

DUKE UNIVERSITY MEDICAL CENTER

CURRICULUM VITAE

for

Permanent Record

and the

Appointments and Promotions Committee

Date Revised
January 3, 2006

Name: Melanie Clay Wright, Ph.D.

Primary Academic Appointment: Assistant Professor

Primary Academic Department: Anesthesiology

Social Security: On request

Present Academic Rank and Title: Assistant Professor, Department of Anesthesiology
Duke University Medical Center, Durham, NC

Date and rank of first Duke
University faculty appointment: Assistant Professor, April 21, 2003
Department of Anesthesiology

Date of birth: April 23, 1966

Place of birth: Bethesda, Maryland

Citizen of: The United States of America

Education

<u>Institution</u>	<u>Place</u>	<u>Date</u>	<u>Degree</u>
Magruder High School	Rockville, Maryland	1984	HS Diploma
Virginia Polytechnic Institute and State University	Blacksburg, Virginia	1988	B.S. Aerospace Engineering
North Carolina State University	Raleigh, NC	1994	M.S. Psychology
North Carolina State University	Raleigh, NC	2002	Ph.D. Industrial Engineering

Scholarly Societies

Gamma Beta Phi Honor and Service Society
Sigma Gamma Tau Aerospace Honor Society

Professional Training and Academic Career

<u>Institution</u>	<u>Position</u>	<u>Dates</u>
Naval Aviation Depot Cherry Point, North Carolina	Aerospace Engineer	1988 – 1990
IBM Raleigh, North Carolina	Human Factors Engineer Co-op	1991
North Carolina State University Raleigh, North Carolina	Teaching/Research Assistant	1991 – 1992
Monterey Technologies, Inc. Cary, North Carolina	Human Factors Engineer	1992 – 2000
Ericsson, Inc. Research Triangle Park, North Carolina	Senior Human Factors Engineer	2000 – 2001
North Carolina State University Raleigh, North Carolina	Research Associate	2001 – 2002
SA Technologies, Inc. Raleigh, North Carolina	Research Associate	2002 – 2003
Duke University Medical Center Durham, North Carolina	Assistant Professor of Anesthesiology	2003 - present

Publications

Refereed Journal Publications:

1. Taekman JM, Hobbs G, Barber L, Phillips-Bute, BG, **Wright, M**, Newman, MD, Stafford-Smith, M. Preliminary report on the use of high-fidelity simulation in the training of study coordinators conducting a clinical research protocol. *Anesth Analg*. 2004;99(2):521-527.
2. **Wright MC**, Taekman JM, Endsley MR. Objective measures of situation awareness in a simulated medical environment. *Qual Saf Health Care*. 2004;13 (Suppl 1):i65-i71.
3. **Wright MC**, Kaber DB. Effects of automation of information processing functions on teamwork. *Hum Factors*. 2005;47(1):50-66.
4. **Wright MC**, Taekman JM, Barber L, Hobbs G, Newman MF, Stafford-Smith M. The use of high-fidelity patient simulation as an evaluative tool in the development of clinical research protocols and procedures. *Contemp Clin Trials*. 2005; October, in press.
5. Kaber DB, **Wright MC**, Prinzel LJ, Clamann MP. Adaptive automation of human-machine system information processing functions. *Hum Factors*. 2005; Winter, in Press.

6. Kaber DB, **Wright MC**, and Sheik-Nainer M. Investigation of multi-modal interface features for adaptive automation of a human robot system. *Int J Human Comput Stud.* 2005; accepted for publication.

Non-refereed Publications:

1. **Clay MC.** Key Cognitive Issues in the design of Electronic Displays of Instrument Approach Procedure Charts (VNTSC Technical Report DOT-VNTSC-FAA-93-18. Washington, DC: U.S. Department of Transportation, Federal Aviation Administration, 1993.
2. **Wright MC**, Barlow TB. Resource Document for the Design of Electronic Instrument Approach Procedure Displays (VNTSC Technical Report DOT-VNTSC-FAA-95-9). Washington, DC: Department of Transportation, Federal Aviation Administration, Office of Aviation Research; 1995.
3. **Wright MC.** A Guide for the Approval of GPS Receive Installation and Operation (VNTSC Technical Report DOT-VNTSNC-FAA-96-18). Washington, DC: Department of Transportation, Federal Aviation Administration, Flight Standards Service; 1996.
4. **Wright MC**, Hartman MT, Murphy KF. Resource Guide for Accessible Design of Consumer Electronics. Washington, D.C.: EIA-EIE Committee on Product Accessibility, A Joint Venture of the Electronics Industries Association and Electronic Industries Foundation; 1997.
5. **Wright MC.** Human Factors and Operations Issues in GPS and WAAS Sensor Approvals: A Review and Comparison of FAA and RTCA Documents (VNTSC Technical Report DOT-VNTSC-FAA-97-7 DOT/FAA/AAR-100-97-1. Washington, D.C.: U.S. Department of Transportation, Federal Aviation Administration, Office of Aviation Research; 1997.
6. **Wright MC.** The Effects of Automation on the Performance and Coordination of Teams. Ann Arbor, Michigan: UMI Dissertation Abstracts International; 2002.
7. Kaber DB, **Wright MC**, Clamann MP. Human response to adaptive automation of early sensory/information acquisition functions and later stages of information processing in complex system operations. Hampton, VA: NASA Langley Research Center; 2002. Final Report: NASA Langley Research Center Grant #NAG-1-01039.

Chapters in Books:

1. Kaber DB, **Wright MC.** Adaptive automation of stages of information processing and the relation to operator functional states. In: Hockey GRJ, ed. *Operator Functional States.* Vol 355. NATO Science Series Sub Series I Life and Behavioral Science: IOS Press; 2003:204-223.

Selected Abstracts and Conference Proceedings:

1. Clamann MP, **Wright MC**, Kaber DB. Comparison of performance effects of adaptive automation applied to various stages of human-machine system information processing. *Proceedings of the Human Factors and Ergonomics Society 46th Annual Meeting.* Santa Monica, CA: Human Factors and Ergonomics Society; 2002:342 - 346.
2. **Wright MC**, Kaber DB, Endsley MR. Performance and situation awareness effects of levels of automation in an advanced commercial aircraft flight simulation. In *Proceedings of the 12th International Symposium of Aviation Psychology* (pp. 1277-1282). Dayton, OH: Wright State University, 2003.
3. **Wright MC**, Taekman JM. Human patient simulators as a human factors research tool in patient safety. Paper presented at: International Ergonomics Association XVth Triennial Congress, 2003; Seoul Korea.

4. **Wright MC**, Kaber DB. Effects of automation on teamwork. Paper presented at: International Ergonomics Association XVth Triennial Congress, August, 2003, 2003; Seoul, Korea.
5. **Wright MC**, Kaber DB. Team coordination and strategies under automation. Proceedings of the Human Factors and Ergonomics Society 47th Annual Meeting. Santa Monica, CA: Human Factors and Ergonomics Society; 2003.
6. Kaber DB, **Wright MC**. Automation-state changes and sensory cueing in telerobot control. Proceedings of the XVth Triennial Congress of the International Ergonomics Association and the 7th Joint Conference of the Ergonomics Society of Korea/Japan Ergonomics Society. Seoul, Korea: International Ergonomics Association; 2003.
7. **Wright MC**, Kaber DB, Endsley MR. Performance and situation awareness effects of levels of automation in an advanced commercial aircraft flight simulation. 12th International Symposium of Aviation Psychology. Columbus Ohio: Ohio State University; 2003.
8. **Wright MC**, Taekman JM, Barber L, Newman MF, Stafford-Smith M. The role of simulation in the development of clinical research protocols. *Anesthesiology*. 2004;101:A1248.
9. **Wright MC**, Andregg BC, Mark JB, et al. Effects of time of day and surgery duration on adverse events in anaesthesia. Paper presented at: International Conference on Healthcare Systems Ergonomics and Patient Safety, 2005; Florence, Italy.
10. **Wright MC**, Andregg BC, Mark JB, Stafford-Smith M, Grichnik KP, Phillips-Bute B, Taekman JM: Effects of time of day and surgery duration on adverse events in anaesthesia. In: Tartaglia R, Bagnara S, Bellandi T, Albolino S. Florence, Eds. International Conference on Healthcare Systems Ergonomics and Patient Safety: Taylor & Francis; 2005:377-380
11. **Wright MC**, Stafford-Smith M, Mark JB, Phillips-Bute BG, Taekman JM. Association of Surgery Duration with the Incidence of Adverse Events in Anesthesia. *Anesthesiology*. 2005;A1274.

Professional Awards and Special Recognition

Company Performance Awards (Ericsson, Inc., 2001; Monterey Technologies, Inc., 1994; Naval Aviation Depot, 1989).
Best Student Paper Award, Cognitive Engineering and Decision Making Technical Group of the Human Factors and Ergonomics Society, Human Factors and Ergonomics Society 46th Annual Meeting (2002).
Ellison "Jeep" Pierce Research Award, Anesthesia Patient Safety Foundation, October, 2005

Organization and Participation

Human Factors Society; Member
Cognitive Engineering and Decision Making Technical Group, Member and Annual Meeting Reviewer
Healthcare Technical Group, Member
Human Factors Society, Carolinas Chapter; Director and former Secretary-Treasurer
American Society for Medical Simulation, Member
Reviewer, Quality and Safety in Healthcare
Reviewer, Human Factors
Reviewer, Theoretical Issues in Ergonomics Science
Grant reviewer, Louisiana Board of Regents

Teaching Responsibilities

Mentored Graduate Students:

Chris McClernon, (M.S. Thesis Committee Member, NCSU, Industrial Engineering, 2003)
Noa Segall, (PhD. Committee Member, NCSU, Industrial Engineering, current)
Becky Jones and Chellie Barker (Directed Research, CRNA program, 2004)
Angela Dalton (Consultant, Duke University, Computer Science, Summer 2004)
Kathleen Griffin (Research Assistant Mentor, NCSU Psychology Graduate Student, NBME funded research through Duke, Department of Anesthesiology, current)
Jeff Hoerle (Consultant, Duke University, Computer Science, Fall 2004)

Courses Taught:

1. Undergraduate Ergonomics Course, Department of Psychology, NCSU, summer 1992.
2. Guest lecturer for Duke University COMPSCI196S.04, Critical Analysis of Visual Representations, February 2005.
3. Guest lecturer for Duke University BME 260.01, Devices for People with Disabilities, April 2005.
4. Guest lecturer Patient Safety Intersession, Duke University 2nd Year Medical Students, Introduction to Human Factors and Error Theory, August 2005

Invited Lectures:

1. Carolinas Chapter of the Human Factors and Ergonomics Society. "Fatigue Problems in Healthcare" Cary, NC, November, 2003.
2. Anesthesia Grand Rounds: Duke University Medical Center. "Human Error in Medicine: Misnomer or Mistakes?" Durham, NC, November 2003.
3. Duke University Visualization Technology Group Friday Forum. "The Basics of Conducting a Usability Evaluation" Durham, NC, March 2004.
4. Anesthesia Grand Rounds: Duke University Medical Center. "Decision Making in the OR: Intuition, Imagination, and Biases" Durham, NC, December 2004.
5. Pain Champions, Duke University Medical Center. "Human Error in Medicine" Durham, NC, April 2005.

Areas of research interests:

Patient safety
Human centered design
Human computer interaction
Decision making
Naturalistic decision making
Human performance
Medical simulation
Team coordination
Information management
Display design
Situation awareness
Task analysis
Medical error

External Support

Past:

1. PI: Melanie Wright, 12% effort, Anesthesia Patient Safety Foundation Research Award, "Effects of Time of Day and Surgery Duration on Adverse Events in Anesthesia". Principal Investigator. Total grant \$41,598. 1/1/04 – 4/30/05

Current:

2. PI: Melanie Wright, 5% effort, National Board of Medical Examiners Stemmler Medical Education Research Fund, #101-0304, "Assessment and Prediction of Teamwork Skills". Principal Investigator. Total grant \$69,718. 6/1/04 – 5/31/06.
3. PI: Jeffrey Taekman, 10% effort, NIH, Office of Research Integrity / National Institute of Neurologic Disorders and Stroke, 1R01-NS049548-01 "Defining the Learning Curve in Research Trials". Co-Principal Investigator. Total grant \$283,000. 9/1/2004 – 6/30/2006.
4. PI: Melanie Wright, 13% effort, Anesthesia Patient Safety Foundation Research Award, "Objective Measures of Performance in Simulated Anesthesia: A Comparison of Experts and Novices". Principal Investigator. Total grant \$79,959 (this proposal was awarded the Ellison "Jeep" Pierce, Jr. Award, which carries an additional, unrestricted grant of \$5,000). 1/1/2006 – 3/31/2006.

Pending:

5. PI: Karen Frush, 6% effort, Duke Endowment Grant, Experimental evaluation of team training in the ambulatory surgery center, approximately \$5000 in salary reimbursement, 12/1/05 – 5/31/06. Awaiting transfer of funds.
6. PI: Melanie Wright, 80% effort, NIH, K02, Agency for Health Care Research and Quality, "Information Management in the Perioperative Environment". Total grant \$482,084. 1/1/2006 – 12/31/2010. Pending budget availability, proposal received an excellent score with no revision recommended, currently awaiting fiscal year 2006 budget information.
7. PI: Melanie Wright, 22% effort, NIH, R21, National Library of Medicine, "Integrated Intelligent Perioperative Alarms". Total grant \$275,000. 6/1/2006 – 5/31/2008. Under review.
8. PI: Melanie Wright, 9% effort, National Board of Medical Examiners, Stemmler Medical Education Research Fund. Total grant \$45,046. 6/1/2006 – 5/31/2007. Under review.

Home address:

6331 Deerview Drive
Raleigh, North Carolina 27606

Family:

Married to Innes Wright
Daughter, Katrina Wright, born 1/9/04