

Christina N. Harrington

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Georgia Institute of Technology
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EDUCATION

Ph.D. in Industrial Design, Expected 2017

Concentration in Accessible Interaction Design; Minor in Human Factors and Aging
Georgia Institute of Technology, Atlanta, GA

Dissertation committee

Jon Sanford, Advisor (Georgia Institute of Technology, School of Industrial Design)
Wendy Rogers (Georgia Institute of Technology, School of Psychology)
Ellen Do (Georgia Institute of Technology, School of Industrial Design and School of Interactive Computing)
Lauren Wilcox (Georgia Institute of Technology, School of Interactive Computing)

Master of Industrial Design, 2013

North Carolina State University, Raleigh, NC

Thesis: *Inclusive Participatory Design: Assessing Effective Participatory Techniques for Children with Autism*

Committee: Dr. Sharon Joines (Advisor), Meredith Davis, Susan Osborne

B.S. Electrical Engineering; Minor: Industrial Design, 2009

Virginia Polytechnic Institute and State University, Blacksburg, VA

ADDITIONAL CERTIFICATIONS

Certificate of Accomplishment in Teaching, 2013

North Carolina State University, Raleigh, NC

RESEARCH INTERESTS

My research interests center around inclusive and universal design for special populations, with an emphasis in accessible interaction design for older adults. This work is informed by methods, theory, and empirical findings from the fields of engineering psychology, public health, and human-computer interaction (HCI). The main focus of my research is designing and evaluating interactive technologies that support healthy aging and encourage healthier behaviors. Within this area of research, I am interested in discerning the everyday technological needs of older adults, evaluating current limitations in older adult's interactions with technology, and designing adaptive interventions that address these needs. My primary research methods rely on both qualitative and quantitative data collection, and explore human-centered and evidence-based approaches to design.

RESEARCH EXPERIENCE

Georgia Tech Human Factors and Aging Laboratory, Atlanta, GA

July 2014 – present

Graduate Research Assistant

Designed and evaluation of household consumer products for people with physical and sensory disabilities. Planned and executed ethnographic field work and usability studies for understanding user needs. Translated findings into functional prototypes for desirability and usability testing.

Care Foundation Marga Klompe Research Exchange Program, Winterswijk, Holland

May 2014 – July 2014

Research Exchange Student

User research and field work in Dutch assisted living environments. Conducted user interviews and comparative analysis in an assessment of accessibility of living environments and the implications for support and monitoring technologies for older adults in American and Dutch residential facilities.

Georgia Tech Research Institute, Human Systems Integration Lab, Atlanta, GA

Aug. 2013 – May 2014

Graduate Research Assistant - Consumer Product Integration Lab

Design and evaluation of household consumer products for people with physical and sensory disabilities. Planned and executed ethnographic field work and usability studies for understanding user needs. Translated findings into functional prototypes for desirability and usability testing.

RL Mace Universal Design Institute, Chapel Hill, NC Aug. 2012 – Feb. 2013
Research Assistant Intern
 Evaluated ergonomic workstations based on human-centered and universal design principles. Communicated findings to clients via Adobe Illustrator diagrams and made product recommendations.

Research in Ergonomics and Design Lab, NCSU College of Design, Raleigh, NC Jan. 2011 – May 2013
Graduate Research Assistant - U.S. Department of Defense, Defense Subcontract
Reinforced Vest for Aircraft Wing and Other Enclosed Areas: Field visits and ergonomic assessment of work environments for aircraft mechanics. Conducted task analysis of mechanic workflow. Design, development and evaluation of vest prototypes to protect mechanics during workflow.
Universal Design Initiative: Conducted review of mobility-related assistive technology use. Designed user survey and aggregated data of the use of the standard underarm crutch; developed design considerations for redesign.

University of Virginia Systems Integration Lab, Charlottesville, VA May 2011 – Aug. 2011
Graduate Research Assistant- National Library of Medicine Short-Term Trainee
 User research with the Charlottesville EMTs to communicate patient status from ambulance to emergency room. Planned and executed user interviews, observations, and task analysis of EMT workflow. Formative evaluation and follow-up prototype testing of a mobile app concept.

INDUSTRY EXPERIENCE

Apple, Cupertino, CA Sept. 2015 – Aug. 2016
UX/UI Intern – Hardware Tools and Data Analytics Team

Lextant, Columbus, OH June 2013 – Aug. 2013
Design Research Intern

Lenovo, Morrisville, NC Feb. 2013 – May 2013
Human Factors Design Contractor

Motorola Inc., Columbia, MD Aug. 2009 – Aug. 2010
RF Systems Engineer - Department of Defense Subdivision, Radio Defense Group

Army Corps of Engineers, Ft. Lee, VA May 2008 – Aug. 2008
Electrical Engineering Intern

Dominion Virginia Power, Richmond, VA Jan. 2006 – July 2006
Student Engineering Co-op

TEACHING EXPERIENCE

GEORGIA INSTITUTE OF TECHNOLOGY, Atlanta, GA
 Teaching Assistant

ID 4843/8900 Design and Public Health Spring 2017
 Instructor: Sarah Melgan

BMED 2310 Intro to Biomedical Engineering Design Summer 2015
 Instructor: Raja Schaar

ID/CS 6763 Design for Interactive Environments Spring 2014
 Instructor: Jon Sanford, Brian Jones

GEORGIA INSTITUTE OF TECHNOLOGY, Atlanta, GA
 Guest Lectures

PSYC 6023 Psychology Research Methods for HCI Fall 2015
 Instructor: Carrie Bruce, PhD

ID 4081 Collaboration Design Studio Fall 2015
 Instructor: Wayne Li

PSYC 6014 Sensation and Perception Spring 2015
 Instructor: Bruce Walker, PhD

BMED 2300 Problems in Biomedical Engineering Fall 2014/Fall 2015
 Instructor: Raja Schaar

NORTH CAROLINA STATE UNIVERSITY, Raleigh, NC
Teaching Assistant

ID 445: Human-Centered Design
Instructor: Sharon Joines Spring 2013

D 103: Design Culture and Context II
Instructor: Kathleen Rieder Spring 2013

D 102: Design Culture and Context I
Instructor: Kathleen Rieder Fall 2012

NORTH CAROLINA STATE UNIVERSITY, Raleigh, NC
Co-Instructor, E 144 Academic & Professional Prep for Engineering I
Co-Instructor, ECD 224 Student Development and Peer Mentoring

Fall 2012

Fall 2010

PUBLICATIONS & PRESENTATIONS

JOURNAL (PUBLISHED)

- [J.1] **Harrington, C.**, Mitzner, T. L., Rogers, W. A. (2015). *Understanding the role of technology for meeting the support needs of older adults in the USA with functional limitations*. *Gerontechnology Journal*, 14(1), pp 21-31.

JOURNAL (UNDER REVIEW)

- [J.2] Barg-Walkow, L. H., **Harrington, C. N.**, Mitzner, T. L., Hartley, J. Q., Rogers, W. A. (submitted 2016). *Understanding older adults' perceptions of and attitudes toward exergames*. Manuscript submitted to *Gerontechnology Journal*.
- [J.1] **Harrington, C. N.**, Fausset, C. B., Sanford, J. (submitted 2016). *Assessing the needs for bathroom assistive aids among older adults with impairments in Dutch and U.S. residential environments*. Manuscript submitted to *Journal of Rehabilitation and Assistive Technologies Engineering*.

CONFERENCE PROCEEDINGS (peer reviewed)

- [C.7] Liu, Y. E., **Harrington, C.**, Melgen, S., & Sanford, J. (2016, July). GatePal—Universal Design for Airport Navigation to Allow Departing Travelers to Stay Informed. In *International Conference on Universal Access in Human-Computer Interaction* (pp. 586-594). Springer International Publishing.
- [C.6] **Harrington, C. N.**, Hartley, J. Q., Mitzner, T. L., & Rogers, W. A. (2015). Assessing Older Adults' Usability Challenges Using Kinect-based Exergames. In *Human Aspects of IT for the Aged Population. Design for Everyday Life* (pp. 488-499). Springer International Publishing. Proceedings of HCI International 2015.
- [C.5] Fausset, C., Baranak, A., Farmer, S. K., Mann, E. L., **Harrington, C. N.**, Price, C. E., Ray, J. (2014). Developing a Scoring Matrix to Evaluate Consumer Packaging: A Pilot Study. *Proceedings of the HFES 58th Annual Meeting*, Chicago, IL.
- [C.4] O'Brien, M., Fausset, C., Mann, E. L., **Harrington, C.**, (2014). Using Impairment Simulation Tools to Demonstrate Age-Related Challenges in Everyday Tasks and Promote Universal Design. *Proceedings of the HFES 58th Annual Meeting*, Chicago, IL.
- [C.3] **Harrington, C.**, Brown, M., Wang, L., Joines, S., (2013). Self-Reporting of Firefighter Vital Signs in Emergency Situations. *Proceedings of the HFES 57th Annual Meeting*, San Diego, CA, pp. 1678-1682.
- [C.2] **Harrington, C.**, Cowley, J., Taylor, J., Wogalter, M., (2013). Assessing Conceptualizations of User Friendliness for Consumer Products. *Proceedings of the HFES 57th Annual Meeting*, San Diego, CA, pp. 1338-1342.
- [C.1] **Harrington, C.**, Joines, S. (2011). Assessing User Experience with Crutch Use: A Review of Literature. *Proceedings of the HFES 55th Annual Meeting*, Las Vegas, NV, pp. 1658-1662.

TECHNICAL REPORTS

- [R.2] Gable, T. M., McGlynn, S., Chen, D., Preusse, K., Yoo, A., Darling, C., Kazi, S., Schaeffer, L., & **Harrington, C.** (2015). A Comprehensive web-based solution for future voting: Georgia Tech HFES Student Chapter submission to the HFES "voting system of tomorrow" competition (GT-HFES-TR-2015-01). Atlanta, GA: Georgia Institute of Technology, Georgia Tech HFES Student Chapter.

- [R.1] **Harrington, C., Rogers, W.,** (2014). An Archival Analysis of Everyday Task Challenges for Aging Adults with Disabilities (HFA-TR-1403). Atlanta, GA: Georgia Institute of Technology, School of Psychology, Human Factors and Aging Laboratory.

ORGANIZED WORKSHOPS

- [W.1] **Harrington, C., Bruce, C.** (2015, November). Accessibility in HCI: Accessible Design Hackathon. 2015 Southeast Women in Computing Conference, Atlanta, GA.

INVITED TALKS

- [T.3] **Harrington, C.** (2017, February). Inclusive Design: Ideas, Implementation, and Impact. Invited presentation at the Disability Studies Initiative Scholars Showcase. Emory University, Atlanta, GA.
- [T.2] **Harrington, C.** (2016, February). *Value of Accessibility in Interaction Design*. Invited presentation at San Francisco State University's Department of Design and Industry - Graduate seminar. San Francisco, CA.
- [T.1] **Harrington, C.** (2015, February). *Assessing Activity Limitations and Effective Assistive Devices for Older Adults with Impairments*. Invited presentation for Design and Technology for Healthy Aging (DATHA) speaker series. Atlanta, GA.

CONFERENCE PAPER & POSTER PRESENTATIONS

- [P.13] Abowd, G., Evans, H., Cheng, Y., Liu, E., Zhou, L., **Harrington, C.** (2016, October). *MD2K: Keeping Users Engaged Through Mobile Technology*. Gvu Research Symposium, Atlanta, GA.
- [P.12] **Harrington, C.,** Fausset, C.B., Sanford, J. (2016, October). *Assessing the Needs for Bathroom Assistive Aids Among Older Adults with Impairments in Dutch and U.S. Residential Environments*. CATEA Open House, Atlanta, GA.
- [P.11] Rogers, W. A., Harrington, C., Barg-Walkow, L.H., Hartley, J., Mitzner T.L. (2015, November). *Designing a Quick-Start Guide for Kinect Game Use by Older Adults*. Presented at the 2016 Gerontological Society of America Annual Scientific Meeting, Orlando, FL.
- [P.10] **Harrington, C.,** Mitzner, T., Rogers, W. (2015, October). *Identifying the Gaps in Assistive Technologies to Support Healthy Aging*. HFES Europe Annual Meeting, Groningen, the Netherlands.
- [P.9] **Harrington, C. N.,** Hartley, J. Q., Mitzner, T. L., Rogers, W. A. (2015, August). *Assessing Older Adults' Usability Challenges Using Kinect-based Exergames*. Presented at the Human-Computer Interaction Int'l Conference, Los Angeles, CA.
- [P.8] Rogers, W. A., Mitzner, T. L., Hartley, J. Q., **Harrington, C. N.** (2015, April). Identifying the Potential of Exergame Interventions: An analysis of use challenges for novice older adults. Presented at the 8th International Association of Gerontology and Geriatrics European Region Congress, Dublin, Ireland.
- [P.7] **Harrington, C.,** Mitzner, T., Rogers, W. (2014, November). *Understanding Everyday Task Challenges for Older Adults with and without Disabilities*. Gerontological Society of America's 67th Annual Scientific Meeting, Washington, DC.
- [P.6] O'Brien, M., Fausset, C., Mann, E. L., **Harrington, C.** (2014, October). *Impairment Simulation Tools to Demonstrate Age-Related Challenges in Everyday Tasks*. Demonstration presented at the Human Factors & Ergonomics Society 58th Annual Meeting: Product Design Plenary.
- [P.5] **Harrington, C.,** Brown, M., Wang, L., Joines, S. (2013, October). *Self-Reporting of Firefighter Vital Signs in Emergency Situations*. Paper presented at the HFES 57th Annual Meeting, San Diego, CA.
- [P.4] **Harrington, C.,** Cowley, J., Taylor, J., Wogalter, M., (2013, October). *Assessing Conceptualizations of User Friendliness for Consumer Products and Appliances*. HFES 57th Annual Meeting, San Diego, CA.
- [P.3] **Harrington, C.,** Joines, S., Davis, M., Osborne, S. (2013, April). *Inclusive Participatory Design: A Methods Study Assessing Effective Participatory Techniques for Children with Autism*. Industrial Designers Society of America Graduate Expo, Raleigh, NC.
- [P.2] **Harrington, C.,** Joines, S. (2011, September). *Assessing User Experience with Crutch Use: A Review of Literature*. Paper presented at the HFES 55th Annual Meeting, Las Vegas, NV.
- [P.1] **Harrington, C.,** Dietrich, C. (2006, October). *Wireless Videoconferencing System Design and Propagation Measurements*. Virginia Tech Symposium for Undergraduate Research in Engineering, Blacksburg, VA.

DOCTORAL CONSORTIUM

- [D.1] **Harrington, C.** (2015, June). *The Implications of Persuasive Technologies for Older Adults with Impairments*. Presented at the 10th Int'l Conference on Persuasive Technologies: Doctoral Consortium, Chicago, IL.

GRANTS & FUNDING

Supplement to CREATE IV Research Supplement to Promote Diversity in Health-Related Research from the National Institutes of Health (National Institute on Aging) (\$44,588 direct; \$60,032 total costs). PI: Wendy A. Rogers; Key personnel and lead proposal writer: Christina N. Harrington	2016
HFES Aging Technical Group Research Scholarship (\$500) <i>Title:</i> Evaluating the most effective format of quick-start guide to aid older adults in performing gesture-based interactions.	2015

HONORS & AWARDS

Georgia Tech GVU Student Travel Grant	2015
GSA Accelerating Translation of Knowledge to Community Practices for Older Adults Travel Award	2014
SouthEast Women in Computing Scholarship	2015
Georgia Tech Leadership Fellowship Recipient	2014
BRIDGES: Women's Academic Leadership Award	2011
Davidson C. Wysor Scholarship Recipient	2009
Virginia Tech Undergrad Research in Engineering Symposium- Top Three Presentations	2006
Boeing Company Trust Fellowship Recipient	2005
Council for the Advancement of Minority Engineering Organizations (CAMEO) Woman of the Year Award	2005
Pratt Engineering Scholarship Recipient	2004
C-Tech ² Engineering Scholarship Recipient	2004
National Association of Women in Construction Founder's Scholarship Recipient	2004

STEM & ACADEMIC OUTREACH

North Carolina State University, Raleigh, NC <i>Program Assistant, Minority Engineering Programs</i> Supervised Summer Transition Program for entering engineering freshmen. Retention tracking of minority engineering students.	May 2012 – Feb. 2013
North Carolina State University, Raleigh, NC <i>Imhotep Academy Summer Program Instructor, The Science House</i> Instructed Remotely Operated Vehicles activity for area middle school students.	May - July 2012
University of Virginia, Charlottesville, VA <i>Enjoy Engineering Summer Camp Lab Instructor, Center for Diversity in Engineering</i> Designed and lead crystal radio lab activity for middle-school engineering camp.	July - Aug. 2011
North Carolina State University, Raleigh, NC <i>Graduate Assistant, Multicultural Student Affairs</i> Directed/organized academic and leadership development programs.	Aug. 2010 – May 2012
North Carolina State University, Raleigh, NC <i>Pack Promise Instructor, Academic Advising Services</i> Instructed small groups of undergraduate students on academic achievement.	Aug. 2010– May 2011
Virginia Tech, Blacksburg, VA <i>Imagination Summer Camp Lab Instructor, Center for the Enhancement of Eng. Diversity</i> Designed and lead crystal radio lab activity for middle-school engineering camp.	June - Aug. 2009
Virginia Tech, Blacksburg, VA <i>C-Tech² Summer Lab Director, Center for the Enhancement of Engineering Diversity</i> Designed and lead telephone lab activity for high-school STEM camp.	July 2006/2007

UNIVERSITY & PROFESSIONAL SERVICE

Paper Submissions Reviewer	
Journal of Assistive Technology	2015-present
Automation in Construction	2014
Human Factors and Ergonomics Society	2011-2012
Student Conference Volunteer	
Human-Computer Interaction International	2015
Human Factors and Ergonomics Society	2011-present
Georgia Institute of Technology	
President's Undergraduate Research Award Application Reviewer	2014-present
Leading Edge Leadership Coach	2014-2015
North Carolina State University	
Association for the Concern of African American Graduate Students	2012
<i>Webmaster; Student Member</i>	
Industrial Designers Society of America - <i>Chapter Liaison</i>	2011-2012
Student Mentor Association & Peer Mentor Program - <i>Graduate Advisor</i>	2010-2012
Memberships	
Human Factors and Ergonomics Society	2011-present
Industrial Designers Society of America	2011-2013
National Society of Black Engineers	2004-2009

GRADUATE COURSEWORK

Research Methods & Analysis | Design Research Methods; Research Design; Psychology Research Methods for HCI; Statistics for the Behavioral Sciences I; Health Behavior Theory for Public Health

Human-Computer Interaction | Interface Prototyping; Design for Interaction; User Interface Design and Evaluation; Human-Computer Interaction

Aging & Accessibility | Assistive Technology; Sonification Lab Research & Design Studio; Psychology of Aging

Industrial Design | Product Innovation Lab; Human-Centered Design; Advanced Universal Design; Evidence-Based Design; Universal Design and Mobile Way-finding

Human Factors & Ergonomics | Occupational Biomechanics; Human Factors in Systems Design; Engineering Psychology I