersive VR displays with conventional monitor, and a virtual map with written directions on presence and performance of users (with low and high spatial abilities) in simulated robotic rover navigation.

**GRANTS AND CONTRACTS:**

**Awarded.**

**(Basic Research: \$6,529,801)**

“Evaluation of Attentional Demands of Specific Service Signs and Driver Performance Under Freeway and Ramp Conditions.” NC Department of Transportation, Principal Investigator (PI), \$173,006, 2015-2016.

“Driver Behavior in Complex Navigation and Hazard Negotiation Under Distraction.” NC Department of Transportation, Principal Investigator (PI), \$133,517, 2012-2013.

- 
- “Field Evaluation of Double Crossover Diamond Interchanges.” Federal Highway Administration, co-PI (with Hummer & Roupail), \$721,098, 2010-2014.
- “Driving Simulation of Nine-Panel Logo Signs.” NC Department of Transportation, PI, \$33,190, 2010.
- “Testing and Validation of A Psychophysically Defined Metric of Display Clutter (Travel Augmentation).” NASA Integrated, Intelligent Flight Deck Technologies Program, PI, \$7300, 2006-2009.
- “HCC-Medium: Haptic Simulation Design for Motor Rehabilitation and Fine Motor Skill Training.” NSF Human-Centered Computing Thrust Area, PI, \$654,373, 2009-2012.
- “ACM-DAS: Advanced Computational Models for the Design of Automated Systems.” NASA Aviation Safety Program, Subcontractor to Aptima Corp., \$165,602, 2007-2008.
- “Testing and Validation of a Psychophysically Defined Metric of Display Clutter,” NASA Aviation Safety Program, PI, \$386,500, 2006-2009.
- “A Multidimensional Scaling Analysis of Display Clutter and Development of a Clutter Measure,” NASA Langley Research Center, Human Measures & Performance Element, Airspace Systems, PI, \$70,000, 2006.
- “Investigation of Manual Control Performance Deficits in Adaptive Automation and a Cognitive Modeling Explanation,” NASA Langley Research Center, Human Measures & Performance Element, Airspace Systems, PI, \$37,810, 2005-2006.
- “Embedded Real-time Advisory System for Crew-Automation Reliability (ERTAS) Test-bed Evaluation,” NASA Langley Research Center, Human Measures & Performance Element, Airspace Systems, PI, \$22,500, 2005-2006.
- “PhysioErgonomisch Optimierte (PEO) Mensch-Maschine Interfaces und Datenschnittstellen in der Life Science Automation,” State Mecklenburg-Vorpommern (M-V) (Germany) Research Program, co-PI (with R. Stoll & K. Thurow), 637.800€ (~\$800K at time of award), 2005-2008.
- “Intelligent Human-Machine Interface & Control for Highly Automated Chemical Screening Processes,” NSF, ITR Program, PI, \$798,132, 2004-2007.
- “US-Germany Workshop Towards an International Research Partnership Program on Human-Automation Interaction in the Life Sciences,” NSF, OISE, PI, \$58,699, 2004-2005.
- “A Neural-network Based Approach to Adaptive Automation of Air Traffic Control Information Processing Functions,” NASA Langley Research Center, Psychological/Physiological Stressors & Factors Program, PI, \$110,000, 2004.
- “Measures for Assessing Situation Awareness in Virtual Environment Training of Small Infantry Squads,” U.S. Army Research Institute (ARI) for Social and Behavioral Sciences. (Phase II SBIR grant.), Consultant, \$748,977, 2003-2005.
- “A Situation Awareness-Based Approach to Adaptive Automation,” NASA Langley Research Center, Psychological/Physiological Stressor & Factors Program, PI, \$100,000, 2003-2004.
- “New Measures of Situation Awareness for Use in Virtual Environment Training of Small Infantry Squads,” ARI, Consultant, \$99,477, 2003.
- “Authority in Adaptive Automation Applied to Various Stages of Human-Machine System Information Processing,” NASA Langley research Center, Psychological/Physiological Stressors & Factors Program, PI, \$50,067, 2002.
- “Human Response to Adaptive Automation of Early Sensory/Information Acquisition Functions and Later Stages of Information Processing in Complex System Operations,” NASA Langley Research Center, Psychological/Physiological Stressors & Factors Program, PI, \$39,971, 2001
- “Automation-state Changes and Sensory Cueing in Complex System Control,” ONR, Human-Systems Program, PI, \$65,340, 2001.
- “Levels of Automation in the Commercial Aircraft Cockpit and Pilot Situation Awareness,” NASA Langley Research Center, Crew/Vehicle Integration Branch, PI, \$63,462, 2001.

---

“CAREER: ARI Supplement: Telepresence in Teleoperations,” NSF, PI, \$9,560, 2000.

“Virtual Environments and Virtual Interfaces for Oceanographic and Meteorological Scientific Data Visualization,” DEPSCoR – Department of Defense, PI, \$499,487, 2000.

“Situation Awareness & Levels of Automation: Empirical Assessment of Levels of Automation in the Commercial Aircraft Cockpit.” NASA Langley Research Center, PI, \$110,043, 2000.

“Situation Awareness & Levels of Automation,” NASA Langley Research Center, PI, \$90,080, 1998.

“CAREER: Telepresence in Teleoperations,” NSF, PI, \$465,687, 1998.

“The Effects of Visual Display, User Spatial Abilities and Navigational Aids on Performance in Virtual Environments for Navigation Training,” MSU, Research Initiation Program, PI, \$5,825, 1997.

“New Production Facility Layout,” Alcoa Fujikura Ltd., PI, \$4,998, 1997.

“Process Plan Analysis for Main Assembly Line,” Alcoa Fujikura Ltd., co-PI (with Usher), \$5,100, 1996.

**(Pending - \$6,132,361)**

“Advanced Systems Safety Analyses for Effective Human-Robot Interaction Design for Long-Duration Space Flight.” NASA Human Exploratory Research Opportunities, Principal Investigator (PI), \$100,000, 2015.

“CHS: Small: Making Science Concepts Visible Through Two-Handed 1:N Haptic Communication,” NSF Cyber-Human Systems Program, co-PI (with Nam), \$499,756, 2015.

“National Center for Community Rehabilitation Engineering (NCCORE),” National Institutes of Health, co-PI, \$5,532,605, 2015-2020.

**(Educational - \$1,978,380)**

“Biometric Evaluation of Psychomotor Test Performance.” UNC Chapel Hill / National Institute for Occupational Safety and Health (NIOSH) Occupational Safety & Health Education and Research Center (OSHERC), PI, \$8,000, 2013-2014.

“North Carolina Education and Research Center Competing Renewal,” NIOSH, PI, \$710,035, 2012-2017.

“A Study of the Perception of Fall Risk Associated with Extension Ladder Setup.” UNC Chapel Hill / NIOSH Occupational Safety & Health Education and Research Center (OSHERC), PI, \$11,909, 2011-2012.

“Continuation Grant for Occupational Safety & Ergonomics Program Area of the NC OSHERC,” NIOSH, PI, \$145,814, 2011-2012.

“A Study of Musculoskeletal Disorders of Veterinarians for Large Animals,” UNC Chapel Hill / NIOSH OSHERC, PI, \$13,000, 2010-2011.

“Continuation Grant for Occupational Safety & Ergonomics Program Area of the NC OSHERC,” NIOSH, PI, \$120,510, 2010-2011.

“Supplement to Continuation Grant for Occupational Safety & Ergonomics Program Area of the NC OSHERC,” NIOSH, PI, \$13,426, 2009-2010.

“Continuation Grant for Occupational Safety & Ergonomics Program Area of the NC OSHERC,” NIOSH, PI, \$145,814, 2009-2010.

“Investigation of Ergonomic Interventions for Scaffold Use in Nuclear Power Facility Maintenance Tasks,” UNC Chapel Hill / NIOSH OSHERC, PI, \$10,000, 2009.

“The Role of Pilot Individual Differences in Perceptions of Aviation Display Clutter and Performance.” NASA Aviation Research Mission Directorate, PI, \$90,000, 2008-2011.

“Continuation Grant for Occupational Safety & Ergonomics Program Area of the NC OSHERC,” NIOSH, PI, \$120,562, 2008-2009.

“Safety and Ergonomics Program Area of the North Carolina (NC) OSHERC - UNC Chapel Hill,” NIOSH, PI, \$40,000, 2007-2008.

---

“Safety and Ergonomics Program Area of the NC OSHERC – UNC Chapel Hill,” NIOSH, PI, \$120,562, 2006-2007.

“Safety and Ergonomics Program Area of the UNC-ERC (continuation),” NIOSH, co-PI (with Mirka), \$107,516, 2005-2006.

“Safety and Ergonomics Program Area of the UNC-ERC (continuation),” NIOSH, co-PI (with Mirka), \$97,038, 2004-2005.

“Safety and Ergonomics Program Area of the UNC-ERC,” NIOSH Training Grant, co-PI (with Mirka), \$66,341, 2003-2004.

“Occupational Safety and Health Training Grant,” NIOSH Training Grant, co-PI (with Sommerich and Mirka), \$37,584, 2002-2003.

“REU Supplement (FY00-01): Telepresence in Teleoperations,” NSF, PI, \$10,186, 2001-2003.

“Comparison of Physiological and Secondary Task Measures for Triggering Adaptive Automation,” NASA Langley Research Center, PI, \$66,000, 2001.

“Learning Occupational Safety Engineering through the Web,” NCSU College of Engineering, Distance Education Programs and Course Development Award, PI, \$12,000, 2000.

“Student Support for Automation and Situation Awareness Conference,” ONR, PI, \$10,050, 2000.

“REU Supplement to “CAREER: Telepresence in Teleoperations,” NSF, PI, \$10,391, 1999.

“REU Supplement: Telepresence in Teleoperations (Grant No. IIS-9734504),” NSF, PI, \$10,542, 1998.

“Methods-Time Measurement Software for Supporting Industrial Research and Laboratory Instruction,” MSU, Research Facilities Award, PI, \$500, 1996.

“Teleoperations and Telepresence,” Oak Ridge Associated Universities, PI, \$600, 1996.

## **TEACHING EXPERIENCE:**

### **Undergraduate/Graduate Courses Developed and Taught (with NCSU evaluation data in bold).**

MSU IE 3123 - Work Analysis and Design: Analysis and design of work tasks; principles of motion economy and manual work activities; work measurement by direct predetermined systems, and statistical techniques.

MSU IE 4000 – Undergraduate Directed Individual Study (Human Information Processing).

MSU IE 4113/6113 - Human Factors Engineering: Human capabilities and limitations affecting communications and responses in man-machine systems. Emphasis on physiological and psychological fundamentals.

MSU IE 4133/6133 - Ergonomics: Study of human capabilities pertinent to the design of products, equipment, work tasks, and environments. Emphasis on safety, productivity, performance and quality of work.

MSU IE 4173/6173 - Occupational Safety Engineering: Causes and prevention of industrial accidents. Analysis of hazardous processes and materials. Design of occupational safety systems and programs.

MSU IE 7000 – Directed Individual Studies (Advanced Human Factors in Virtual Environments; Human Factors in Virtual Environments; Virtual Environments for Scientific Data Visualization).

MSU IE 7003(1) – Advanced Directed Individual Study (Loss Assessment and Control): Advanced topics in worker safety and health; hazard recognition and analysis; system safety; product safety; and safety and health related workplace hazards.

MSU IE 7003(2) – Advanced Directed Individual Study (Systems Safety Engineering): Concepts and applications of system safety and risk assessment; hazard identification and risk analysis; components of risk; system safety techniques.

MSU IE 8153 - Cognitive Engineering: Implications of human perceptual, cognitive, and

---

psychomotor capabilities on the design of systems for effective, efficient and safe human-machine performance.

**MSU IE 8990** – Advanced Human Factors Engineering: Overview of human-computer interaction (HCI), current research issues. Coverage of interface design methodologies and specific design information/guidelines. Knowledge of interface design and an ability to structure and analyze research issues in HCI is emphasized.

**NCSU ISE 352** – Work Analysis & Design - Work methods and production processes to improve operator effectiveness and reduce production costs. Techniques studied include operation analysis, motion study, value engineering, predetermined time systems, time study and line balancing.

**NCSU ISE 452** – Ergonomics: Worker - machine environment systems, design and evaluation; applications to consumer products tools, equipment and the workplace. Consideration of anatomical, physiological and psychological capabilities and limitations as related to systems design and human performance. Use of anthropometric data in design of display and control systems.

**NCSU ISE/PSY 540** - Human Factors in Systems Design: Basic concepts of human factors and their application to design of human-machine systems. Consideration of human cognitive and physical capabilities and limitations in design for human efficiency, safety and comfort.

**NCSU ISE 541** – Occupational Safety Engineering: Occupational accident-injury study; investigation and analysis. Hazard control. Risk assessment; systems safety analysis. Product design, manufacturing defects, system failures and human error as causative factors. Safety program development. OSHA compliance; standards.

**NCSU ISE 544** – Occupational Biomechanics - Anatomical, physiological, and biomechanical bases of physical ergonomics. Strength of biomaterials, human motor capabilities, body mechanics, kinematics and anthropometry. Use of bioinstrumentation, active and passive industrial surveillance techniques and the NIOSH lifting guide. Acute injury and cumulative trauma disorders. Static and dynamic biomechanical modeling. Emphasis on low back, shoulder and hand/wrist biomechanics.

**NCSU ISE 637/639** – Advanced Directed Studies in Industrial Engineering (Computational Cognitive Modeling for Telerover Control; Usability Evaluation in Aviation Systems; Auditory Cue Design for Virtual Environments; Behavioral Based Safety; Computational Cognitive Modeling for Telerover Control; HCI Theory and Quantitative Usability Measures; Etiquette Expectations for Robots in Medicine Delivery; Ergonomic Interventions in Scaffolding; Domain and Dynamic Visual Factors in Perceived Clutter; Underlying Factors in Fatigue and the Relationship with Cognitive Errors in Healthcare Environments; Human Factors Issues in Telephone Voice Menu System Design; Cockpit Display Design for Traffic Information presentation; Driver Use of Roadway Guide and Logo Signs under Normal and Hazardous Driving Conditions; Virtual Reality Locomotion Interface Research).

**NCSU ISE/PSY 740** – Engineering Psychology of HCI: Exploration of usability of computer technology. Theory and practice of user-centered design for HCI applications. Course focuses on current usability paradigms and principles, psychology of users, iterative and participatory design processes, system requirements specification, prototyping, user support systems, usability evaluation and engineering, interface design guidelines and standards.

**NCSU ISE 741** – Systems Safety Engineering: Course familiarizes students with techniques for identifying and recognizing potential safety hazards and the concept of risk assessment. Preliminary Hazard Analysis, Failure Modes and Effects Analysis, System and Subsystem Hazard Analysis, Fault Tree Analysis, Process Safety Management (29CFR1910.119) are



---

explored together with applications to hazard analysis and control. Industrial situations and case studies are employed to illustrate usefulness of various system safety techniques.

**NCSU ISE/PSY 745** – Human Performance Modeling: Study of theoretical models of human as an information processor; control theory as a basis for human performance models; cognitive and user modeling techniques; multiple task performance; task analysis in complex dynamic control scenarios; observational human factors experimentation; Goals, Operators, Methods and Selection modeling; functional-flow diagrams of cognitive processes.

**NCSU ISE 794B/PSY 710U** – Cognitive Engineering: Review of approaches to cognitive work analysis and design methods, designing ecological interfaces for human performance, theoretical models of human cognition and validation through empirical study, measuring and modeling human decision making, computational modeling of cognition for predicting performance and evaluating interface designs, and identifying factors in team performance.

**NCSU ISE 796** – Occupational Biomechanics Research Practicum: Biomechanics research topic development, literature evaluation, experimental design, use of bioinstrumentation, data collection, basic data interpretation, statistical analysis, manuscript preparation.

**NCSU IE 839** - Advanced Directed Studies in Industrial Engineering (Lag Tolerance in Haptic Device Use for Simulated Surgical Tasks; Utility of Virtual Reality for Studying Human Locomotion; Design and Usability Evaluation of a Dynamic Text Editing Device; Assessing Effects of Sensory Feedback on Patient Emotion and Motivation During Robot-aided Rehabilitation; Assessing Effects of Sensory Feedback on Patient Emotion and Motivation During Robot-aided Rehabilitation; Quantitative Methods for Classification of Human Motor Control Ability; Mathematical Models for Visual Attention Allocation).

### **Graduate Students – Supervised and Current.**

#### **(Masters with thesis (in chronological order) – Committee Chair or Co-Chair)**

Shivers, C., NCSU Master of Science Program, Industrial Engineering (May 2001) (Co-chair with Mirka).

Warren, H., NCSU Master of Science Program, Industrial Engineering (May 2002) (Chair).

Ma, R., NCSU Master of Science Program, Industrial Engineering (December 2002) (Chair).

Clamann, M., NCSU Master of Science Program, Psychology (December 2002) (Chair).

Sheik-Nainar, M., NCSU Master of Science Program, Electrical and Computer Engineering (May 2003) (Co-chair with Chow).

Liebsch, C., NCSU Master of Science Program, Industrial Engineering (August 2003) (Co-chair with Roberts).

McClernon, C., NCSU Master of Science Program, Industrial Engineering (December 2003) (Chair).

Shu, Y., NCSU Master of Science Program, Industrial Engineering (May 2005) (Co-chair with Mirka).

Li, Y., NCSU Master of Science Program, Industrial Engineering (May 2007) (Chair).

Lee, L., NCSU Master of Science Program, Industrial Engineering (May 2008) (Chair).

Jin, S., NCSU Master of Science Program, Industrial & Systems Engineering (August 2008) (Chair).

Zhang, Y., NCSU Master of Science Program, Industrial & Systems Engineering (August 2009) (Chair).

Zhu, B., NCSU Master of Science Program, Industrial & Systems Engineering (August 2009) (Chair).

Diering, M., NCSU Master of Science Program, Industrial & Systems Engineering (May 2010)

---

(Chair).

Naylor, J., NCSU Master of Science Program, Industrial & Systems Engineering (August 2010)

(Chair).

Gangakhedkar, S., NCSU Master of Science Program, Industrial & Systems Engineering (December 2010) (Chair).

Uy, C., NCSU Master of Science Program, Industrial & Systems Engineering (August 2011) (Co-chair with Hsiang).

Taylor, K., NCSU Master of Science Program, Industrial & Systems Engineering (December 2011) (Chair).

Rogers, M., NCSU Master of Science Program, Industrial & Systems Engineering (December 2011) (Chair).

Suresh, S., NCSU Master of Science Program, Industrial & Systems Engineering (December 2011) (Chair).

Heath, W., NCSU Master of Science Program, Industrial & Systems Engineering (August 2012) (Co-chair with Hsiang).

Pankok, C., NCSU Master of Science Program, Industrial & Systems Engineering (May 2013) (Chair).

Corbett, B., NCSU Master of Science Program, Industrial & Systems Engineering (December 2013) (Co-chair with Nam).

Zhang, W., NCSU Master of Science Program, Industrial & Systems Engineering (August 2015) (Chair).

**(Masters with thesis – Committee Member)**

Freeman, K., NCSU Master of Science Program, Psychology (May 2003) (Member).

Drum, J., NCSU Master of Science Program, Industrial Engineering (August 2005) (Member).

Freeman, J., NCSU Master of Science Program, Industrial Engineering (August 2005) (Member).

Southard, S., NCSU Master of Science Program, Industrial Engineering (August 2005) (Member).

St. Louis, M., NCSU Master of Science Program, Integrated Manufacturing & Systems Engineering (March 2006) (Member).

Anderson, A., NCSU Master of Science Program, Industrial Engineering (May 2007) (Member).

Rubenstein, C., NCSU Master of Science Program, Textiles Engineering (December 2014) (Member).

**(Masters with thesis – In Progress)**

Morejon, O., NCSU Master of Science Program, Industrial & Systems Engineering (In progress) (Chair).

**(Masters non-thesis option (in chronological order) – Committee Chair or Member)**

Riley, J., MSU Master of Science (non-thesis) Program, Industrial Engineering (May 1998) (Member).

Thorton, M., MSU Master of Science (non-thesis) Program, Industrial Engineering (May 1998) (Member).

Bowman, C., MSU Masters of Science (non-thesis) Program, Industrial Engineering (August 2000) (Member).

Hatfield, E., NCSU Master of Science (non-thesis) Program, Industrial & Systems Engineering (May 2005) (Chair).

Hatfield, N., NCSU Master of Science (non-thesis) Program, Industrial & Systems Engineering (May 2005) (Chair).

Vick, D., NCSU Master of Science (non-thesis) Program, Industrial & Systems Engineering

---

(December 2006) (Chair).  
Bing, H., NCSU Master of Science (non-thesis) Program, Industrial & Systems Engineering (May 2008) (Chair).  
Lee, W., NCSU Master of Science (non-thesis) Program, Industrial & Systems Engineering (May 2008) (Chair).  
Veil, T., NCSU Master of Science (non-thesis) Program, Industrial & Systems Engineering (May 2009) (Chair).  
Beaver, L., NCSU Master of Science (non-thesis) Program, Industrial & Systems Engineering (May 2011) (Chair).  
Singh, A., NCSU Master of Science (non-thesis) Program, Industrial & Systems Engineering (December 2011) (Chair).  
Shields, D., NCSU Master of Science (non-thesis) Program, Industrial & Systems Engineering (August 2013) (Chair).  
Liao, Y-F., NCSU Master of Science (non-thesis) Program, Industrial & Systems Engineering (in progress) (Chair).

**(Doctoral (in chronological order) – Committee Chair)**

Riley, J., MSU Doctor of Philosophy, Industrial Engineering (August 2001) (Chair).  
Wright, M., NCSU Doctor of Philosophy Program, Industrial Engineering (August 2002) (Chair).  
Ma, R., NCSU Doctor of Philosophy Program, Industrial Engineering (December 2005) (Chair).  
Segall, N., NCSU Doctor of Philosophy Program, Industrial Engineering (August 2006) (Chair).  
Sheik-Nainar, M., NCSU Doctor of Philosophy Program, Industrial Engineering (January 2007) (Chair).  
Green, R., NCSU Doctor of Philosophy Program, Psychology (May 2008) (Chair).  
Kim, S-H, NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (May 2009) (Chair).  
Zhang, T., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (December, 2009) (Chair).  
Li, Y., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (May 2010) (Co-chair with Lee).  
Wang, X., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (December 2010) (Co-chair with Hsiang).  
Swangnetr, M., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (December 2010) (Co-chair with Lee).  
Gil, G-H., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (December 2010) (Chair).  
Zhang, Y., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (December 2011) (Chair).  
Zhu, B., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (December 2011) (Chair).  
Jeon, W., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (December 2013) (Co-chair with Nam).  
Clamann, M., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (January 2014) (Chair).  
Ma, W., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (August 2014) (Chair).

**(Doctoral (in chronological order) – Committee Member)**

Lawrence, B., NCSU Doctor of Philosophy Program, Industrial Engineering (December 2002)

---

(Member).

Shaver, E., NCSU Doctor of Philosophy Program, Psychology (December 2003) (Member).

Roddelkopf, T., URO, Doctor of Philosophy, Informatics and Electrical Engineering (November 2005) (Member (External))

Shin, G., NCSU Doctor of Philosophy Program, Industrial Engineering (December 2005) (Member).

Shu, Y., NCSU Doctor of Philosophy Program, Industrial Engineering (December 2006) (Member).

Schroeder, R., URO, Doctor of Philosophy, Computer Science and Electrical Engineering (April 2007) (External Member)

Jiang, Z., NCSU Doctor of Philosophy Program, Industrial Engineering (December 2007) (Member).

Shu, Y., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (December 2007) (Member).

Xu, X., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (May 2008) (Member).

Bonto-Kane, M. NCSU Doctor of Philosophy Program, Computer Science (May 2010) (Member)

Li, Y., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (May 2014) (Member).

#### **(Doctoral – In Progress)**

Kaufmann, K., NCSU Doctor of Philosophy Program, Psychology (Passed preliminary exam - February 2010) (Chair).

Lau, M., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (In progress) (Chair).

Pankok, C., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (Passed preliminary exam – November 2014) (Chair).

Perry, C., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (Passed proposal defense – June 2005) (Chair).

White, M., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (In progress) (Chair).

Zahabi, M., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (Passed Ph.D. qualifying exam – August 2014) (Chair).

Zhang, W., NCSU Doctor of Philosophy Program, Industrial & Systems Engineering (Passed Ph.D. qualifying exam – August 2014) (Chair).

#### **Dissertations Directed (17).**

Jennifer M. Riley, “The Utility of Measures of Attention and Situation Awareness for Quantifying Telepresence.” (Defended - 5/01.)

Melanie C. Wright, “The Effect of Automation on Team Performance and Team Communication.” (Defended - 6/02.)

Ruiqi Ma, “The Effect of In-vehicle Automation and Reliability on Driver Situation Awareness and Trust.” (Defended - 12/06.)

Noa Segall, “Design and Prototyping of a Cognitive Model-Based Decision Support Tool for Anesthesia Provider Management of Crisis Situations.” (Defended - 7/06.)

Mohamed Sheik-Nainar, “Situation Awareness and Gait Control in Mixed Cognitive and Physical Task Performance under Perturbations.” (Defended - 1/07.)

Rebecca Green, “Design of Training for Supervisory Control of a High-throughput Biological Screening System.” (Defended - 5/08.)

- 
- Sang-Hwan Kim, "Examining and Explaining the Effects of Non-Iconic Conformal Features in Advanced Head-up Displays on Pilot Performance." (Defended - 3/09.)
- Tao Zhang, "Using Measures of Situation Awareness to Characterize Mental Models in Inductive Reasoning Tasks." (Defended – 06/09.)
- Yingjie Li, "Development of a Haptic-based Rey-Osterrieth Complex Figure Testing and Training System with Computer Scoring and Force-feedback Rehabilitation Functions." (Defended - 5/10.)
- Xuezhong Wang, "Application of Deterministic and Stochastic Components of the Ocular Dynamic System." (Defended – 9/10.)
- Manida Swangnetr, "Analysis of Patient-Robot Interaction Using Statistical and Signal Processing Methods." (Defended – 9/10.)
- Guk-Ho Gil, "An Accessible Cognitive Modeling Tool for Evaluation of Human-Automation Interaction in the Systems Design Process." (Defended – 11/10.)
- Yu (Zeno) Zhang, "Visual and Cognitive Distraction Effects on Driver Behavior and an Approach to Distraction State Classification" (Defended – 9/11.)
- Biwen Zhu, "Assessing the Effects of Feedback Type and Modality on Motor Skill Learning and Human Motivation" (Defended – 11/11.)
- Wooram Jeon, "Assessment of the Effectiveness of an Adaptive Virtual Reality-Based Simulation for Motor Skill Training" (Defended – 11/13.)
- Michael Clamann, "Adaptive Haptic Forces in a Virtual Environment Improve Fine Motor Skill Training" (Defended – 1/14.)
- Wenqi (Janet) Ma, "An Application of Quantitative Methods for Motor Ability Level Classification, Performance Prediction and Training Protocol Selection" (Defended - 5/14.)

#### **Theses Directed (24).**

- Carrie Shivers, "Developing Design Criteria for Pinch Grip Tasks." (Co-chair with G. Mirka. Defended 4/01.)
- Heather L. Warren, "Auditory Cueing Effects on Human Performance with an Adaptive System." (Defended 5/02.)
- Ruiqi Ma, "Telepresence and Performance in an Immersive Virtual Environment and Sporting Task." (Defended 10/02.)
- Michael P. Clamann, "The Effects of Intermediate Levels of Invocation Authority on Adaptive Automation of Various Stages of Information Processing." (Co-chair with E. Wiebe. Defended 10/02.)
- Mohamed Sheik-Nainar. "The Effect of QoS adaptation on Internet-Based Teleoperation Involving Use of a Virtual Reality Interface." (Co-chair with M-Y. Chow. Defended 12/02.)
- Cindy Liebsch, "Simulation Input Modeling in the Absence of Data." (Co-chair with S. Roberts. Defended 8/03.)
- Christopher K. McClernon, "Situation Awareness Effects of Adaptive Automation of Various Air Traffic Control Information Processing Functions." (Defended 11/03.)
- Yu Shu, "Effect of Wrist Splint Orthoses on Forearm Muscle Activity and Upper Extremity Kinematics." (Co-chair with G. Mirka. Defended 1/05.)
- Yingjie Li, "Modeling the Effects of Time Lag in a Virtual Reality (VR)-Based Haptic Surgical Simulator." (Co-chair with Y. Lee. Defended 2/07.)
- Lashanda Lee, "Assessing interactive system effectiveness with usability design heuristics and Markov models of behavior." (Defended - 12/07.)
- Sangeun Jin, "The Effect of Driver Cognitive Abilities and Distraction on Situation Awareness and Performance under Hazard Conditions," (Defended 5/08.)

---

Yu Zhang, “An Empirical Assessment of Driver Motivation and Emotional State, and Driving Conditions on Perceived Safety Margins.” (Defended 6/09.)

Biwen Zhu, “Design of Etiquette for Patient Robot Interaction in a Medicine Delivery Task.” (Defended 6/09.)

Matt Diering, “Ergonomic Evaluation of Scaffolding Task Interventions for Power Plant Maintenance.” (Defended 12/09.)

James Naylor, “The Influence of Dynamics, Flight Domain and Individual Flight Training & Experience on Pilot Perception of Clutter in Aviation Displays.” (Defended – 5/10.)

Shruti Gangakhedkar, “The Effects of Scaffolding Equipment Interventions on Muscle Activation and Task Performance in Frame Assembly and Disassembly Tasks.” (In progress.)

Chad Uy, “The Effect of Handle Design on the Kinetics and Kinematics of a Pouring Task.” (Defended – 8/11.)

Kinley Taylor, “Identifying and Modeling Perceptions of Risk Factors in Hand Hygiene during Healthcare Operations.” (Defended – 10/11.)

Meghan Rogers, “Identifying and Evaluating Risk Factors for Musculoskeletal Disorders in Equine Veterinary Work.” (Defended – 12/11.)

Sameerajan Suresh, “Effects of Laptop Touchpad Texturing on User Performance and Usability Assessments.” (Defended – 12/11.)

Will Heath, “An Assessment of Perceived Risk of Extension Ladder Set-Up Angles and Safety Label Effectiveness.” (Defended – 6/12.)

Carl Pankok, “Mitigating Biases in Time-To-Contact Judgments with General Aviation Cockpit Displays of Traffic Information.” (Defended – 5/13.)

Brendan Corbett, “The effects of haptic feedback and visual distraction on pointing task performance in 3D haptic virtual environments.” (Defended – 9/13.)

Wenjuan Zhang, “Validation of a Virtual-Reality Based Psychomotor Test Using Physiological and Workload Measures.” (Defended – 6/15).

#### **Post-doctoral Advising (4).**

Manida Swangnetr, Ph.D. (North Carolina State University, NC). Supported through University of Rostock (Germany), Center for Life Science Automation (2013-2014).

Guk-Ho Gil, Ph.D. (North Carolina State University, NC). Supported through NCSU College of Engineering and Department of Industrial & Systems Engineering (2010-2012).

Yulan Liang, Ph.D. (University of Iowa, IA). Supported through NCSU College of Engineering and Department of Industrial & Systems Engineering (2009-2010). Currently working as researcher at Liberty Mutual Research Center, Hopkinton, MA.

Prithima Mosaly, Ph.D. (University of Wisconsin-Milwaukee, WI). Supported through NCSU College of Engineering and Department of Industrial & Systems Engineering (2007-2009). Currently working as part-time staff for NCSU Industrial Extension Service, Raleigh, NC.

#### **PUBLICATIONS:**

##### **Refereed Journal Articles (in print or in press; 82)**

1. Pankok, C., Zahabi, M., Zhang, W. & **Kaber**, D. B. (accepted). The effect of physical workload and modality of information presentation on cognitive inhibition in high-fit young males. To appear in *IIE Transactions on Occupational Ergonomics & Human Factors*. [NCSU – Distinguished Prof.]
2. Zahabi, M., **Kaber**, D. B. & Swangnetr, M. (in press). Usability and safety in electronic medical records: A review of literature and guideline formulation. To appear in *Human Factors*. DOI: 10.1177/0018720815576827. [NCSU – Prof.]

- 
3. **Kaber**, D. B., Pankok, C., Corbett, B., Ma, W., Hummer, J. & Rasdorf, W. (in press). Driver behavior in use of guide and logo signs under distraction and complex roadway conditions. *Applied Ergonomics*, 47, 99-106. [NCSU – Prof.]
  4. Sheiknainar, M., **Kaber**, D. B., Hsiang, S., Pankok, C. & Zahabi, M. (2015). Influence of cognitive and perceptual processing on multitask performance with locomotion. *Theo. Issues in Ergo. Sci.*, DOI: 10.1080/1463922X.2014.1001005. [NCSU – Prof.]
  5. Kim, S-H. & **Kaber**, D. B. (2014). Examining the effects of conformal terrain features in advanced head-up displays on flight performance and pilot situation awareness. *Human Factors & Ergonomics in Manufacturing and Service Industries*, 24(4), 386-402. DOI: 10.1002/hfm.20501. [NCSU – Prof.]
  6. Pankok, C. & **Kaber**, D. B. (2014). Design of cockpit displays of traffic information reduces pilot bias in time-to-contact judgments. *Aviation, Space and Environmental Medicine*, 85(5), 597-604, DOI: 10.3357/ASEM.3810.2014. [NCSU – Prof.]
  7. Swangnetr, M., **Kaber**, D. B., Phimphasak, C., Namkorn, P., Saenlee, K., Zhu, B. & Puntumetakul, R. (2014). The influence of rice plow handle design and whole body posture on grip force and upper extremity muscle activation. *Ergonomics*, 57(10), 1526-35. DOI: 10.1080/00140139.2014.934301. [NCSU – Prof.]
  8. Swangnetr, M., **Kaber**, D. B., Gross, M. T. & Puntumetakul, R. (2014). Ergonomics-related risk identification and pain analysis for farmers involved in rice cultivation. *Journal of Work*, 49(1), 63-71, DOI: 10.3233/WOR-131768. [NCSU – Prof.]
  9. Suresh, S., **Kaber**, D. B. & Clamann, M. (2014). Effects of laptop touchpad texturing on user performance. *Int. J. of Human-Computer Interaction*, 30:6, 470-479, DOI: 10.1080/10447318.2014.888502. [NCSU – Prof.]
  10. **Kaber**, D. B., Naylor, J. T., Gil, G-H, Pankok, C. & Kim, S-H (2014). The influence of flight domain and cockpit display dynamics on perceptions of clutter. *Journal of Aerospace Information Systems*, 10(12), 550-559, DOI: 10.2514/1.I010036. [NCSU – Prof.]
  11. Zhang, Y., **Kaber**, D. B., Rogers, M., Liang, Y. & Gangakhedkar, S. (2013). The effects of visual and cognitive distractions on operational and tactical driving behaviors. *Human Factors*, DOI: 10.1177/0018720813495279. [NCSU – Prof.]
  12. Li, Y., Clamann, M., **Kaber**, D. B. (2013). Validation of a haptic-based simulation to test complex figure reproduction capability. *IEEE Transactions on Human-Machine Systems*, 43(6), DOI: 10.1109/TSMC.2013.2287341. [NCSU – Prof.]
  13. **Kaber**, D. B., Riley, J. M., Sheik-Nainar, M. A., Zhang, T., Endsley, M. R. & Lampton, D. R. (2013). Measurement of infantry soldier situation awareness in virtual environment-based training research. *Military Psychology*, 25(4), 330-344. [NCSU – Prof.]
  14. Suvarnato, T., Puntumetakul, R., **Kaber**, D. B., Boonphakop, Y., Arayawichanon, P. & Kanlayanaphotporn, R. (2013). The effects of thoracic manipulation versus mobilization for chronic neck pain: A randomized controlled trial pilot study. *The Journal of Physical Therapy Science*, 25(7), 865-871, DOI: 10.1589/jpts.25.865. [NCSU – Prof.]
  15. **Kaber**, D. B., Kaufmann, K., Alexander, A., Kim, S-H, Naylor, J. T., Prinzel, L., Pankok, C. & Gil, G-H (2013). Testing and validation of a psychophysically defined metric of display clutter. *Journal of Aerospace Computing, Information and Communication*, 10(8), 359-368, DOI: 10.2514/1.I010048. [NCSU – Prof.]
  16. **Kaber**, D. B., Tupler, L., Clamann, M., Gil, G-H., Zhu, B., Swangnetr, M., Jeon, W., Zhang, Y., Qin, X., Ma, W. & Lee, Y-S (2013). Evaluation of an augmented virtual reality and haptic control interface for psychomotor training. *Assistive Technology*, DOI:10.1080/10400435.2013.800923. [NCSU – Prof.]

- 
17. Eungpinichpong, W., Buttaga, V., Areeudomwong, P., Pramodhyakul, N., Swangnetr, M., **Kaber**, D. B. & Puntumetakul, R. (2013). Effects of restrictive clothing on lumbar range of motion and trunk muscle activity in young adult worker manual material handling. *Applied Ergonomics*, 44, 1024-1032. [NCSU – Prof.]
  18. Hancock, P., Jagacinski, R., Parasuraman, R., Wickens, C. D., Wilson, G. & **Kaber**, D. B. (2013). Human-automation interaction research: past, present and future. *Ergonomics in Design*, 21(2), 9-14 [NCSU – Prof.]
  19. Swangnetr, M. & **Kaber**, D. B. (2013). Emotional state classification in human-robot interaction using wavelet analysis and statistics-based feature selection. *IEEE Human-Machine Systems*, 43(1), 63-76. [NCSU – Prof.]
  20. Zhang, Y., Harris, E., Rogers, M., **Kaber**, D. B., Hummer, J. E. Rasdorf, W. & Hu, J. (2013). Driver Distraction and Performance Effects of Highway Logo Sign Design. *Applied Ergonomics*, 44, 472-479. [NCSU – Prof.]
  21. Zhang, Y. & **Kaber**, D. B. (2013). An empirical assessment of driver motivation and emotional states in perceived safety margins under different driving conditions. *Ergonomics*, 56(2), 256-267. [NCSU – Prof.]
  22. Salamati, K., Schroeder, B. J., Roupail, N. M., Cunningham, C. M., Zhang, Y. & **Kaber**, D. B. (2012). Simulator study of driver responses to pedestrian treatments at multilane roundabouts. *Transportation Research Record (Journal of the Transportation Research Board)*, Vol. 2312, 67-75. [NCSU – Prof.]
  23. **Kaber**, D. B. (2012). Preface: cognitive engineering for next generation transportation systems. *Human Factors & Ergonomics in Manufacturing and Service Industries*, 22(5), 375-377. [NCSU – Prof.]
  24. Gil, G-H & **Kaber**, D. B. (2012). An accessible cognitive modeling tool for evaluation of pilot-automation. *International Journal of Aviation Psychology*, 22(4), 319-342 [NCSU – Prof.]
  25. Alexander, A., **Kaber**, D. B., Kim, S-H., Stelzer, E., Kaufmann, K. & Prinzel, L. (2012). Measurement and modeling of display clutter in advanced flight deck technologies. *International Journal of Aviation Psychology*, 22(4), 299-318. [NCSU – Prof.]
  26. **Kaber**, D. B., Li, Y., Clamann, M. & Lee, Y-S. (2012). Investigating human performance in a virtual reality haptic simulator as influenced by fidelity and system latency. *IEEE SMC Part A*, 42(6), 1562-1566. [NCSU – Prof.]
  27. Keawduangdee, P., Puntumetakul, R., Chatchawan, U., **Kaber**, D. B., & Siritaratiwat, W. (2012). Prevalence and associated risk factors of low-back pain in textile fishing net manufacturing. *Human Factors & Ergonomics in Manufacturing and Service Industries*, 22(6), 562-570. [NCSU – Prof.]
  28. Gil, G-H., **Kaber**, D. B., Kaufmann, K. & Kim, S-H (2012). Effects of modes of cockpit automation on pilot performance and workload in a next generation flight concept of operation. *Human Factors & Ergonomics in Manufacturing and Service Industries*, 22(5), 395-406. [NCSU – Prof.]
  29. Segall, N., **Kaber**, D. B., Taekman, J. & Wright, M. C. (2012). Design of a cognitive model-based decision support tool for anesthesia provider crisis management. *Int. J. of Human-Computer Interaction*, DOI:10.1080/10447318.2012.681220. [NCSU – Prof.]
  30. **Kaber**, D. B., Zhang, Y., Jin, S., Mosaly, P., & Garner, M. (2012). Effects of hazard exposure on driver situation awareness and performance and the interaction with roadway complexity and driver age. *Transportation Research Part F: Traffic Psychology and Behaviour*, 15, 600-611. [NCSU – Prof.]
  31. **Kaber**, D. B., Liang, Y., Zhang, Y., Rogers, M., Gangakhedkar, S. (2012). Driver performance effects of simultaneous visual and cognitive distraction and adaptation behavior. *Transportation Research Part F: Traffic Psychology and Behaviour*, 15, 491-501. [NCSU – Prof.]



- 
32. Buttagat, V., Eungpinichpong, W., **Kaber**, D. B., Chatchawan, U. & Arayawichanon, P. (2012). Acute effects of traditional Thai massage on electroencephalogram in patients with scapulothoracic syndrome. *Complementary Therapies in Medicine*, 20, 167-174. [NCSU – Prof.]
  33. Zhu, B. & **Kaber**, D. B. (2012). Effects of etiquette strategy on human-robot interaction in a simulated medicine delivery task. *International Journal of Intelligent Service Robotics*, 5(3), 199-210. [NCSU – Prof.]
  34. Areeudomwong, P., Puntumetakul, R., **Kaber**, D. B., Wanpen, S., Leelayuwat, N., & Chatchawan, U. (2012). Effects of handicraft sitting postures on lower trunk muscle fatigue. *Ergonomics*, 55(6), 693-703. [NCSU – Prof.]
  35. Rogers, M. L., Heath, W. B., Uy, C. C., Suresh, S. & **Kaber**, D. B. (2012). Effect of visual displays and locations on laparoscopic surgical training task. *Applied Ergonomics*, 43(4), 762-767. [NCSU – Prof.]
  36. Clamann, M., Zhu, B., Beaver, L., Taylor, K. & **Kaber**, D. B. (2011). Comparison of infant car seat grip orientations and lift strategies. *Applied Ergonomics*, 43(4), 650-657. [NCSU – Prof.]
  37. Kim, S-H., Prinzel, L., **Kaber**, D. B., Alexander-Horrey, A. L., Stelzer, E. M., Kaufmann, K. & Veil, T. (2011). Multidimensional measure of display clutter and pilot performance for advanced head-up display configuration. *Aviation, Space & Environment Medicine*, 82(11), 1013-1022. [NCSU – Prof.]
  38. **Kaber**, D. B., & Kim, S-H. (2011). Understanding cognitive strategy with adaptive automation in dual-task performance using computational cognitive models. *Journal of Cognitive Engineering & Decision Making*, 5(3), 309-331. [NCSU – Prof.]
  39. **Kaber**, D. B., Green, R. S., Kim, S-H. & Segall, N. (2011). Assessing usability of human-machine interfaces for life science automation through computational cognitive models. *Int. J. of Human-computer Interaction*, 27(6), 481-504. [NCSU – Prof.]
  40. Li, Y., **Kaber**, D. B., Lee, Y-S., & Tupler, L. (2010). Haptic-based virtual environment design and modeling of motor skill assessment for brain injury patient rehabilitation. *Computer-Aided Design and Applications*, 8(2), 149-162.
  41. Zhang, T., **Kaber**, D. B., Zhu, B., Swangnetr, M., Hodge, L. & Mosaly, P. (2010). Service robot feature design effects on user perceptions and emotional responses. *International Journal of Intelligent Service Robotics*, 3(2), 73-88. [NCSU – Prof.]
  42. Zhang, T., **Kaber**, D. B. & Hsiang, S. M. (2010). Characterization of mental models in a virtual reality-based multitasking scenario using measures of situation awareness. *Theo. Issues in Ergo. Sci.*, 11(1-2), 99-118. [NCSU – Prof.]
  43. **Kaber**, D. B., Stoll, N., Thurow, K., Green, R. S., Kim, S-H & Mosaly, P. (2009). Human-automation interaction strategies and models for life science applications. *Human Factors & Ergonomics in Manufacturing*, 19(6), 601-621. [NCSU – Prof.]
  44. Kim, S-H. & **Kaber**, D. B. (2009). Design and evaluation of dynamics text editing methods using foot pedals. *Int. J. of Industrial Ergonomics*, 39(2), 358-365. [NCSU – Prof.]
  45. Anderson A., Mirka, G. A., Joines, S. M B. & **Kaber**, D. B. (2009). Analysis of alternative keyboards using learning curves. *Human Factors*, 51(1), 35-45. [NCSU – Prof.]
  46. **Kaber**, D. B., Alexander, A. L., Stelzer, E. M., Kim, S-H., Kaufmann, K. & Hsiang, S. M. (2008). Perceived clutter in advanced cockpit displays: Measurement and modeling with experienced pilots. *Avia. Space & Env. Med.*, 79(11), 1007-1018. [NCSU – Prof.]
  47. **Kaber**, D. B., Segall, N. & Green, R. (2007). Metaphor-based design of high-throughput screening process interfaces. *Int. J. of Usability Studies*, 2(4), 190-210. [NCSU – Assoc. Prof.]
  48. Ma, R. & **Kaber**, D. B. (2007). Effects of in-vehicle navigation assistance and performance on driver trust. *Int. J. of Indus. Ergo.*, 37: 665-673. [NCSU – Assoc. Prof.]
  49. Ma, R. & **Kaber**, D. B. (2007). Situation awareness and driving performance in a simulated

- 
- navigation task. *Ergonomics*, 50(8), 1351-1364. [NCSU – Assoc. Prof.]
50. **Kaber**, D. B., Perry, C. M., Segall, N. & Sheik-Nainar, M. A. (2007). Workload state classification with automation during simulated air traffic control. *Int. J. of Avia. Psych.*, 17(4), 371-390. [NCSU – Assoc. Prof.]
  51. Sheik-Nainar, M. A. & **Kaber**, D. B. (2007). The utility of a virtual reality locomotion interface for studying gait behavior. *Human Factors*, 49(4), 696-709. [NCSU – Assoc. Prof.]
  52. Perry, C. M., Sheik-Nainar, M. A., Segall, N., Ma, R., **Kaber**, D.B. & Mirka, G.A. (2007). The effects of physical workload on situation awareness and cognitive task performance in multitasking. *Theo. Issues in Ergo. Sci.*, 9(2), 95-113. [NCSU – Assoc. Prof.]
  53. Endsley, M. R., Hoffman, R., **Kaber**, D. B. & Roth, E. (2007). Cognitive engineering and decision making: An overview and future course. *J. of Cognitive Engineering and Decision Making*, 1(1), 1-21. [NCSU – Assoc. Prof.]
  54. **Kaber**, D. B., Perry, C. M., Segall, N., McClernon, C. K. & Prinzel, L. P. (2006). Situation awareness implications of adaptive automation for information processing in an air traffic control-related task. *Int. J. of Industrial Ergonomics*, 36, 447-462. [NCSU – Assoc. Prof.]
  55. Ma, R. & **Kaber**, D. B. (2006). Presence, workload and performance effects of synthetic environment design factors. *Int. J. of Human-computer Studies*, 64, 541-552. [NCSU – Assoc. Prof.]
  56. **Kaber**, D. B., Wright, M. C. & Sheik-Nainar, M. (2006). Multimodal interface design for adaptive automation of a human-robot system. *Int. J. of Human-computer Studies*, 64, 527-540. [NCSU – Assoc. Prof.]
  57. **Kaber**, D. B., Segall, N., Green, R. S., Entzian, K. & Junginger, S. (2006). Using multiple cognitive task analysis methods for supervisory control interface design in high-throughput biological screening processes. *International Journal of Cognitive Technology & Work*, 8, 237-252. [NCSU – Assoc. Prof.]
  58. Ma, R. and **Kaber**, D. B. (2005). Situation awareness and workload in driving while using adaptive cruise control and a cell phone. *Int. J. of Industrial Ergonomics*, 35(10), 939-953. [NCSU – Assoc. Prof.]
  59. Wright, M. C. and **Kaber**, D. B. (2005). Effects of automation of information processing functions on teamwork. *Human Factors*, 47(1), 50-66. [NCSU – Assoc. Prof.]
  60. **Kaber**, D. B., Wright, M. C., Prinzel, L. P. and Clamann, M. P. (2005). Adaptive automation of human-machine system information processing functions. *Human Factors*, 47(4), 730-741. [NCSU – Assoc. Prof.]
  61. Sheik-Nainar, M. A., **Kaber**, D. B. and Chow, M-Y. (2005). Control gain adaptation in virtual reality mediated human-telerobot interaction. *Human Factors & Ergonomics in Manufacturing*, 15(3), 259-274. [NCSU – Assoc. Prof.]
  62. Clamann, M. P. and **Kaber**, D. B. (2004). Applicability of usability evaluation techniques to aviation systems. *International Journal of Aviation Psychology*, 14(4), 395-421. [NCSU – Assoc. Prof.]
  63. Leyman, E. L. C., Mirka, G. A., **Kaber**, D. B. and Sommerich, C. (2004). Assessing the relationship between cognitive load and cerviobrachial muscle response in a dual-task scenario. *Ergonomics*, 47(6), 625-645. [NCSU – Assoc. Prof.]
  64. Chen, C-L, **Kaber**, D. B. and Dempsey, P. D. (2004). Using feedforward neural networks and forward selection of input variables for an ergonomics data classification problem. *Human Factors & Ergonomics in Manufacturing*, 14(1), 31-50. [NCSU – Assoc. Prof.]

- 
65. **Kaber**, D. B. and Endsley, M. R. (2004). The effects of level of automation and adaptive automation on human performance, situation awareness and workload in a dynamic control task. *Theoretical Issues in Ergonomics Science*, 5(2), 113-153. [NCSU – Assoc. Prof.]
  66. Riley, J. M., **Kaber**, D. B. and Draper, J. V. (2004). Using measures of situation awareness and attention allocation to quantify telepresence experiences in teleoperation. *Human Factors & Ergonomics in Manufacturing*, 14(1), 51-68. [NCSU – Assoc. Prof.]
  67. **Kaber**, D. B., Tan, K-W and Riley, J. (2002). Improved usability of aviation automation through direct manipulation and graphical user interface design. *International Journal of Aviation Psychology*, 12(2), 153-180. [NCSU – Assoc. Prof.]
  68. Shivers, C., Mirka, G. A. and **Kaber**, D. B. (2002). Effect of grip span on lateral pinch grip strength. *Human Factors*, 44(4), 569-577. [NCSU – Asst. Prof.]
  69. **Kaber**, D. B., Riley, J., Tan, K-W and Endsley, M. R. (2001). On the design of adaptive automation for complex systems. *International Journal of Cognitive Ergonomics*, 5(1), 37-57. [NCSU – Asst. Prof.]
  70. Chen, C-L., **Kaber**, D. B. and Dempsey, P. G. (2000). A new approach to applying feedforward neural networks to the prediction of musculoskeletal disorder risk. *Applied Ergonomics*, 31, 269-282. [NCSU – Asst. Prof.]
  71. **Kaber**, D. B., Onal, E. and Endsley, M. R. (2000). Design of automation for telerobots and the effect on performance, operator situation awareness and subjective workload. *Human Factors & Ergonomics in Manufacturing*, 10(4), 409-430. [MSU – Asst. Prof.]
  72. **Kaber**, D. B. and Usher, J. M. (2000). Preface: Cognitive engineering in automated systems design. *Human Factors and Ergonomics in Manufacturing*, 10(4), 363-368. [MSU – Asst. Prof.]
  73. Usher, J. M. and **Kaber**, D. B. (2000). Establishing information requirements for supervisory controllers in a flexible manufacturing system using goal-directed task analysis. *Human Factors and Ergonomics in Manufacturing*, 10(4), 431-452. [MSU – Asst. Prof.]
  74. Draper, J. V., **Kaber**, D. B., and Usher, J. M. (1999). Speculations on the value of telepresence. *Cyberpsychology & Behavior*, 2, 349-262. [MSU – Asst. Prof.]
  75. Endsley, M. R. and **Kaber**, D. B. (1999). Level of automation effects on performance, situation awareness and workload in a dynamic control task. *Ergonomics*, 42(3), 462-492. [MSU – Asst. Prof.]
  76. **Kaber**, D. B. and Riley, J. (1999). Adaptive automation of a dynamic control task based on secondary task workload measurement. *International Journal of Cognitive Ergonomics*, 3(3), 169-187. [MSU – Asst. Prof.]
  77. Macedo, J. A., **Kaber**, D. B., Endsley, M. R., Powanusorn, P. and Myung, S. (1999). The effects of automated compensation for incongruent axes on teleoperator performance. *Human Factors*, 40(3), 541-553. [MSU – Asst. Prof.]
  78. Mital, A., Pennathur, A., Huston, R. L., Thompson, D., Pittman, M., Markle, G., **Kaber**, D. B., Crumpton, L., Bishu, R. R., Rajurkar, K. P., Rajan, V., Fernandez, J. E., McMulkin, M., Deivanayagam, S., Ray, P. S. and Sule, D. (1999). The need for worker training in advanced manufacturing technology (AMT) environments: A white paper. *International Journal of Industrial Ergonomics*, 24, 173-184. [MSU – Asst. Prof.]
  79. Pennathur, A., Mital, A., Rajan, V., **Kaber**, D. B., Ray, P., Huston, R., Thompson, D., Markle, G., Pittman, M. A., Bishu, R. R., Crumpton, L., Deivanayagam, S., Fernandez, J. E., McElwee, M., McMulkin, M. and Sule, D. (1999). A framework for training workers in contemporary manufacturing environments. *International Journal of Computer Integrated Manufacturing, Special Issue on Human Integration in Advanced Manufacturing*, 12(4), 291-310. [MSU – Asst. Prof.]
  80. Draper, J. V., **Kaber**, D. B., and Usher, J. M. (1998). Telepresence. *Human Factors*, 40(3), 354-

---

375. (Winner of the Jerome H. Ely Human Factors *Article Award* for the most outstanding article in Human Factors during 1998.) [MSU – Asst. Prof.]

81. **Kaber**, D. B. and Endsley, M. R. (1998). Team situation awareness for process control safety and performance. *Process Safety Progress*, 17(1), 43-48. [MSU – Asst. Prof.]
82. **Kaber**, D. B. and Endsley, M. R. (1997). Out-of-the-loop performance problems and the use of intermediate levels of automation for improved control system functioning and safety. *Process Safety Progress*, 16(3), 126-131. [MSU – Asst. Prof.]

#### **Journal Article Manuscripts (in review or revision in alphabetical order of author last name).**

1. **Kaber**, D. B., Green, R. S. & Swangnetr, M. (in revision). Cognitive task analyses for life science automation training program design. Submitted to *Journal of Cognitive Engineering & Decision Making* (2/14/15). [NCSU – Prof.]
2. **Kaber**, D. B., Jin, S., Zahabi, M. & Pankok, C. J. (in review). The effect of driver cognitive abilities and distractions in situation awareness and performance under hazard conditions. Submitted to *Transportation Research Part F: Traffic Psychology and Behaviour* (6/8/15). [NCSU – Distinguished Prof.]
3. Ma, W., **Kaber**, D. B., Gil, G-H, Clamann, M., Jeon, W. & Zhu, B. (in revision). A comparison of virtual reality-based psychomotor task training with visual and haptic aiding. Submitted to *Int. J. of Human-Computer Studies* (4/18/14). [NCSU – Prof.]
4. Pankok, C., Zahabi, M., Zhang, W., Choi, I., Liao, Y-F., Nam, C-S. & **Kaber**, D. B. (in review). The effects of interruption similarity and complexity on performance in a visual-manual mock assembly operation. Submitted to the *Journal of Human Factors* (6/8/15). [NCSU – Distinguished Prof.]

#### **Books (3).**

1. **Kaber**, D. B. (Ed.) (2013). *Human Performance in Teleoperation and Beyond* (in Human Factors Reviews, Vol. 9). Santa Monica, CA: HFES. [NCSU – Prof.]
2. **Kaber**, D. B. and Boy, G. (Eds.) (2010). *Advances in Cognitive Ergonomics* (in *Proceedings of the 3<sup>rd</sup> Applied Human Factors & Ergonomics Conference*). Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
3. **Kaber**, D. B. and Endsley, M. R. (Eds.) (2000). *Human Performance, Situation Awareness and Automation: User-centered Design for the New Millennium* (Proceedings of the Fourth Automation Technology and Human Performance Conference and the Third Situation Awareness in Complex Systems Conference) (363 pp.). Madison, WI: OmniPress. [MSU/NCSU – Asst. Prof.]

#### **Book Chapters (14).**

1. Swangnetr, M., **Kaber**, D. B., Zhu, B & Zhang, T. (in press). Improving patient-robot interaction in healthcare: Service robot feature effects on patient acceptance and emotional responses (Chap. 3, pp. 61-106). In Neustein, A. (Eds.). *Speech and Automata in Healthcare*. Berlin: De Gruyter. [NCSU – Prof.]
2. **Kaber**, D. B. (2013). Adaptive automation. In A. Kirlik & J. D. Lee (Eds.), *Handbook of Cognitive Engineering* (Chap. 40, pp. 594-609). New York: Oxford Press. [NCSU – Prof.]
3. **Kaber**, D. B. & Zhang, T. (2011). Virtual environments for human factors studies of mobility and haptic task performance. In P. DeLucia (Ed.), *Reviews of Human Factors & Ergonomics* (Vol. 7, pp. 323-366). Santa Monica, CA: HFES. [NCSU – Prof.]
4. **Kaber**, D. B., Wang, X. & Kim, S-H. (2011). Computational cognitive modeling of human-robot interaction using a GOMS methodology. In X. Wang (ed.), *Mixed Reality and Human Robot Interaction* (pp. 53-75). Dordrecht, The Netherlands: Springer. [NCSU – Prof.]

- 
5. Zhang, T., Zhu, B. & **Kaber**, D.B. (2010). Anthropomorphism in Robots and Human Etiquette Expectations for Interaction. In C. Hayes & C. Miller (eds.), *Human-Computer Etiquette* (pp. 231-259). London: Taylor & Francis. [NCSU – Prof.]
  6. Riley, J. M., **Kaber**, D. B., Sheik-Nainar, M. A. & Endsley, M. R. (2008). Enhancing situation awareness training in virtual reality through measurement and feedback. In D. Schmorrow, J. Cohn & D. Nicholson (eds.), *The PSI Handbook of Virtual Environments for Training and Education: Developments for the Military and Beyond* (Chap. 16). London: Greenwood Publishing Group. [NCSU – Prof.]
  7. Jones, D. G. and **Kaber**, D. B. (2005). Situation awareness measurement and the situation awareness global assessment technique. In N. Stanton (Ed.), *Handbook of Human Factors Methods* (Chap. 42). London: Taylor & Francis. [NCSU – Assoc. Prof.]
  8. **Kaber**, D. B. & Wright, M. C. (2003). Adaptive automation of stages of information processing and the interplay with operator functional states. In G. R. J. Hockey, A. W. K. Gaillard & O. Burov (Eds.), *NATO Advanced Research Workshop - Operator Functional State: The Assessment and Prediction of Human Performance Degradation in Complex Tasks* (pp. 204-223). Amsterdam: IOS Press, NATO Science Series. [NCSU – Assoc. Prof.]
  9. **Kaber**, D. B., Draper, J. V. and Usher, J. M. (2002). Chapter 18: Influence of Individual Differences on Virtual Reality Application Design for Individual and Collaborative Virtual Environments. In K. M. Stanney (Ed.), *Handbook of virtual environments: Design, implementation and applications* (pp. 379-402). Mahwah, NJ: Lawrence Erlbaum & Assoc. [NCSU – Assoc. Prof.]
  10. **Kaber**, D. B. and Riley, J. R. (2001). Virtual reality for scientific data visualization. In D. Harris (Ed.), *Engineering Psychology and Cognitive Ergonomics Volume Six: Industrial Ergonomic, HCI, and Applied Cognitive Psychology* (Chap. 19, pp. 151-158). Aldershot, UK: Ashgate. [NCSU – Asst. Prof.]
  11. **Kaber**, D. B. and Riley, J. R. (2001). Task difficulty and user motivation effects on performance and telepresence in a teleoperation task. In D. Harris (Ed.), *Engineering Psychology and Cognitive Ergonomics Volume Six: Industrial Ergonomic, HCI, and Applied Cognitive Psychology* (Chap. 18, pp. 143-150). Aldershot, UK: Ashgate. [NCSU – Asst. Prof.]
  12. **Kaber**, D. B. and Draper, J. V. (2001). Human-machine System Design and Information Processing. In K. Zandin (Ed.), *Maynard's Industrial Engineering Handbook* (5<sup>th</sup> edn.) (Chap. 6.7, pp. 6.111-6.137). Pittsburgh, PA: Maynard. [NCSU – Asst. Prof.]
  13. **Kaber**, D. B. and Draper, J. V. (1999). Cognitive Engineering. In A. Mital, M.M. Ayoub, S. Kumar, M-J. Wang and K. Landau (Eds.), *Industrial and Occupational Ergonomics: Users' Encyclopedia (Encyclopedia of Ergonomics)*, ISBN 0-9654506-0-0. [MSU – Asst. Prof.]
  14. Draper, J. V. and **Kaber**, D. B. (1999). Human-Robot Interaction. In A. Mital, M.M. Ayoub, S. Kumar, M-J. Wang and K. Landau (Eds.), *Industrial and Occupational Ergonomics: Users' Encyclopedia (Encyclopedia of Ergonomics)*, ISBN 0-9654506-0-0. [MSU – Asst. Prof.]

### **Book Reviews (2).**

1. **Kaber**, D.B. (2006). Book review: An Introduction to Human Factors Engineering, by C.D. Wickens, J.D. Lee, Y.D. Liu and S. Gordon-Becker. *Theo. Issues in Ergo. Sci.*, 9(3), 269-271. [NCSU – Assoc. Prof.]
2. **Kaber**, D. B. (1997). Book review: Automation and Human Performance: Theory and Applications, by R. Parasuraman and M. Mouloua. *International Journal of Cognitive Ergonomics*, 1(1), 101-102. [MSU – Asst. Prof.]

### **Refereed Conference Proceedings (73).**

Ma, W., Zhang, W., Brandao, M., Kaber, D. B., Swangnetr, M. & Clamann, M. (in press). A

- 
- Biometric Evaluation of a Computerized Psychomotor Test for Motor Skill Training. To appear in Proc. of the IEA2015 – 19th World Congress on Ergonomics. Melbourne, AUS (August 9-14): Elsevier. [NCSU – Distinguished Prof.]
- Pankok, C. J., Zahabi, M., Zhang, W. & Kaber, D. B. (in press). Interaction of Physical Workload and Information Presentation Modality on Cognitive Inhibition Performance. To appear in Proc. of the IEA2015 – 19th World Congress on Ergonomics. Melbourne, AUS (August 9-14): Elsevier. [NCSU – Distinguished Prof.]
- Qin, X., Tupler, L. A., Ma, W., Kaber, D. B., Clamann, M., Hong, J. Y. & Lee, Y-S. (in press). Computer-based haptic control assessment of 3-D manipulation and drawing skill with analytical application of machining metrics. To appear in Proc. of the IEA2015 – 19th World Congress on Ergonomics. Melbourne, AUS (August 9-14): Elsevier. [NCSU – Distinguished Prof.]
- Sheiknainar, M., Pankok, C. J., Zahabi, M. & Kaber, D. B. (in press). Effect of Locomotion Environment Familiarity and Cognitive Loading on Gait Control and Situation Awareness in Multitasking. To appear in Proc. of the IEA2015 – 19th World Congress on Ergonomics. Melbourne, AUS (August 9-14): Elsevier. [NCSU – Distinguished Prof.]
- Swangnetr, M. & Kaber, D. B. (in press). Integration of Cognitive Task Analysis and Predetermined Time System for Laboratory Task Time Estimation. To appear in Proc. of the IEA2015 – 19th World Congress on Ergonomics. Melbourne, AUS (August 9-14): Elsevier. [NCSU – Distinguished Prof.]
- Zahabi, M., Kaber, D. B. & Swangnetr, M. (in press). A Constrained Review of Safety Analyses of Electronic Medical Record Use and Recommendations for Enhanced Design. To appear in Proc. of the IEA2015 – 19th World Congress on Ergonomics. Melbourne, AUS (August 9-14): Elsevier. [NCSU – Distinguished Prof.]
- Pankok, C., **Kaber**, D. B. & Zhang, Y. (in press). Driver behavior and performance effects of on-roadway signage design: An analysis of two simulator studies. To appear in *Proceedings of the 2015 ISERC Conference* (Paper No. XXX; CD-ROM). Norcross, GA: IIE. [NCSU – Prof.]
- Swangnetr, M., **Kaber**, D. B., Vorberg, E., Stoll, N. & Thurow, K. (in press). Robot feature design for human task assistance in life science processes. To appear in *Proceedings of the 2015 ISERC Conference* (Paper No. XXX; CD-ROM). Norcross, GA: IIE. [NCSU – Prof.]
- Pankok, C., **Kaber**, D. B., Hummer, J. E. & Rasdorf, W. J. (2015). Driver attention and performance effects of guide and logo signs under freeway driving. In proceedings of the *Transportation Research Board 94th Annual Meeting* (Paper No. 15-1046). Washington, D.C.: Transportation Research Board. [NCSU – Prof.]
- Clamann, M., Ma, W., Jeon, W. & **Kaber**, D. B. (2014). Comparison of haptic control design for virtual-reality based assembly task training. In *Proceedings of the 2014 ISERC Conference* (Paper No. 561; CD-ROM). Norcross, GA: IIE. [NCSU – Prof.]
- Jeon, W., Clamann, M. P., **Kaber**, D. B. & Currie, N. J. (2013). Assessing goal-directed three-dimensional movements in a virtual reality block design task. In *Proc. of the 2013 IEEE International Conference on Systems, Man, and Cybernetics* (CD-ROM). Manchester, England, October 13-16, 2013. [NCSU – Prof.]
- Pankok, C., **Kaber**, D. B. & Currie, N. J. (2013). Mitigating biases in time-to-contact judgments with cockpit displays of traffic information. In *Proc. of the 2013 IEEE International Conference on Systems, Man, and Cybernetics* (CD-ROM). Manchester, England, October 13-16, 2013. [NCSU – Prof.]
- Clamann, M. P., Ma, W. & **Kaber**, D. B. (2013). Evaluation of a virtual reality and haptic simulation of a block design test. In *Proc. of the 2013 IEEE International Conference on Systems, Man, and Cybernetics* (CD-ROM). Manchester, England, October 13-16, 2013. [NCSU – Prof.]
-

- 
- Salamati, K., Schroeder, B. J., Roupail, N. M., Cunningham, C. M., Zhang, Y. & **Kaber**, D. B. (2012). Simulator study of driver responses to pedestrian treatments at multilane roundabouts. In proceedings of the *Transportation Research Board 91<sup>st</sup> Annual Meeting* (Paper No. 12-0365). Washington, D.C.: Transportation Research Board. [NCSU – Prof.]
- Clamann, M. P. & **Kaber**, D. B. (2012). The effects of haptic and visual aiding on psychomotor task strategy development. In *Proc. of the 56th Annual Meeting of the Human Factors and Ergonomics Society* (CD-ROM). Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Prof.]
- Gangakhedkar, S., **Kaber**, D. B., Mosaly, P. & Diering, M. (2011). Effects of scaffolding equipment interventions on muscle activation and task performance. In *Proc. of the 55th Annual Meeting of the Human Factors and Ergonomics Society* (CD-ROM). Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Prof.]
- Picciano, P., **Kaber**, D., Bruni, S., Gil, G., Howard, D., Kim, S-H., Jones, E., Kaufmann, K. & Roberts, M. (2010). Designing for designers: A prototype to support human-automation interaction decisions. In *proc. of 2010 International Conference on Human-Computer Interaction in Aerospace* (CD-ROM). Cape Canaveral, FL: ACM-SIGCHI. [NCSU – Prof.]
- Swangnetr, M., Zhu, B., **Kaber**, D. B. & Taylor, K. (2010). Meta-analysis of user age and service robot configuration effects on human-robot interaction in a healthcare application. In *Proceedings of the 2010 AAAI Fall Symposium on Dialog with Robots* (CD-ROM). Arlington, VA: AAAI. [NCSU – Prof.]
- Kaufmann, K. & **Kaber**, D. B. (2010). The influence of individual differences in perceptual performance on pilot perceptions of head-up display clutter. In *Proc. of the 54th Annual Meeting of the Human Factors and Ergonomics Society* (CD-ROM). Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Prof.]
- Swangnetr, M., Zhu, B., Taylor, K. & **Kaber**, D. B. (2010). Assessing the effects of humanoid robot features on patient emotion during a medicine delivery task. In *Proc. of the 54th Annual Meeting of the Human Factors and Ergonomics Society* (CD-ROM). Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Prof.]
- Kim, S-H & **Kaber**, D. B. (2009). Assessing the effects of conformal terrain features in advanced head-up displays on pilot performance. In *Proc. of the 53rd Annual Meeting of the Human Factors and Ergonomics Society* (CD-ROM). Santa Monica, CA: Human Factors and Ergonomics Society. **(Winner of the HFES Aerospace Systems Technical Group Best Student Paper Award for publication and presentation at the HFES meeting in 2009.)** [NCSU – Prof.]
- Alexander, A., Stelzer, E., Kim, S-H & **Kaber**, D. B. (2009). Data and knowledge as predictors of perceptions of display clutter, subjective workload and pilot performance. In *Proc. of the 53rd Annual Meeting of the Human Factors and Ergonomics Society* (CD-ROM). Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Prof.]
- Jin, S. & **Kaber**, D. B. (2009). The role of driver cognitive abilities and distractions in situation awareness and performance under hazard conditions. In *Proc. of the IEA2009 – 17th World Congress on Ergonomics*. Beijing, China (August 9-14): Elsevier. [NCSU – Prof.]
- Zhang, Y., Jin, S., Garner, M., Mosaly, P. & **Kaber**, D. B. (2009). The effects of aging and cognitive stress disposition on driver situation awareness and performance in hazardous conditions. In *Proc. of the IEA2009 – 17th World Congress on Ergonomics*. Beijing, China (August 9-14): Elsevier. [NCSU – Prof.]
- Zhang, T., Zhu, B., Lee, L., Swangnetr, M., Mosaly, P. & **Kaber**, D. (2009). Service robot anthropomorphism and interface design for emotion in human-robot interaction. In *Proc. of the IEA2009 – 17th World Congress on Ergonomics*. Beijing, China (August 9-14): Elsevier. [NCSU – Prof.]
-

- 
- Swangnetr, M., **Kaber**, D. B. & Lee, Y-S. (2009). Human emotional state classification based on wavelet analysis and statistical feature selection. In *Proc. of the IEA2009 – 17th World Congress on Ergonomics*. Beijing, China (August 9-14): Elsevier.
- Hegarty, M., **Kaber**, D. B. & Grant, E. (2009). Application of usability analysis techniques to the design of rehabilitation equipment. In *Proc. of the IEA2009 – 17th World Congress on Ergonomics*. Beijing, China (August 9-14): Elsevier. [NCSU – Prof.]
- Li, Y., Mosaly, P. & **Kaber**, D. B. (2009). A comparison of haptic devices for computer-based assessment of motor-control disabilities. In *Proc. of the IEA2009 – 17th World Congress on Ergonomics*. Beijing, China (August 9-14): Elsevier. [NCSU – Prof.]
- Li, Y., **Kaber**, D. B. & Lee, Y-S. (2009). Investigating surgical simulator fidelity and the effects of system lag on human performance. In *Proc. of the IEA2009 – 17th World Congress on Ergonomics*. Beijing, China (August 9-14): Elsevier. [NCSU – Prof.]
- Kim, S-H & **Kaber**, D. B. (2008). Design and usability evaluation of foot interfaces for dynamic text editing. In *Proc. of the 52nd Annual Meeting of the Human Factors and Ergonomics Society (CD-ROM)*. Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Prof.]
- Alexander, A., Stelzer, E., **Kaber**, D. B. & Kim, S-H (2008). Bottom-up and top-down contributors to pilot perceptions of display clutter in advanced flight deck technologies. In *Proc. of the 52nd Annual Meeting of the Human Factors and Ergonomics Society (CD-ROM)*. Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Prof.]
- Zhang, T., **Kaber**, D. B. & Hsiang, S. (2008). Characterization of mental models in a virtual reality-based multitasking scenario. In *Proc. of the 52nd Annual Meeting of the Human Factors and Ergonomics Society (CD-ROM)*. Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Prof.]
- Lee, L. & **Kaber**, D. B. (2008). Assessing interactive system effectiveness with usability heuristics and markov models of user behavior. In *Proc. of the 52nd Annual Meeting of the Human Factors and Ergonomics Society (CD-ROM)*. Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Prof.]
- Zhang, T., Zhu, B., Lee, L. & **Kaber**, D. B. (2008). Nursing robot interface design and anthropomorphism for patient emotions in patient-robot interaction. In *Proc. of the 4th IEEE Conference on Automation Science and Engineering (CD-ROM)*. Washington, DC, August., 24-26, 2008.
- Kumar, M., Stoll, N., **Kaber**, D. B., Thurow, K. & Stoll, R. (2007). Fuzzy filtering for an intelligent interpretation of medical data. In *Proc. of the 3rd IEEE Conference on Automation Science and Engineering (CD-ROM)*. Scottsdale, AZ, Sept., 22-25, 2007. [NCSU – Prof.]
- Kaber**, D. B., Stoll, N. & Thurow, K. (2007). Human-automation interaction strategies for life science applications: Implications and future research. In *Proc. of the 3rd IEEE Conference on Automation Science and Engineering (CD-ROM)*. Scottsdale, AZ, Sept., 22-25, 2007. [NCSU – Prof.]
- Green, R., Kim, S-H., **Kaber**, D.B. & Stoll, N. (2007). Prototyping and Usability Testing of Supervisory Control Interfaces for Life Science Automation. In *Proc. of the 3rd IEEE Conference on Automation Science and Engineering (CD-ROM)*. Scottsdale, AZ, Sept., 22-25, 2007. [NCSU – Prof.]
- Vannijirattikhan, R., **Kaber**, D. B., Chow, M-Y & Stoll, N. (2007). Timed Petri net modeling and simulation of a high-throughput biological screening process. In *Proc. of the 3rd IEEE Conference on Automation Science and Engineering (CD-ROM)*. Scottsdale, AZ, Sept., 22-25, 2007. [NCSU – Prof.]
- Kalambi, V., Pritchett, A. R., Bruneau, D. P. J., Endsley, M. R., **Kaber**, D. B., Trujillo, A. (2007). In-flight planning and intelligent pilot aids for emergencies and non-nominal flight conditions
-



- 
- using automatically generated flight plans. In *Proc. of the 51st Annual Meeting of the Human Factors and Ergonomics Society* (CD-ROM). Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Prof.]
- Kim, S-H, **Kaber**, D. B. & Perry, C. M. (2007). Computational GOMS modeling for explaining cognitive behavior in a complex dual-task scenario. In *Proc. of the 51st Annual Meeting of the Human Factors and Ergonomics Society* (CD-ROM). Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Prof.]
- Ma, R., **Kaber**, D. B., Jones, J. M. & Starkey, R. L. (2006). Team situation awareness in nuclear power plant process control: A literature review, task analysis and future research. In *Proc. of the 5th American Nuclear Society Int. Topical Meeting on Nuclear Plant Instrumentation Control and Human Machine Interface Technology (NPIC&HMIT 2006)* (pp. 459-462). LaGrange Park, IL: ANS. [NCSU – Assoc. Prof.]
- McClernon, C. K., **Kaber**, D. B., Perry, C. M. & Segall, N. (2006). Towards a sensitive measure of situation awareness in adaptively automated systems. In *Proc. of the 50th Annual Meeting of the Human Factors and Ergonomics Society* (CD-ROM). Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Assoc. Prof.]
- Warren-Noell, H. L., **Kaber**, D. B. & Sheik-Nainar, M. A. (2006). Human performance with vocal cueing of automation state changes in an adaptive system. In *Proc. of the 50th Annual Meeting of the Human Factors and Ergonomics Society* (CD-ROM). Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Assoc. Prof.]
- Segall, N. & **Kaber**, D. B. (2006). Design of a cognitive model-based decision support tool for anesthesiology crisis management. In *Proc. of the 50th Annual Meeting of the Human Factors and Ergonomics Society* (CD-ROM). Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Assoc. Prof.]
- Ma, R. & **Kaber**, D. B. (2006). Situation awareness and driving performance in a simulated navigation task. In *Proc. of the 50th Annual Meeting of the Human Factors and Ergonomics Society* (CD-ROM). Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Assoc. Prof.]
- Kaber**, D.B., Wang, X. & Kim, S-H. (2006). Computational cognitive modeling of operator behavior in telerover navigation. In *Proc. of the 2006 IEEE International Conference on Systems, Man, and Cybernetics* (CD-ROM). Taipei, Taiwan, October 8-11, 2006.
- Perry, C. M., Sheik-Nainar, M. A., Segall, N., Ma, R. & **Kaber**, D.B. (2006). Effects of physical workload on operator situation awareness. In *Proc. of the IEA2006 – 16th World Congress on Ergonomics* (CD-ROM). Maastricht, The Netherlands (July 10-14): Elsevier. [NCSU – Assoc. Prof.]
- Ma, R., **Kaber**, D. B., Hwan, S-K., & Wang, X. (2006). Effects of in-vehicle navigation system and reliability on driver trust. In *Proc. of the IEA2006 – 16th World Congress on Ergonomics* (CD-ROM). Maastricht, The Netherlands (July 10-14): Elsevier. [NCSU – Assoc. Prof.]
- Sheik-Nainar, M. A., **Kaber**, D.B. & McGee, B. (2006). Optic flow during treadmill walking and the effect on gait kinematics. In *Proc. of the IEA2006 – 16th World Congress on Ergonomics* (CD-ROM). Maastricht, The Netherlands (July 10-14): Elsevier. [NCSU – Assoc. Prof.]
- Kaber**, D.B., Riley, J. M., Sheik-Nainar, M.A., Hyatt, J.R. & Reynolds, J. P. (2006). Assessing infantry soldier situation awareness in virtual environment-based training of urban terrain operations. In *Proc. of the IEA2006 – 16th World Congress on Ergonomics* (CD-ROM). Maastricht, The Netherlands (July 10-14): Elsevier. [NCSU – Assoc. Prof.]
- Perry, C. M., **Kaber**, D. B., Segall, N. & Sheik-Nainar, M. A. (2006). Differential effects of types of automation on operator workload state classification using neural networks. In *Proc. of the IEA2006 – 16th World Congress on Ergonomics* (CD-ROM). Maastricht, The Netherlands (July
-

- 
- 10-14): Elsevier. [NCSU – Assoc. Prof.]
- Segall, N., Green, R. S. and **Kaber**, D. B. (2006). User, robot and automation evaluations in high-throughput biological screening processes. In *Proceedings of the 2006 ACM Conference on Human-robot Interaction (HRI 06)* (pp. 274-281). New York: ACM. [NCSU – Assoc. Prof.]
- Steinfeld, A., Fong, T., **Kaber**, D. B., Lewis, M., Scholtz, J., Schultz, A. and Goodrich, M. (2006). Common metrics for human-robot interaction. In *Proceedings of the 2006 ACM Conference on Human-robot Interaction (HRI 06)* (pp. 33-40). New York: ACM. [NCSU – Assoc. Prof.]
- Ma, R., **Kaber**, D. B. and Sheik-Nainar, M. A. (2005). Situation awareness in driving while using adaptive cruise control and a cell phone. In *Proceedings of the 49th Annual Meeting of the Human Factors and Ergonomics Society* (pp. 381-385). Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Assoc. Prof.]
- Sheik Nainar, M. A. and **Kaber**, D. B. (2005). Virtual reality locomotion interface for the study of gait kinematics. In *Proceedings of the 11th International Conference on Human-computer Interaction* (Vol. 9, “Advances in Virtual Environments Technology: Musings on Design, Evaluation, & Applications”). Mahwah, NJ: Lawrence Erlbaum & Assoc. [NCSU – Assoc. Prof.]
- Riley, J. M. and **Kaber**, D. B. (2005). Assessing the relationship of situation awareness and subjective telepresence in virtual landmine disposal simulation. In *Proceedings of the 11th International Conference on Human-computer Interaction* (Vol. 9, “Advances in Virtual Environments Technology: Musings on Design, Evaluation, & Applications”). Mahwah, NJ: Lawrence Erlbaum & Assoc. [NCSU – Assoc. Prof.]
- Kaber**, D. B., Riley, J. M., Lampton, D. & Endsley, M. R. (2005). Measuring situation awareness in a virtual urban environment for dismounted infantry training. In *Proceedings of the 11th International Conference on Human-computer Interaction* (Vol. 9, “Advances in Virtual Environments Technology: Musings on Design, Evaluation, & Applications”). Mahwah, NJ: Lawrence Erlbaum & Assoc. [NCSU – Assoc. Prof.]
- Clamann, M. P. and **Kaber**, D. B. (2003). Authority in adaptive automation applied to various stages of human-machine system information processing. In *Proceedings of the 47<sup>th</sup> Annual Meeting of the Human Factors and Ergonomics Society* (pp. 543-547). Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Assoc. Prof.]
- Sheik-Nainar, M. A., **Kaber**, D. B. and Chow, M-Y. (2003). The effects of gain adaptation for QoS deterioration in internet-based teleoperation using a virtual reality interface. In *Proceedings of the 47<sup>th</sup> Annual Meeting of the Human Factors and Ergonomics Society* (pp. 2088-2091). Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Assoc. Prof.]
- Wright, M.C. and **Kaber**, D. B. (2003). Team coordination and strategies under automation. In *Proceedings of the 47<sup>th</sup> Annual Meeting of the Human Factors and Ergonomics Society* (pp. 553-557). Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Assoc. Prof.]
- Kaber**, D.B. & Chow, M-Y. (2003). Human-robot interaction research and an approach to mobile-telerobot interface design. In *Proceedings of the XVth Triennial Congress of the International Ergonomics Association* (CD-ROM, Vol. 1, “Human Performance in Complex Systems II”). Seoul, Korea: The Ergonomics Society of Korea. [NCSU – Assoc. Prof.]
- Kaber**, D.B. & Wright, M. C. (2003). Automation-state changes and sensory cueing in telerobot control. In *Proceedings of the XVth Triennial Congress of the International Ergonomics Association* (CD-ROM, Vol. 1, “Computers and Communications”). Seoul, Korea: The Ergonomics Society of Korea. [NCSU – Assoc. Prof.]
- Ma, R. and **Kaber**, D. B. (2003). Telepresence, performance and workload in an immersive virtual environment and sporting task. In *Proceedings of the XVth Triennial Congress of the International Ergonomics Association* (CD-ROM, Vol. 1, “Virtual Reality II”). Seoul, Korea: The Ergonomics Society of Korea. [NCSU – Assoc. Prof.]
-

- 
- Wright, M. C. and **Kaber**, D. B. (2003). Effects of automation on teamwork. In *Proceedings of the XVth Triennial Congress of the International Ergonomics Association* (CD-ROM, Vol. 1, "Computers and Communications"). Seoul, Korea: The Ergonomics Society of Korea. [NCSU – Assoc. Prof.]
- Kaber**, D. B. and Clamann, M. P. (2003). Usability evaluation for the advanced commercial aircraft cockpit. In J. Jacko & C. Stephanidis (Eds.), *Human-Computer Interaction: Theory and Practice (Part I) (Proceedings of the 10<sup>th</sup> International Conference on Human-Computer Interaction*, pp. 646-650). Mahwah, NJ: LEA. [NCSU – Assoc. Prof.]
- Clamann, M. P., Wright, M. C. and **Kaber**, D. B. (2002). Comparison of performance effects of adaptive automation applied to various stages of human-machine system information processing. In *Proceedings of the 46<sup>th</sup> Annual Meeting of the Human Factors and Ergonomics Society* (pp. 342-346). Santa Monica, CA: Human Factors and Ergonomics Society. (**Winner of the HFES Cognitive Engineering and Decision Making Technical Group Best Student Paper Award for publication and presentation at the HFES meeting in 2002.**) [NCSU – Assoc. Prof.]
- Leyman, E. L. C., Mirka, G. A., **Kaber**, D. B. and Sommerich, C. (2001). Assessing the relationship between cognitive load and cervicobrachial muscle response during a typing task. In *Proceedings of the 45<sup>th</sup> Annual Meeting of the Human Factors & Ergonomics Society* (pp. 1092-1096). Santa Monica, CA: Human Factors and Ergonomics Society. [NCSU – Asst. Prof.]
- Kaber**, D. B., Riley, J., Zhou, R. and Draper, J. V. (2000). Effects of visual interface design, control interface type, and control latency on performance, telepresence, and workload in a teleoperation task. In the *Proceedings of the XIVth Triennial Congress of the International Ergonomics Association and 44<sup>th</sup> Annual Meeting of the Human Factors and Ergonomics Society* (pp. 503-506). Santa Monica, CA: Human Factors and Ergonomics Society. [MSU - Asst. Prof.]
- Song, D. and **Kaber**, D. B. (2000). Web-based interface design for teleoperation. In the *Proceedings of the XIVth Triennial Congress of the International Ergonomics Association and 44<sup>th</sup> Annual Meeting of the Human Factors and Ergonomics Society* (pp. 449-452). Santa Monica, CA: Human Factors and Ergonomics Society. [MSU - Asst. Prof.]
- Tan, K-W, **Kaber**, D. B., Riley, J. and Endsley, M. R. (2000). Human factors issues in the implementation of adaptive automation in complex systems. In the *Proceedings of the XIVth Triennial Congress of the International Ergonomics Association and 44<sup>th</sup> Annual Meeting of the Human Factors and Ergonomics Society* (pp. 97-100). Santa Monica, CA: Human Factors and Ergonomics Society. [MSU - Asst. Prof.]
- Riley, J. M. and **Kaber**, D. B. (1999). The effects of visual display type and navigational aid on presence, performance, and workload in virtual reality training of telerover navigation. In the *Proceedings of the 43<sup>rd</sup> Annual Meeting of the Human Factors and Ergonomics Society* (pp. 1251-1255). Santa Monica, CA: Human Factors and Ergonomics Society. [MSU - Asst. Prof.]
- Kaber**, D. B. and Endsley, M. R. (1997). The combined effect of level of automation and adaptive automation on human performance with complex, dynamic control systems. In the *Proceedings of the 41<sup>st</sup> Annual Meeting of the Human Factors and Ergonomics Society* (pp. 205-209). Santa Monica, CA: Human Factors and Ergonomics Society. [MSU - Asst. Prof.]
- Hosni, Y. A. and **Kaber**, D. B. (1993). An ergonomic support stand for overhead space shuttle maintenance procedures. In *Proceedings of the 2nd Industrial Engineering Research Conference* (pp. 178-182). Norcross, GA: Institute of Industrial Engineers. (UCF - Res. Asst.)

#### **Other Conference Proceedings (55).**

- Swangnetr, M., **Kaber**, D. B., Vorberg, E., Fleischer, H. & Thurow, K. (2014). Workload assessment for manual and automated processes in life sciences. In *Proceedings of the 2014 Applied Human Factors & Ergonomics Conference* (Paper No. 1309). Boca Raton, FL: Taylor &

- 
- Francis CRC Press. [NCSU – Prof.]
- Swangnetr, M. & **Kaber**, D. B., (2014). Analysis of Novice and Experienced Rice Farmer Grip Force and Arm Muscle Activity in a Plowing Task. In *Proceedings of the 2014 Applied Human Factors & Ergonomics Conference* (Paper No. 24). Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Swangnetr, M., **Kaber**, D. B., Vorberg, E., Fleischer, H. & Thurow, K. (2014). Identifying automation opportunities in a life science process through operator task modeling and workload assessment. In *Proceedings of the 2014 Applied Human Factors & Ergonomics Conference* (Paper No. 40). Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Clamann, M., Ma, J. & **Kaber**, D. B. (2013). Comparison of enhanced visual and haptic features in a virtual reality-based haptic simulation. In *Proceedings of the 15<sup>th</sup> International Conference on Human-Computer Interaction*. Las Vegas, NV: Taylor & Francis CRC Press. [NCSU – Prof.]
- Clamann, M., Gil, G-H, **Kaber**, D. B., Zhu, B., Swangnetr, M., Jeon, W., Zhang, Y., Qin, X., Ma, W., Tupler, L. A. & Lee, Y-S. (2012). Assessment of a virtual reality-based haptic simulation for motor skill rehabilitation. In *Proceedings of the 2012 Applied Human Factors & Ergonomics Conference*. Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Eungpinichpong, W., Areudomwong, P., Pramodhyakul, N., Buttawat, V., Swangnetr, M., **Kaber**, D. B., & Puntumetakul, R. (2012). Effects of restrictive clothing on lumbar range of motion in adolescent workers. In *Proceedings of the 2012 Applied Human Factors & Ergonomics Conference*. Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Gangakhedkar, S., **Kaber**, D. B., Diering, M., & Mosaly, P. (2012). Ergonomic evaluation of scaffolding task interventions for power plant maintenance. In *Proceedings of the 2012 Applied Human Factors & Ergonomics Conference*. Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Gil, G-H. & **Kaber**, D. B. (2012). Enhanced GOMS Language (E-GOMSL) tool development for pilot behavior prediction and simulation. In *Proceedings of the 2012 Applied Human Factors & Ergonomics Conference*. Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Jeon, W., Clamann, M., Zhu, B., Gil, G-H & **Kaber**, D. B. (2012). Usability evaluation of a virtual reality system for motor rehabilitation. In *Proceedings of the 2012 Applied Human Factors & Ergonomics Conference*. Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Kaber**, D. B., Naylor, J. T., Gil, G-H., & Pankok, C. (2012). Influence of aviation display dynamics and flight domain on pilot perceived display clutter. In *Proceedings of the 2012 Applied Human Factors & Ergonomics Conference*. Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Rogers, M., **Kaber**, D. B. & Taylor, K. (2012). Identifying and evaluating risk factors for musculoskeletal disorders in equine veterinary work. In *Proceedings of the 2012 Applied Human Factors & Ergonomics Conference*. Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Swangnetr, M., Namkorn, P., Phimphasak, C., Sanelee, K., Buranrak, O., **Kaber**, D. B., & Puntumetakul, R. (2012). Task analysis and job screening on rice plowing activity. In *Proceedings of the 2012 Applied Human Factors & Ergonomics Conference*. Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Swangnetr, M., Zhu, B., **Kaber**, D. B., Gordes, D., Thurow, K., Stoll, N., & Stoll, R. (2012). Cognitive workload analysis and development of a stress index for life science processes. In *Proceedings of the 2012 Applied Human Factors & Ergonomics Conference*. Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Taylor, K. & **Kaber**, D. B. (2012). Identifying and modeling perceptions of risk factors in hand hygiene during healthcare operations. In *Proceedings of the 2012 Applied Human Factors &*
-

- 
- Ergonomics Conference*. Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Zhang, Y. & **Kaber**, D. B. (2012). The Importance of situation awareness in classifying driver cognitive distraction states. In *Proceedings of the 2012 Applied Human Factors & Ergonomics Conference*. Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Zhu, B. **Kaber**, D. B. (2012). A review of sensory feedback and skill learning for rehabilitation. In *Proceedings of the 2012 Applied Human Factors & Ergonomics Conference*. Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Rogers, M., Zhang, Y., **Kaber**, D. B., Liang, Y. & Gangakhedkar, S. (2011). The effects of visual and cognitive distraction on driver situation awareness. In *Proceedings of HCI International 2011* (CD-ROM). Orlando, FL (July 9-14): CRC Press. [NCSU – Prof.]
- Rogers, M., Gangakhedkar, S. & **Kaber**, D. B. (2011). Ergonomic evaluation of emergency veterinary clinic operations. In *Proceedings of the 2011 Applied Ergonomics Conference* (CD-ROM). Orlando, FL (March 21-23): IIE. [NCSU – Prof.]
- Zhang, T. & **Kaber**, D. B. (2010). Characterization of mental models in an inductive reasoning task using measures of situation awareness. In *Proceedings of the 2010 Applied Human Factors & Ergonomics Conference* (CD-ROM). Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Zhang, Y. & **Kaber**, D. B. (2010). An empirical assessment of driver motivation, emotional response and driving conditions on risk-taking decisions. In *Proceedings of the 2010 Applied Human Factors & Ergonomics Conference* (CD-ROM). Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Kim, S-H., Green, R. S., **Kaber**, D. B., Weippert, M., Arndt, D., Stoll, R. & Mosaly, P. (2010). Workload-based evaluation of supervisory control interfaces for life science automation. In *Proceedings of the 2010 Applied Human Factors & Ergonomics Conference*. Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Kaufmann, K., **Kaber**, D. B., Alexander, A., Kim, S-H. & Naylor, J. T. (2010). Testing measures of aviation display clutter for predicting pilot subjective impressions and flight performance. In *Proceedings of the 2010 Applied Human Factors & Ergonomics Conference* (CD-ROM). Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Zhu, B. & **Kaber**, D. B. (2010). Linguistic etiquette for service robots in a patient medicine delivery task. In *Proceedings of the 2010 Applied Human Factors & Ergonomics Conference* (CD-ROM). Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Gil, G-H., Kaufmann, K., Kim, S-H. & **Kaber**, D. B. (2010). Effects of modes of cockpit automation on pilot performance and workload in a Next Generation flight concept of operation. In *Proceedings of the 2010 Applied Human Factors & Ergonomics Conference* (CD-ROM). Boca Raton, FL: Taylor & Francis CRC Press. [NCSU – Prof.]
- Gil, G-H., **Kaber**, D. B., Kim, S-H., Kaufmann, K., Veil, T. & Picciano, P. (2009). Modeling pilot cognitive behavior for predicting performance and workload effects of cockpit automation. In *Proceedings of the 15<sup>th</sup> International Symposium on Aviation Psychology* (ST07\_2.pdf). Dayton, OH: Wright State University. [NCSU – Prof.]
- Kim, S-H., **Kaber**, D. B., Kaufmann, K., Veil, T., Alexander, A. L., Stelzer, E. M. & Prinzel, L. J. (2009). Modeling the effects of HUD visual properties and configurations on a multi-dimensional measure of clutter. In *Proceedings of the 15<sup>th</sup> International Symposium on Aviation Psychology* (SW03\_2.pdf). Dayton, OH: Wright State University. [NCSU – Prof.]
- Lampton, D. R., Riley, J. M., **Kaber**, D. B., Sheik-Nainar, M. A. & Endsley, M. R. (2006). Use of immersive virtual environments for measuring and training situation awareness. In *Proceedings of the 25<sup>th</sup> Army Science Conference*. Washington, DC: Assistant Secretary of the Army, Dept. of the Army. [NCSU – Assoc. Prof.]
-

- 
- Kaber, D. B.** (2005). Human-centered design for human-robot interaction. In J. Sinay, P. Mondelo, K. L. Saarela, W. Karwowski & M. Mattila (Eds.), *CAES '2005 Proceedings* (CD-ROM). Kosice, Slovak Republic, May 25-28, 2005. [NCSU – Assoc. Prof.]
- Perry, C. M., Segall, N. and **Kaber, D. B.** (2005). Measurement of situation awareness effects of adaptive automation of air traffic control information processing functions. *Proceedings of the 13<sup>th</sup> International Symposium on Aviation Psychology* (pp. 457-462). Dayton, OH: Wright State University. [NCSU – Assoc. Prof.]
- Ma, R. and **Kaber, D. B.** (2004). A distance-based concept of automation for human-robot interaction. In D. A. Vincenzi, M. Mouloua & P. A. Hancock (Eds.), *Human Performance Situation Awareness and Automation: Current Research and Trends* (Vol. 2, pp. 60-64). Mahwah, NJ: LEA. [NCSU – Assoc. Prof.]
- Wright, M. C., **Kaber, D. B.** and Endsley, M. R. (2003). Performance and situation awareness effects of levels of automation in an advanced commercial aircraft flight simulation. In *Proceedings of the 12<sup>th</sup> International Symposium on Aviation Psychology* (pp. 1277-1282). Dayton, OH: Wright State University. [NCSU – Assoc. Prof.]
- Kaber, D.B.**, Chen, C-L and Dempsey, P. (2001). Using feedforward neural networks and forward selection of input variables for an ergonomics data classification problem. In B. Das and W. Karwowski (Eds.), *Proceedings of the 2001 International Conference on Computer-Aided Ergonomics and Safety*. Maui, HI, July 28-August 2, 2001. [NCSU – Asst. Prof.]
- Riley, J. M. and **Kaber, D. B.** (2001). Utility of situation awareness and attention for describing telepresence experiences in a virtual teleoperation task. In B. Das and W. Karwowski (Eds.), *Proceedings of the 2001 International Conference on Computer-Aided Ergonomics and Safety* (CD-ROM). Maui, HI, July 28-August 2, 2001. [NCSU – Asst. Prof.]
- Kaber, D. B.** (2000). Taking a new step in adaptive automation research: Applied study of modes of automation in the commercial aircraft cockpit. In D. B. Kaber and M. R. Endsley (Eds.), *Human Performance, Situation Awareness and Automation: User-centered Design for the New Millennium* (p. 5). Madison, WI: OmniPress. [NCSU – Asst. Prof.]
- Kaber, D. B.**, Zhou, R. and Song, D. (1999). Design and prototyping of an economical teleoperations test-bed for human factors research: Cost, resource requirements and capability assessment. In *Proceedings of the 25<sup>th</sup> International Conference on Computers & Industrial Engineering* (pp. 526-529). New Orleans, LA: *The Journal of Computers and Industrial Engineering*. [MSU – Asst. Prof.]
- Riley, J. M. and **Kaber, D. B.** (1999). The telepresence and performance effects of visual display type and navigational aid in simulated rover navigation training through a virtual environment. In *Proceedings of the ANS 8<sup>th</sup> Topical Meeting on Robotics and Remote Systems* (CD-ROM). LaGrange Park, IL: American Nuclear Society. [MSU – Asst. Prof.]
- Riley, J. M. and **Kaber, D. B.** (1999). An Investigation of Virtual Reality System and Task Features in Virtual Environment Navigation. In *Proc. of the 2<sup>nd</sup> Annual Student's Symposium on Human Factors & Ergonomics of Complex Systems* (pp. 45-57). Greensboro, NC: Department of Industrial Engineering & College of Engineering, NC A&T State University. (Winner of "Best Student Paper" Award for publication and presentation at Symposium.) [MSU – Asst. Prof.]
- Song, D., Zhou, R. and **Kaber, D. B.** (1999). Virtual Environment Manipulator Interface-Based Teleoperation Test-Bed Development for Human Factors Research. In *Proc. of the 2<sup>nd</sup> Annual Student's Symposium on Human Factors & Ergonomics of Complex Systems* (pp. 35-44). Greensboro, NC: Department of Industrial Engineering, NC A&T State University. [MSU – Asst. Prof.]
- Kaber, D. B.** and Chen, CL. (1998). Application of a feedforward neural network and local search method to an ergonomics data classification problem. In proceedings of the 2<sup>nd</sup> *International*
-

- 
- Conference on Engineering Design and Automation (EDA '98)*. Maui, HI, August 9-12, 1998. [MSU – Asst. Prof.]
- Kaber**, D. B., Onal, E. and Endsley, M. R. (1998). Level of automation effects on telerobot performance and human operator situation awareness and subjective workload. In M. Scerbo and M. Mouloua (Eds.), *Automation Technology and Human Performance: Current Research and Trends* (pp. 165-170). Mahwah, NJ: Lawrence Erlbaum Associates. [MSU – Asst. Prof.]
- Kaber**, D. B. and Riley, J. (1998). Adaptive automation of a dynamic control task based on workload assessment through a secondary monitoring task. In M. Scerbo and M. Mouloua (Eds.), *Automation Technology and Human Performance: Current Research and Trends* (pp. 129-133). Lawrence Erlbaum Associates: Mahwah, NJ. [MSU – Asst. Prof.]
- Kaber**, D. B. and Usher, J. M. (1998). Cognitive ergonomics issues in supervisory control: Flexible manufacturing system operator information requirements. In proceedings of the *2<sup>nd</sup> International Conference on Engineering Design and Automation (EDA '98)*. Maui, HI, August 9-12, 1998. [MSU – Asst. Prof.]
- Endsley, M. R. and **Kaber**, D. B. (1997). The use of level of automation as a means of alleviating out-of-the-loop performance problems: A taxonomy and empirical analysis. *Proceedings of the 13<sup>th</sup> Triennial Congress of the International Ergonomics Association* (pp. 168-170). [MSU – Asst. Prof.]
- Endsley, M. R., **Kaber**, D. B. and Onal, E. (1997). The impact of intermediate levels of automation on situation awareness and performance in dynamic control systems. In D. I. Gertman, D. L. Schurman and H. S. Blackman (Eds.), *Global perspectives of human factors in power generation. Proceedings of the 1997 IEEE Sixth Conference on Human Factors and Power Plants* (pp. 7-7/7-12). New York: IEEE. [MSU – Asst. Prof.]
- Kaber**, D. B. and Endsley, M. R. (1997). Level of automation and adaptive automation effects on performance in dynamic control environments. *Proceedings of the 13<sup>th</sup> Triennial Congress of the International Ergonomics Association* (pp. 202-204). [MSU – Asst. Prof.]
- Kaber**, D. B. and Endsley, M. R. (1997). Out-of-the-loop performance problems and the use of intermediate levels of automation for improved control system functioning and safety. *LPS 1997 - Proceedings of the 31<sup>st</sup> Annual Loss Prevention Symposium* (Paper 38d). Houston, TX: AIChE. [MSU – Asst. Prof.]
- Kaber**, D. B., Endsley, M. R. and Cassady, C. R. (1997). Level of automation for minimizing human out-of-the-loop performance effects on quality. *Proceedings of the 13<sup>th</sup> Triennial Congress of the International Ergonomics Association* (pp. 205-207). [MSU – Asst. Prof.]
- Kaber**, D. B., Onal, E. and Endsley, M. R. (1997). Design and development of a comprehensive user interface for teleoperator control in nuclear applications. In *Proceedings of the ANS 7<sup>th</sup> Topical Meeting on Robotics and Remote Systems* (pp. 947-954). LaGrange Park, IL: American Nuclear Society. [MSU – Asst. Prof.]
- Macedo, J. A., Myung, S. and **Kaber**, D. B. (1997). Automated compensation for incongruent display-controller axes in teleoperation. In *Proceedings of the ANS 7<sup>th</sup> Topical Meeting on Robotics and Remote Systems* (pp. 974-981). LaGrange Park, IL: American Nuclear Society.
- Usher, J. M., **Kaber**, D. B. and Draper, J. V. (1997). Research issues in virtual environment configuration for training of complex, dynamic task performance. In *Proc. of the Int. Conf. on Industry, Engineering, and Management Systems* (pp. 181-186).
- Kaber**, D. B., Macedo, J. A. and Endsley, M. R. (1996). Human factors investigation of automated compensation for incongruent display and controller axes in teleoperations: Part II. Dynamic misalignments. In R. Koubek and W. Karwowski (Eds.), *Manufacturing Agility and Hybrid Automation - I* (pp. 473-477). Amsterdam: Elsevier. [MSU – Asst. Prof.]
- Kaber**, D. B. and Ramsey, J. D. (1996). Hazard recognition, evaluation and control in construction: Use
-

---

and evaluation of a computerized system. In A. Mital, H. Krueger, S. Kumar, M. Menozzi and J. E. Fernandez (Eds.), *Advances in Occupational Ergonomics and Safety I* (pp. 77-82). Amsterdam: IOS Press. [TTU – Res. Asst.]

Macedo, J. A., **Kaber**, D. B. and Endsley, M. R. (1996). Human factors investigation of automated compensation for incongruent display and controller axes in teleoperations: Part I. Static misalignments. In R. Koubek and W. Karwowski (Eds.), *Manufacturing Agility and Hybrid Automation - I* (pp. 469-472). Amsterdam: Elsevier.

Ramsey, J. D. and **Kaber**, D. B. (1996). Risk and the motivation to control hazards. In M. J. Wang (Ed.), *Proceedings of the 4<sup>th</sup> Pan Pacific Conference on Occupational Ergonomics* (pp. 87-90). Hsinchu, Taiwan: Ergonomics Society of Taiwan.

**Kaber**, D. B. and Ramsey, J. D. (1995). Evaluation and control of safety hazards and ergonomic stressors in the secondary non-ferrous smelting industry: A case study. In A. C. Bittner and P. C. Champney (Eds.), *Advances in Industrial Ergonomics and Safety VII* (pp. 315-322). Washington, DC: Taylor and Francis. [TTU – Res. Asst.]

#### **Technical Publication and Memorandum (selected from among 56 technical reports).**

**Kaber**, D. B. & Prinzel, L. J. (2006). *Adaptive and adaptable automation design: A critical review of the literature and recommendations for future research*. (Tech. Memorandum.: NASA/TM-2006-214504). Washington, DC: NASA.

**Kaber**, D. B., Prinzel, L. J., Wright, M. C. & Clamann, M. P. (2002). *Workload-matched adaptive automation support of air traffic controller information processing stages* (Tech. Pub.: NASA/TP-2002-211932). Washington, DC: NASA.

#### **AWARDS AND HONORS:**

Recipient of *Certificate of Appreciation for Service as HFES Division of Internal Affairs Chair* 2013. (Presented by HFES.)

Recipient of *The C.A. Anderson Award for Outstanding Faculty for 2013*. (Presented by the NC State Department of Industrial & Systems Engineering for undergraduate teaching and advising.)

Recipient of *Certificate of Appreciation for Service as HFES Council of Technical Groups Chair* 2012. (Presented by HFES.)

Elected Fellow of the Human Factors & Ergonomics Society.

Recipient of *Certificate of Appreciation for Service as HFES Carolina Chapter President* 2008 (Presented by HFES.)

Recipient of *The Alcoa Foundation Engineering Research Achievement Award for 2006*. (Presented by the NC State College of Engineering.)

Recipient of *The C.A. Anderson Award for Outstanding Faculty for 2006*. (Presented by the NC State Department of Industrial & Systems Engineering for undergraduate teaching and advising.)

Recipient of the *Sigma Xi (Scientific Research Society) Research Award* (NC State University Chapter) (2005).

Invited plenary speaker at CAES (*Computer-Aided Ergonomics & Safety*), “Human-centered Design for Human-robot Interaction”. Kosice, Slovak Republic (May 2005).

Keynote presenter at the *2<sup>nd</sup> Life Sciences Automation Symposium*, “Approaches to Advanced Human-Machine Interfaces for Life Sciences Automation,” Rostock-Warnemünde, Germany (September 2004).

Recipient of *The Outstanding Past Conference Chair Award for organization of the 2000 Human Performance, Situation Awareness and Automation Conference* (Awarded by 2004 HPSAA Scientific Committee, Daytona Beach, Florida.)



---

Full member of Sigma Xi (2002-Present).

Recipient of the Human Factors and Ergonomics Society, The Jerome H. Ely Human Factors *Article Award* for, "Telepresence," the most outstanding article in *Human Factors* during 1998 (September, 1999).

Recipient of NSF Faculty Early Career Development Award (May 1998).

Recipient of MSU Office of Research, 1998 Research Initiation Award.

Associate of Sigma Xi (1997-2002).

Recipient of MSU Office of Research 1996-1997 Research Facilities Award.

Affiliate of Sigma Xi (Scientific Research Society) (1995-1997).

Banasik IE Graduate Scholar at TTU, Department of Industrial Engineering (1995-1996).

Recipient of Air Force Office of Scientific Research Training in Aviation Human Factors & Ergonomics Fellowship (August 1994 - August 1996).

Member of Alpha Pi Mu (Industrial Engineering Honor Society) (November 1992-Present).

## **PROFESSIONAL ACTIVITIES:**

### **Society Memberships.**

American Society for Engineering Education, Member (1998-present).

Association for the Advancement of Artificial Intelligence (2010-2011).

Human Factors and Ergonomics Society (HFES), Member (1996-2011), Fellow (2011-present).

Internal Affairs Division Chair (2012-2013).

Council of Technical Groups (COTG) Chair (2011-2012).

Carolina Chapter of HFES, Director (2009-2011, 2013-2015).

Carolina Chapter of HFES, President (2008-2009).

Carolina Chapter of HFES, Member (2000-present).

Cognitive Engineering and Decision-Making Technical Group (CEDM-TG) Chair (2009-2011).

CEDM-TG Conference Program-Chair (2003-2005).

CEDM-TG Conference Program-Chair Elect (2001-2003)

CEDM-TG Webmaster (1995-2001).

Institute of Industrial Engineers (IIE), Member (1988-2007), Senior Member (2007-2015), Fellow (2015-present).

Human Factors & Ergonomics Track Chair for *2015 Industrial & Systems Engineering Research Conference*.

The Institute for Ergonomics & Human Factors (2010-present).

The Ergonomics Society, Member (1996-2009).

The Institute of Electrical and Electronics Engineers (IEEE), Member (1999-2014), Senior Member (2014-present).

### **Editorial Duties.**

Associate Editor, *Theoretical Issues in Ergonomics Science* (August 2014-Present)

Associate Editor, *IIE Transactions on Occupational Ergonomics & Human Factors* (January 2014-present).

Associate Editor, *IEEE Transactions on Human-Machine Systems* (October 2012-present).

Editor of Volume 9 of *Human Factors Reviews*, "Human Performance in Teleoperations and Beyond," Santa Monica, CA: HFES (2013).

Editor of Special Issue of *Human Factors & Ergonomics in Manufacturing and Service Industries* on "Cognitive Engineering for Next Generation Transportation Systems," New York: Wiley, 2011.

Editor (with G. Boy) of *Advances in Cognitive Ergonomics* (in *Proceedings of the 3<sup>rd</sup> Applied Human*

---

*Factors & Ergonomics Conference*), Boca Raton, FL: Taylor & Francis CRC Press, 2010.  
Associate Editor, *IEEE Transactions on Systems, Man and Cybernetics* (Part A: "Systems and Humans") (October 2008-October 2012).  
Track Editor, *Journal of Cognitive Engineering & Decision Making* ("Studies in Simulations and Synthetic Environments") (October 2003-April 2011).  
Book Review and Information Editor for *Theoretical Issues in Ergonomics Science* (London: Taylor & Francis) (July 2001-June 2008).  
Co-Editor of Special Issue of *Human Factors and Ergonomics in Manufacturing* on "Cognitive Engineering in Automated Systems Design," New York: Wiley, 2000, pp. 363-490.  
Co-Editor of *Human Performance, Situation Awareness and Automation: User-centered Design for the New Millennium* (Proceedings of the Fourth Automation Technology and Human Performance Conference and the Third Situation Awareness in Complex Systems Conference), Madison, WI: OmniPress, 2000, 363 pp.  
Member of Editorial Board for *Journal of Human Factors* (January 2006-2013).  
Member of Editorial Board for *Human Factors and Ergonomics in Manufacturing and Service Industries* (2001- Present).  
Member of Editorial Board for *International Journal of Industrial Ergonomics* (August 2003-December 2010).  
Member of Editorial Board for *IIE Transactions on Occupational Ergonomics & Human Factors* (July 2010-January 2014).  
Member of Editorial Board for *Journal of Cognitive Engineering & Decision Making* (April 2011-Present).  
Member of Editorial Board for *Theoretical Issues in Ergonomics Science* (July 2014-August 2014; promoted to Assoc. Editor)

#### **Reviewer of Grants for Federal Agencies.**

Proposal Reviewer for NSF (1996, 1998, 1999, 2000-2003, 2005-2006, 2009, 2012)  
Student Proposal Reviewer for Sigma Xi, Grants-in-Aid of Research Program, Engineering proposals (2005, 2006)  
Proposal Reviewer for Louisiana Board of Regents, Experimental Program to Stimulate Competitive Research (EPSCoR) (2003, 2004).  
Proposal Reviewer for South Carolina, Department of Defense, DEPSCoR (2002, 2003).

#### **Referee for Journals and Books.**

Reviewer for *Applied Ergonomics* (2006, 2008, 2010, 2014)  
Reviewer for *Ergonomics* (2003, 2005, 2014).  
Reviewer for *Fuzzy Optimization and Decision Making: A Journal of Modeling and Computation Under Uncertainty* (2002).  
Reviewer for *Human Factors* (2000-2006).  
Reviewer for *IEEE Transactions on Systems, Man and Cybernetics, Part A: Systems and Humans* (2003-2012).  
Reviewer *IEEE Transactions on Systems, Man and Cybernetics*, Special Issue on Human-robot Interaction (2004).  
Reviewer for *IEEE Transactions on Systems, Man and Cybernetics*, Special Issue on Model-Based Cognitive Engineering in Complex Systems (2000).  
Reviewer for *IEEE Transactions on Nuclear Science* (2002-2004).  
Reviewer for *IIE Transactions* (1996).  
Reviewer for *International Journal of Cognitive Ergonomics* (2000-2001).

---

Reviewer for *International Journal of Engineering Design and Automation* (1997-1999).  
Reviewer for *International Journal of Industrial Ergonomics* (1998-1999, 2001, 2003).  
Reviewer for *International Journal of Human-Computer Studies* (2005-2006).  
Reviewer for *International Journal of Human Factors & Ergonomics in Manufacturing* (1999-2001).  
Reviewer for *Journal of Computers and Industrial Engineering* (2002)  
Reviewer for *Maynard's Industrial Engineering Handbook*, Chapter Submissions to Editor (1998).  
Reviewer for *Reviews on Human Factors & Ergonomics (Vol. 6)*, Chapter Submission to Editor (2009).  
Reviewer for *Theoretical Issues in Ergonomics Science* (2002-2005).

**External Reviewer for Promotion and/or Tenure Cases.**

Department of Computer Science, Brigham Young University  
Department of Industrial & Manufacturing Systems Engineering, Iowa State University  
Department of Industrial Engineering, Montana State University  
Department of Industrial & Systems Engineering, Texas A&M University  
Department of Industrial Engineering, Texas Tech University (three reviews)  
Department of Industrial & Systems Engineering, University of Buffalo  
Department of Electrical Engineering and Computer Science, Vanderbilt University  
Department of Industrial & Systems Engineering, Virginia Tech

**TECHNOLOGICAL INNOVATION:**

**Patent.**

Kaber, D. B. & Diering, M. (December 2009). *Adjustable Lever-Action Couplers* (United States Provisional Patent Application). Pittsboro, NC: Lee Law, PLLC

**SERVICE:**

**University.**

Chairman of NCSU Institutional Review Board for the Protection of Human Subjects (2006-2008).  
NCSU Study Abroad Scholarship Committee Application Reviewer (2005-2006)  
Member of NCSU Institutional Review Board for the Protection of Human Subjects (July 2001-September 2006).  
Member of the MSU Faculty Research Advisory Council (August 1999-May 2000).  
Member of MSU Institutional Review Board for the Protection of Human Subjects (June 1999-May 2000).  
Member of MSU Search Committee for Research and Curriculum Unit Director (1998).  
Member of the MSU Psychology Department Committee on Cognitive Psychology/Science Ph.D. Program (1996-2000)

**College.**

Member of Alcoa Research Awards Review Committee (2012-2014).  
Member of Search Committee for Co-Director of Textile Protection and Comfort Center (TPACC), School of Textiles (2012-2013).  
Member of ISE Department Head Five Year Review Committee (2011).  
Member of NCSU College Teaching & Advising Awards Committee (2007).  
Organized and hosted MSU College of Engineering 1999 Engineering Entrepreneurs Lecture Series, including Dr. Thomas K. Miller III (NCSU), Patricia J. Parsons (AmerInd, Inc.), and Jack Hatcher (Eagle Ventures, Inc.) (1999).

---

Chaired MSU College of Engineering, Hearin Committee on Entrepreneurship (1998-2000).  
Member of MSU College of Engineering, Hearin Committee on Entrepreneurship (1997-1998).  
Reviewer on MSU Instructional Paper Competition Committee (1997).

### **Department.**

Director of Research, The Ergonomics Center of North Carolina (2014-present)  
Member of ISE Department Graduate Admissions Committee (2010-present)  
Member of Search Committee for NCSU ISE Faculty (2010-2011)  
Member of NCSU ISE Department Undergraduate Program Committee (2010-2013)  
Member of NCSU ISE Department Graduate Program Committee (2009-2012)  
Member of Search Committee for NCSU ISE Ergonomics Faculty (2009-2010)  
Chair of Search Committee for NCSU ISE Ergonomics Faculty (2007-2009)  
Director of Occupational Safety & Ergonomics Program of UNC/NIOSH Occupational Safety and Health Education and Research Center (2007-present)  
Member of Search Committee for NCSU ISE Department Head (2006-2007)  
Member of Graduate Program Application Review Committee NCSU IE Department (2005-2007; 2010-present).  
Ergonomics Area Coordinator of NCSU IE Department Ph.D. Qualifying Exam (2005-present).  
Faculty advisor of APM (Alpha Pi Mu), IE Honor Society, NCSU, Student Chapter (2005-2008).  
Co-chair of NCSU Department of Industrial Engineering Ergonomics Faculty Position Search Committee (2004-2005).  
Member of Search Committee for Executive Director of The North Carolina Ergonomics Center (2003-2004).  
Member of NCSU Department of Industrial Engineering Ergonomics Faculty Position Search Committee (2002-2003).  
Member of NCSU IE Department, Distance Education Planning Committee (2002-2004).  
Chair of NCSU IE Department, Distance Education Planning Committee (2001-2002).  
Developer and director of the NCSU IE Cognitive Ergonomics Laboratory (2000-2007).  
Member of MSU Department of Industrial Engineering Ergonomics Technical Committee (1998-2000).  
Member of MSU Department of Industrial Engineering Committee on Graduate Education (1997-2000).  
Developed and directed MSU, Cognitive Engineering and Systems Laboratory (1996-2000).  
Member of MSU Department of Industrial Engineering Committee on Information Systems in the IE Curriculum (1996-1997).  
Member of MSU Department of Industrial Engineering Committee on Fundamental Concepts in Work Design (1996).

### **National and International.**

Member of Scientific Committee for the *3<sup>rd</sup> International Conference on Human Factors in Road and Rail Transportation*, Caesar's Palace, Las Vegas, USA, July, 2015.  
Director of Carolina Chapter of HFES (2013-2015).  
Chair of HFES Internal Affairs Division – Responsible for overseeing and reporting on the progress of the annual conference committee, all local and student chapters, the HFES conference technical program committee, the student affairs committee and the early-career professionals committee (2012-2013).  
Member of “Cognitive & Neuroergonomics” Scientific Advisory Board of the *5<sup>th</sup> International*

---

*Conference on Applied Human Factors and Ergonomics*, Krakow, Poland, July 19-23, 2014.  
Member of Scientific Committee for the *2<sup>nd</sup> International Conference on Human Factors in Road and Rail Transportation*, Jagiellonian University, Krakow, Poland, July 19-23, 2014.  
Associate Editor on International Program Committee of the *21<sup>st</sup> IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN 2013)*, Gyeongju, Korea, August 26-29, 2013.  
Chair of HFES Council of Technical Groups – Responsible for facilitating and overseeing the activities of all TGs within the Society (2011-2012).  
Member of Scientific Committee for the *1<sup>st</sup> International Conference on Human Factors in Road and Rail Transportation*, San Francisco, CA, July 21-25, 2012.  
Member of “Cognitive & Neuroergonomics” Board of the *4<sup>th</sup> International Conference on Applied Human Factors and Ergonomics*, San Francisco, CA, July 21-25, 2012.  
Associate Editor on International Program Committee of the *20<sup>th</sup> IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN 2011)*, Atlanta, GA, July 31-August 3, 2011.  
Member of Technical Program for the *2010 IEEE Conference on Cognitive Methods in Situation Awareness and Decision Support*, Miami Beach, FL, February 22-24, 2011.  
Member of Technical Program Board for the *2011 Human-Computer Interaction International Conference (Virtual and Mixed Reality)*, Orlando, Florida, July 9-14, 2011.  
Member of Technical Program for the *2010 IEEE Conference on Automation Science and Engineering (Automation in Life Sciences and Healthcare Track)*, Toronto, Canada, August 21-24, 2010.  
Chair of HFES, CEDM-TG – Responsible for developing and facilitating new TG initiatives to support members and students (2009-2011).  
Director of Carolina Chapter of HFES (2009-2011).  
Member of Technical Program Board (in cognitive ergonomics) for the *3<sup>rd</sup> International Conference on Applied Human Factors and Ergonomics (AHFE)*, Miami, FL, July 14-17, 2010.  
Member of Program Board for the *Human-Computer Interaction International (HCII) 2009 Virtual and Mixed Reality (VMR) Conference*, San Diego, CA, July, 19-24, 2009.  
President of Carolina Chapter of HFES (2008-2009).  
Member of Program Committee for the *1<sup>st</sup> ACM Symposium on Computer Human Interaction for Management of IT (CHIMIT '07)*, Cambridge, MA, March 30-31, 2007.  
Member of Program Committee and “Cognitive Ergonomics Board” for the *2<sup>nd</sup> International Conference on Applied Ergonomics*, Las Vegas, July 13-17, 2008.  
Chair of Special Session on “Collaborative Virtual Environments Research” at *1<sup>st</sup> International VR Conference*, Las Vegas, NV, July 22-25, 2005.  
Member of Distinguished Advisory Board for the *2<sup>nd</sup> Edition of the International Encyclopedia of Ergonomics & Human Factors* (Taylor & Francis Group/CRC, London) (2004-2005).  
Chair of *2004 Human Interaction with Life Sciences Automation Workshop*, Rostock-Warnemünde, Germany, September 21-24 (2004).  
Member of the Scientific Committee for the *BioCon Valley Life Science for the Future – International Conference and Exhibition*, Rostock-Warnemünde, Germany, September 8-10 (2004).  
Member of the Scientific Committee for the *Second Human Performance Situation Awareness and Automation Conference*, Dayton Beach, Florida, March 22-25 (2004).  
Program Chair of HFES, CEDM-TG – Responsible for planning technical program for TG for annual Society meeting sessions (2003-2005).

---

Program-Chair Elect of HFES, CEDM-TG – Assistant to Program Chair in planning annual Society meeting sessions (2001-2003).

Chair of 2000 *Human Performance, Situation Awareness and Automation Conference*, Savannah, Georgia, October 15-19 (2004).

Developer and Manager of HFES, CEDM-TG Web Site and List Server (1995-2001).

## POPULAR PRESS:

Research to appear in *HFES Safety Technical Group Newsletter*, “Research Review: More Logos on “Blue” Freeway Signs Does not Increase Driving Safety Risk,” story by C. Pankok, D. Kaber & J. Hummer.

Research in *CCEE News* (Dept. of Civil, Construction & Environ. Engr., NC State), “Highway Logo Signs and Safety,” article by W. Rasdorf, D. Kaber & J. Hummer.

Research in *IE (Industrial Engineer) Magazine*, “Alleviating four-legged problems,” September 2012 story by M. Rogers, K. Taylor & D. B. Kaber.

Research in *IE (Industrial Engineer) Magazine*, “NCSU IEs change angle of infant car seat handle to improve safety for parents, babies. March 2012 *Front Line* story.

Research featured in *IE (Industrial Engineer) Magazine*, “Keeping Fido’s helpers healthy,” March 2011 cover story by M. Rogers, S. Gangakhedkar & D. B. Kaber.

Research featured in *NC State University Results Magazine*, “Flight Controls,” Fall 2010.

Research featured in *NC State University Results Magazine*, “Seniors Cautious About Life in the Fast Lane,” Fall 2009.

Research update in *NC State Engineering Alumni Magazine*, “Simulating for Safety: Researchers use simulators to improve safety on the road and in the air,” Vol. IX, No. 3, Fall 2008.

Research to be featured in *IE (Industrial Engineer) Magazine*, “Human Factors Studies in Simulators and Synthetic Environments,” Summer 2008.

Research featured in *APA Monitor on Psychology*, “Air Travel: The next generation,” March 2008, pp. 31-33.

Research covered in NCSU College of Engineering, *Engineering News*, “Duke Energy Invests in Safety & Ergonomics Research in the College of Engineering,” Fall, 2007, Engineering Communications, College of Engineering, NCSU.

Research featured in *IE Magazine*, “Hear me now: Hang up and drive,” *Front Line: News, Trends & Tactics*, February 2006, p. 13.

Television interview to discuss cell phone use and situation awareness in driving research, NewsChannel14 - Carolina (Channel 14), Charlotte, NC, aired 12/5-6/06.

Television interview to discuss cell phone use and situation awareness in driving research, WRAL (Channel 3), Raleigh, NC, aired 12/4/06.

Radio interview to discuss, “Hang-up and Drive,” press release by NCSU, WUNC 91.5, Chapel Hill, North Carolina, aired 12/2/05 at 4:30pm.

Research featured in NCSU College of Engineering, *Engineering News*, “Hang-up and Drive - Simulation Study Shows Cell Phone Use and Driving Don’t Mix,” 11/14/05, Engineering Communications, College of Engineering, NCSU.

Research featured in *Cognitia* (the Newsletter of the CEDM-TG of the HFES), “Comparison of performance effect of adaptive automation applied to various stages of human-machine system information processing,” Vol. 7, No. 1, Summer 2003, HFES.

Research featured in NCSU *Bulletin*, “NC State research leads to air safety,” 11/30/01, NC State News Services.

Research featured in NCSU’s Student Newspaper, the *Technician*, “Researchers question positives,

---

negatives of airplane automation,” 11/28/01, FRONT PAGE.

Research featured in *Mechanical Engineering* magazine, “Being There,” 6/01, Departments: Tech Focus, Pt. 2.

Research featured in *NSPE's Engineering Times*, “NC State Researcher Fine Tunes Robotic Control with Virtual Reality,” 6/01. National Society of Professional Engineers (<http://www.nspe.org/membonly/etmo/10-00briefs.asp>).

Research featured in NC State University *NEWS RELEASE*, “NC State Researcher Fine Tunes Robotic Control with Virtual Reality,” 4/9/01. NC State News Services Web page (<http://www.ncsu.edu/news>).

Research honored in *The Jackson Clarion-Ledger*, “Engineers to receive 1999 Ely Award,” 9/23/99, AWARDS/HONORS.

Research featured in *The Jackson Clarion-Ledger*, “MSU engineer wins research award,” 5/7/99, MISSISSIPPI REPORT.

Research featured in *The Starkville Daily News*, “MSU engineers seek to bring movie ‘action’ to workplace,” 5/13/99, p. 2.

Research featured in *The Tupelo Daily Journal*, “The Desk Set,” 9/16/99, pp. 1D, 2D.

Radio interview to discuss the concept of telepresence in teleoperations, WMSV 90.1, Starkville, Mississippi, aired 5/99.

Radio interview to discuss NSF CAREER award research on telepresence, WMSV 90.1, Starkville, Mississippi, aired 5/99.