

Ben D. Sawyer

Director, Virtual Readability Laboratory (VRL)

Director, Laboratory for Autonomy-Brain Exchange (LabX)

*Assistant Professor, Department of Industrial Engineering & Management
Systems, School of Engineering & Computer Science,
University of Central Florida*

Ben D. Sawyer CV Contents

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I. PERSONAL

1. Degree & Training Information

Postdoctoral Studies, Massachusetts Institute of Technology, School of Engineering, Cambridge, MA (1/2016-1/2018).

Ph.D. in Human Factors Psychology, University of Central Florida, Orlando, FL, November 2015.

M.S. in Industrial Engineering, University of Central Florida, Orlando, FL, May 2014.

B.S. Cognitive Psychology (*Honors Scholar*), Colorado State University, Ft. Collins, CO, May 2010.

2. Research Positions

Director, Virtual Readability Lab (VRL) (4/2020-present)

Director, Laboratory for Autonomy-brain Exchange (LabX) (8/2018-present)

Assistant Professor, Department of Industrial Engineering & Management Systems, School of Engineering & Computer Science, University of Central Florida, Orlando, FL (8/2018-present)

Research Scientist, School of Engineering, AgeLab, Massachusetts Institute of Technology, Cambridge, MA (1/2018-8/2018).

Postdoctoral Associate, School of Engineering, AgeLab & Center for Transportation and Logistics, Massachusetts Institute of Technology, Cambridge, MA (1/2016-1/2018).

Repperger Fellow & Contractor, BATMAN Engineering Unit RHCB, 711th Human Performance Wing, United States Air Force, Dayton, OH (6/2014-6/2015)

Engineering Research Associate, Department of Industrial Engineering, University of Central Florida, Orlando, FL. (1/2014-1/2015)

Repperger Fellow & Contractor, Applied Neuroscience Cyberdefender Unit RHCBC, 711th Human Performance Wing, United States Air Force, Dayton, OH (6/2013-6/2014)

Laboratory Manager, MIT² Laboratory, Institute for Simulation and Training, University of Central Florida, Orlando, FL. (11/2010-12/2015)

Laboratory Manager, Transportation Research Group, Department of Psychology, University of Central Florida, Orlando, Florida (7/2010-3/2011)

Research Assistant, Clegg Applied Lab & Cleary VR Lab, Department of Psychology, Colorado State University, Ft. Collins, CO (3/2007-6/2010)

3. Affiliations

Courtesy Appointment, Institute for Simulation and Training, University of Central Florida, Orlando FL (8/2018 – present).

Affiliate, Tufts University Department of Mechanical Engineering, Medford, MA. (2/2018-present)

Affiliate, Massachusetts Institute of Technology Computer Science and Artificial Intelligence Laboratory (CSAIL) (8/2018-present)

3. Professional Training

Time Management for Online Team Management. Massachusetts Institute of Technology, Cambridge, MA (Fall 2020).

Time Management for Online Team Management. Massachusetts Institute of Technology, Cambridge, MA (Fall 2020).

Developing Classes Online, IDL6543, Training to succeed in developing and delivering fully online or mixed mode courses, with attention to broader technology skills, pedagogy, and logistics involved in teaching online. (Fall 2018)

Online instructions, ADL5000, Training in the pedagogical, logistical, and technological issues involved in delivering effective online courses. (Summer 2018)

Kauffman Teaching Program, selective teaching training program for Postdoctoral Staff, Massachusetts Institute of Technology, Cambridge, MA (Spring 2017)

How to Make (Almost) Anything, MAS.863, Selected the following concentrations: NC machining, 3-D printing, injection molding, laser cutting; PCB layout and fabrication; sensors and actuators; embedded digital processing. Massachusetts Institute of Technology, Cambridge, MA (Spring 2017)

Internet of Things Hacking & Cracking Cyber Seminar Series, Media Lab, Massachusetts Institute of Technology, Cambridge, MA (Summer 2017)

Mandarin Chinese, Taipei Normal University, Taipei, Taiwan (Summers of 2008, 2009)

II. PROFESSIONAL ACTIVITIES

1. Scientific & Honor Societies

Member, Human Factors & Ergonomics Society (2010-present)

Cybersecurity Technical Group

Transportation Technical Group

Member, IEEE, Systems, Man & Cybernetics Society (2014-present)

Member, Institute of Industrial and Systems Engineers (2016-present)

Member, MIT Club of Boston (2016-present)

Member, Vision Science Society

2. Professional Distinctions and Awards

The Human Factors Prize for Excellence in Human Factors/Ergonomics Research, Highest Research Award of the Human Factors and Ergonomics Society, October 2018, \$10,000

MIT Media Lab MAKE ME++, Long-running Wearable Engineering Design Hackathon, March 2016, \$3,000

UCF College of Sciences- Annual Outstanding Dissertation Award, March 2016, \$250

International Ergonomics Association KU Smith Best Triannual Student Journal Paper, for the first evaluation of Google Glass use while driving, July 2015, \$3,000

Intelligence Community for Academic Excellence Research Scholarship, for partnering with the USAF to build a simulation testbed for evaluating email cybersecurity, June 2015 \$8,000

Visiting Researcher Fellowship, University of Canterbury, Christchurch, New Zealand Cyberdefense Group. June 2015, \$7,000

USAF Repperger Fellowship 711th HPW Applied Neuroscience Unit, May 2014 \$12,000

Military Psychology (Div 19) APA Student Research Award \$5,000

USAF Repperger Fellowship 711th HPW BATMAN Unit, May 2013 \$12,000

National Highway Traffic Safety Administration (NHTSA) International Enhanced Safety Design Award Finalist, for a facial recognition system to individuate vehicle safety systems, October 2011, \$5,000

3. Professional Leadership Activities

Founder, The Readability Consortium (TRC) (10/2020)

Co-founder, Bi-weekly Readability Research Roundtable (6/2020)

Director, Virtual Readability Laboratory (VRL), University of Central Florida, Orlando, FL (4/2020-present)

Director, Laboratory for Autonomy-Brain Exchange (LABx), University of Central Florida, Orlando, FL (8/2018-present)

Lead, Clear Information Presentation (ClearIP) Precompetitive consortium engineering better typography for operational environments (Google, Monotype), June 2017-March 2018

President, Human Factors & Ergonomics Society Orlando Student Chapter, 2013

Treasurer, Human Factors & Ergonomics Society Orlando Student Chapter, 2012

Social Chair, Human Factors & Ergonomics Society Orlando Student Chapter, 2011

4. Invited Lectures

Adobe Research: Document Intelligence Group. *Readability: A Ten Year Technology-based Approach.*, 2019, Cambridge, MA.

Harvard University: Wolfe Lab. *Machine and human error.*, 2018, Cambridge, MA.

Stanford University: Center for Driver Research. *Human machine teaming: How can we trust in the face of the prevalence paradox.*, 2017, Stanford, CA.

WestPoint Academy: Army Research Laboratory. *The prevalence paradox: Engineering trust, attention, automation, and the warfighter.*, 2017, Providence, RI.

Brown University: Humanity Centered Robotics Initiative. *A playbook for the imitation game: Robotics, agents, autonomy, and us.*, 2017, Providence, RI.

American Trucking Association. Featured Panel. The future of commercial truck driving interface design: From ADAS to AV., 2017, Orlando, FL.

Human Factors and Ergonomics Society: Annual Meeting 2017. *Award colloquium for "Hacking the human: The prevalence paradox in cybersecurity."* (2017). Austin, TX.

Tufts University: Mechanical Engineering. *Building iterative human centered design: From virtual to real environments.* Medford, MA.

Google. Android Auto Group. *Human factors in driving demand estimation.*, 2017, Sunnyvale, CA.

Massachusetts Institute of Technology. Computer Science and Artificial Intelligence Laboratory (CSAIL). *Prevalence effects in driving attention and distraction: Implications for autonomy.*, 2017, Cambridge, MA.

Jaguar-Landover. Automotive Research & Development. *Demand in the automobile.*, 2016, Warwick, UK.

Human Factors and Ergonomics Society Annual Meeting. Chair: featured panel. *How human factors must change to address cybersecurity.*, 2016, Washington, D. C.

DENSO International America. Technology Division. *Attention management: Demand mitigation through design.*, 2016, Detroit, MI.

Harvard University. Schepens Eye Institute. *Google Glass: From distraction to mitigation.*, 2015, Boston, MA.

Massachusetts Institute of Technology. AgeLab. *Google Glass: A driver distraction cause that looks toward a cure.*, 2015, Cambridge, MA.

Purdue University. School of Industrial Engineering. *Human-technology interference* (2015). Lafayette, IN.

Tsinghua University. Industrial Engineering Department. *Epoch analysis of driving with Google Glass: Using strategies from EEG ERP brain activity research in simulation.*, 2015, Beijing, China.

University of Canterbury. Psychology Department. *Meet E.T.: Cybersecurity research with the email testbed.*, 2015, Christchurch, New Zealand.

Purdue University. Krannert School of Management. *The human factors and neuroscience of entrepreneurship.*, 2015, Lafayette, IN.

White House. *Office of Science & Technology Policy & U.S. Dept. of Transportation Safety Datapalooza.*, 2012, Washington, D. C.

NHTSA Emergency Safety Vehicle Conference. *ESV Design Contest Finalist Presentation: DriveID.* 2011, Washington, D. C.

III. EDUCATION

1. Educational Leadership

Graduate Admissions Committee, Department of Industrial Engineering & Management Systems, School of Engineering & Computer Science, University of Central Florida, Orlando, FL (2020-21)

Lead, Machine Learning Curriculum Council, Human Factors & Ergonomics Society. (2020-on)

Graduate Admissions Committee, Department of Industrial Engineering & Management Systems, School of Engineering & Computer Science, University of Central Florida, Orlando, FL (2018-19)

Sloan labCONNECT, a program linking the Sloan School of Business Executive MBA class with School of Engineering Postdoctoral Associates, as a bridge between the Engineering and Business communities (2016, 2017)

Senate Bill Author, **HFES SGA Travel Grant**, pays for all UCF Human Factors Graduate Students to attend HFES each year, \$100,000+ to date (renews annually), 2011-present

2. Teaching

University of Central Florida, Department of Industrial Engineering

Instructor STA3032 Statistics for Engineers (Large-format Online)
Instructor EIN6258 Human Computer Interaction (Graduate)

MIT, School of Engineering & International Design Center

Instructor IAP2018 Human Factors Engineering (Undergraduate/Graduate)

University of Central Florida, Department of Psychology

Guest Lecturer PSY6257 Human Factors II (Graduate)
Instructor EXP3604c Cognitive Psychology (Undergraduate)
Teaching Assistant PSY7217 Lab Advanced Research Methods I (Graduate)
Teaching Assistant PCB3703 Human Physiology (Undergraduate)
Teaching Assistant PSY210 Research Methods (Graduate)
Instructor PSY2023 Lab Statistical Methods I (Undergraduate)

Additional Guest Lectures

Guest Lecturer Cadet General Assembly- Human Factors Engineering, WestPoint Academy
Guest Lecturer PSY980JF The Human Factor, Harvard University
Guest Lecturer ENG-0019-F Self-Driving Cars, Technology, and Change, Tufts University
Guest Lecturer ENP163 Human Factors, Tufts University
Guest Lecturer PSY6257 Human Factors II, University of Central Florida

3. Mentorship

Ball, Rachel, 2020, *Readability in Medical CRM and Record Systems*, Industrial Engineering Honors Thesis.

Miller, Dave, PhD, 2020, Postdoctoral Associate. Funded in part by a Preeminent Postdoc Award (P3). University of Central Florida, Orlando, FL.

Rahill, Katherine, PhD, 2020, Postdoctoral Associate. Now with NASA as Senior Scientist in Human Performance. Funded in part by a Preeminent Postdoc Award (P3). University of Central Florida, Orlando, FL. NOW A SENIOR SCIENTIST AT NASA.

Kaplan, A.D., 2019, Ride Fair—design and marketing of an aftermarket roller coaster restraint system for riders with full or partial loss of both legs. University of Central Florida Innovation-Corps (I-Corps) under NSF prime award CNS-1735841. University of Central Florida, FL.

Melnicuk, Vasim., 2017, The CPM-GOMS model of driving. Industrial Engineering PhD Thesis Chapter, University of Warwick, Coventry, UK. In partnership with Jaguar-Landover at the Massachusetts Institute of Technology, Cambridge, MA.

Geitner, C., 2016, *Trust in technology and glance allocation in on-road driving*. Mechanical Engineering PhD Thesis Chapter, MIT AgeLab, MA. In partnership with Jaguar-Landover at the Massachusetts Institute of Technology, Cambridge, MA.

Nir, T., 2015, *Hebrew and computer-mediated communication: The effects of a language manipulation on perception, identity, and preservation*. Computational Linguistics Honors Thesis, University of Central Florida Orlando, FL.

Walker, J., 2015, *An examination of individual differences in the context of performance on a feedback v. no feedback vigilance task*. Human Factors Honors Thesis, University of Central Florida, Orlando, FL.

MacArthur, K.R., 2014, *Deindividuation of drivers: Is everyone else a bad driver?* Human Factors Honors Thesis, University of Central Florida, Orlando, FL.

Siler, J., 2013, *Generation and the Google effect: Transactive memory system preference across age*. Human Factors Honors Thesis, University of Central Florida, Orlando, FL.

Niederman, E., 2013, *Investigation of visual requirements for change detection*. Human Factors Honors Thesis, University of Central Florida, Orlando, FL.

IV. RESEARCH

As of November 1, 2020: 562 citations, h-index of 12 and i10-index of 14. My most cited first author publication, "Google Glass: A driver distraction cause or cure?" has 95 citations.

Research Profile: <https://scholar.google.com/citations?user=mynHwzkAAAAJ&hl=en>

1. PUBLICATIONS, PRESENTATIONS, AND POPULAR PRESS

1a. Publications: Peer-reviewed Journals

◇ *Designates paper awards* * *Designates mentee author*

Sawyer, B. D., Dobres, J., Chahine, N., & Reimer, B. (2020). Glanceable, Legible Typography over Complex Backgrounds. *Ergonomics*, 63(9), 114-121.

Wolfe, B., Sawyer, B. D., & Rosenholtz, R. (2020). Toward a theory of visual information acquisition in driving. *Human Factors*, 0018720820939693.

Canham, M., Sawyer, B.D., (2020). Human Brain Electro-optical Signals as MASINT. *American Intelligence Journal*, 125(4). 40-47.

*Kaplan, A. D., Cruit, J., Endsley, M., Beers, S. M., Sawyer, B. D., & Hancock, P. A. (2020). The Effects of Virtual Reality, Augmented Reality, and Mixed Reality as Training Enhancement Methods: A Meta-Analysis. *Human Factors*, 0018720820904229.

Sawyer, B. D., Dobres, J., Chahine, N., & Reimer, B. (2020). The great typography bake-off: comparing legibility at-a-glance. *Ergonomics*, 63(4), 391-398.

Skrypchuk, L., Langdon, P., Sawyer, B. D., & Clarkson, P. J. (2019). Unconstrained design: improving multitasking with in-vehicle information systems through enhanced situation awareness. *Theoretical Issues in Ergonomics Science*, 1-37.

Wolfe, B., Sawyer, B. D., Kosovicheva, A., Reimer, B., & Rosenholtz, R. (2019). Detection of brake lights while distracted: separating peripheral vision from cognitive load. *Attention, Perception, & Psychophysics*, 1-16.

*Li, S., Zhang, T., Sawyer, B. D., Zhang, W., & Hancock, P. A. (2019). Angry drivers take risky decisions: evidence from neurophysiological assessment. *International journal of environmental research and public health*, 16(10), 1701.

Krueger, E., Schneider, A., Sawyer, B., Chavallaz, A., Sonderegger, A., Groner, R., & Hancock, P. (2019). Microsaccades distinguish looking from seeing. *Journal of Eye Movement Research*, 12(6).

Sawyer, B. D., Seaman, S., Angell, L., Dobres, J., Mehler, B., and Reimer, B., (2019). A Description of a Subtask Dataset with Glances. *arXiv*. (No. 1902.03239).

Skrypchuk, L., Langdon, P., Sawyer, B. D., Mouzakitis, A., & Clarkson, P. J. (2018). Enabling multitasking by designing for situation awareness within the vehicle environment. *Theoretical Issues in Ergonomics Science*, 20(2), 105-128.

Egwatu, C., Sawyer, B. D., & Hancock, P. A. (2019). PERSPECTIVES-Digital Influences on Sexual Discourse in Disabled Populations. *Critical Disability Discourses/Discours critiques dans le champ du handicap*, 9.

◇ Sawyer, B. D., & Hancock, P. A. (2018). Hacking the Human: The Prevalence Paradox in Cybersecurity. *Human factors*, 60(5), 597-609.

Rosenholtz, R., Wolfe, B., Sawyer, B. D., Kosovicheva, A. and Reimer, B., (2017) Perceptual and attentional factors in detection of driving-relevant visual events. *Journal of Vision*, 17(10), 754-754.

Lee, J., Sawyer, B. D., Mehler, B., Angell, L., Seppelt, B. D., Seaman, S., ... & Reimer, B. (2017). Linking the Detection Response Task and the AttenD Algorithm Through Assessment of Human–Machine Interface Workload. *Transportation research record*, 2663(1), 82-89.

Jansen, R. J., Sawyer B. D., van Egmond, R., de Ridder, H. and P.A. Hancock (2016). Hysteresis in mental workload and task performance: The influence of demand transitions and task prioritization. *Human Factors*, 58(8), 1143-1157.

Hancock, P. A. and Sawyer B. D., 2015, Judging thieves of attention: Commentary on "Assessing cognitive distraction in the automobile," by Strayer, Turrill, Cooper, Coleman, Medeiros-Ward, and Biondi (2015)." *Human Factors* 57(8) 1339-1342.

Sawyer, B. D., Finomore, V. S., Funke, G. and Warm, J. S., (2015). Cyber vigilance: effects of signal probability and event rate. *American Intelligence Journal*, 32 (2), 151-159

Hancock, P. A., Hancock, G. and Sawyer, B. D., (2015). Cybernomics and the implications of cyber-deception. *The Ergonomist*, 537, 12-14.

Hancock, P. A., Sawyer, B. D. and Stafford, S., (2015) The effects of display size on performance. *Ergonomics*, 58(3), 337-354.

◇* Sawyer, B. D., Finomore, V. S., Calvo, A. A. and Hancock, P. A., (2014). Google glass: A driver distraction cause or cure? *Human Factors*, 56(7), 1307-1321. Winner of the International Ergonomics Association KU Smith Award, 2014

Blalock, L. D., Sawyer, B. D., Kiken, A., Gutzwiller, R. S., McGrill, C. L. and Clegg, B. A., (2014). Cognitive load while driving impairs memory of moving but not stationary elements within the environment. *Journal of Applied Research in Memory and Cognition*, 3(2), 95-100.

Sawyer, B. D. and Hancock, P. A., 2012, Assisted entry mitigates text messaging based driving detriment. *Work*, 41(2012), 4279–4282.

Cleary, A. M., Brown, A. S., Sawyer, B. D., Nomi, J. S., Ajoku, A. C. and Ryals, A. J., (2012). Familiarity from the configuration of objects in 3-dimensional space and its relation to déjà vu: A virtual reality investigation. *Consciousness and Cognition*, 21(2), 969–975.

Sawyer, B. D., Hancock, P. A., Deaton, J. and Suedfeld, P.,(2012). Finding the team for Mars: a psychological and human factors analysis of a Mars Desert Research Station crew. *Work*, 41(2012), 5481–5484.

Sawyer, B., Teo, G. and Mouloua, M., (2012). DriveID: Safety innovation through individuation. *Work*, 41(2012), 4273–4278.

*Ledbetter, J. L., Boyce, M. W., Fekety, D. K., Sawyer, B. and Smither, J. A. (2012). Examining the impact of age and multitasking on motorcycle conspicuity. *Work*, 41, 5384-5385.

1b. Publications: Educational Capstones

◇ Doctoral Dissertation: Effects of signal probability on multitasking-based distraction in driving, cyberattack, and battlefield simulation., 2015, Committee: Peter A. Hancock (chair), Gerry Matthews, Mustapha Mouloua, James Szalma. *Winner of the UCF College of Science Outstanding Dissertation Award, 2015.*

Masters Thesis: Applied error related negativity: single electrode EEG in complex visual stimuli., 2014, Committee: Waldemar Karwowski (chair), Peter A. Hancock, Petros Xanthopoulos.

Honors Thesis: Impact of components of text messaging on simulated driving performance., 2010, Committee: Benjamin Clegg (chair), Anne Cleary, Jerry Deffenbacher.

1c. Publications: Chapters of Books

Thurlow, D. A. and Sawyer, B. D. (2019). Who Wants an Automated Vehicle? In Lum, H. C. (Eds.) *Critical Issues Impacting Science, Technology, Society (STS), and Our Future* (171-196), Hershey, PA: IGI Global.

Sawyer, B. D., Karwowski, W., Xanthopoulos, P. and Hancock, P. A. (2018). Applied Potential: Neuroergonomic Error Detection in Single Electrode Electroencephalography in R. Parasuraman & C. Mitchell (Eds.), *Neuroergonomics*, Cambridge, MA: Academic Press.

Mehler, B., Sawyer, B. D. & Reimer, B. (2018). An Applied Driving Evaluation of Electrodermal Potential as a Measurement of Attentional State in R. Parasuraman & C. Mitchell (Eds.), *Neuroergonomics*, Cambridge, MA: Academic Press.

1e. Publications: Refereed Conference Proceedings

Hannon, D., Rantanen, E., Sawyer, B., Ptucha, R., Hughes, A., Darveau, K., & Lee, J. D. (2020, November). Toward Unified Curriculum for Machine Learning. *In Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 63(1), 488-492. Seattle, WA.

Hernandez, C. I., Rahill, K., Pham, M., Manriquez, L., Louis, P., Figueroa, A., ... & Sawyer, B. D. (2020). Driving Hazard Detection on the Road Does Not Reveal the Prevalence Effect. *Journal of Vision*, 20(11), 1692-1692.

Wallace, S., Treitman, R., Kumawat, N., Arpin, K., Huang, J., Sawyer, B., & Bylinskii, Z. (2020). Individual Differences in Font Preference & Effectiveness as Applied to Interlude Reading in the Digital Age. *Journal of Vision*, 20(11), 412-412.

Wallace, S., Treitman, R., Kumawat, N., Arpin, K., Huang, J., Sawyer, B., & Bylinskii, Z. Towards Readability Individuation: The Right Changes to Text Format make Large Impacts on Reading Speed. *Journal of Vision*, 20(10), 17-17.

Wallace, S., Treitman, R., Huang, J., Sawyer, B. D., & Bylinskii, Z. (2020, April). Accelerating Adult Readers with Typeface: A Study of Individual Preferences and Effectiveness. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems Extended Abstracts* (pp. 1-9).

Hancock, P. A., Hancock, G., Sellen, A., Lee, J., Sawyer, B., Sheridan, T., ... & Sanderson, P. (2019, November). The Life and Legacy of Professor John Senders. *In Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 63(1), 577-581. Seattle, WA.

Kaplan, A. D., Cruik, J., Endsley, M., Beers, S. M., Sawyer, B. D., & Hancock, P. A. (2019, November). Transfer of Training from Virtual Reality and Augmented Reality: A Meta-Analysis Extended Abstract. *In Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 63(1), 2142-2143. Seattle, WA.

Hannon, D., Rantanen, E., Sawyer, B., Ptucha, R., Hughes, A., Darveau, K., & Lee, J. D. (2019, November). A Human Factors Engineering Education Perspective on Data Science, Machine Learning and Automation. *In Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 63(1), 488-492. Seattle, WA.

Sawyer, B. D., Karwowski, W., Xanthopoulos, P. and Hancock P. A., (2018, June). A Comparison of ERP Data Cleaning Strategies for Neuroergonomic Error Detection. In *Proceedings of the 2nd International Neuroergonomics Conference's Frontiers in Human Neuroscience*. doi: 10.3389/conf.fnhum (Vol. 4). PA: Philadelphia

Sawyer, B. D., Seppalt, B., Mehler, B. and Reimer, B., (2017, September). Trust Impacts Driver Glance Strategy in Multitasking. *In Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 61(1), 1441-1442. Austin, TX.

Sawyer, B. D., Dobres, J., Chahine, N., and Reimer, B., (2017, September). The Cost of Cool: Typographic Style Legibility in Reading at a Glance. *In Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 61(1), 833-837. Austin, TX.

Sawyer, B. D., Mehler, B. and Reimer, B. (in press). Trusting Eyes: Voice navigation system-directed glance strategy in high and low trust drivers. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*. Austin, TX.

Sawyer, B.D., Mehler, B. and Reimer, B., 2017, An antiphony framework for dividing tasks into subtasks. *Proceedings of the Ninth International Driving Symposium on Human Factors in Driver Assessment, Training and Vehicle Design*. Manchester Village, Vermont.

*Geitner, C., Sawyer, B. D., Birrell, S., Jennings, P., Skrypchuk, L., Mehler, B. and Reimer, B., 2017, A link between trust in technology and glance allocation in on-road driving. *Proceedings of the Ninth International Driving Symposium on Human Factors in Driver Assessment, Training and Vehicle Design*. Manchester Village, Vermont.

Sawyer, B. D., Karwowski, W., Xanthopoulos, P. and Hancock, P. A. (2016). Applied potential: Neuroergonomic error detection in single electrode electroencephalography. *Presentation at Neuroergonomics*, Paris, France.

Mehler, B., Sawyer, B. D. and Reimer, B., 2016, An applied driving evaluation of electrodermal potential as a measurement of attentional state. *Presentation at Neuroergonomics*, Paris, France.

Sawyer, B. D., Lee, J., Dobres, J., Mehler, B., Coughlin, J. F. and Reimer, B., 2016, Effects of a voice interface on mirror check decrements in older and younger multitasking drivers. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting 60(1)*, 95-100. Washington, D. C.

Greenlee, E. T., Funke, G. J., Warm, J. S., Sawyer, B. D., Finomore, V. S., Mancuso, V. F. and Matthews, G., 2016, Stress and workload profiles of network analysis: not all tasks are created equal. *Advances in Human Factors in Cybersecurity*, 153.

Gutzwiller, G.S., Fugate, S., Sawyer, B. D. and Hancock, P. A., 2015, The human factors of cyber network defense. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting 59(1)*, 322-326.

Sawyer, B. D., Finomore, V. S., Funke, G., Mancuso, V., Warm, J. S. and Hancock, P. A., 2015, Evaluating cybersecurity vulnerabilities with the email test-bed: Effects of training. *Proceedings of the 19th Triennial Congress of the International Ergonomics Association*, 9, 14. Melbourne, Australia.

Sawyer, B. D., Calvo, A., Finomore, V.S. and Hancock, P. A., 2015, Serendipity in simulation: Building environmentally valid driving distraction evaluations of google glass and an android smartphone. *Proceedings of the 19th Triennial Congress of the International Ergonomics Association*, 9, 14. Melbourne, Australia.

Hancock, G. and Sawyer, B. D., 2015, A heuristic-based re-evaluation of the IBM Academic Initiative Project interface. *Proceedings of the 19th Triennial Congress of the International Ergonomics Association*, 9, 14. Melbourne, Australia.

Sawyer, B. D., Finomore, V. S., Funke, G. and Warm, J. S., 2014, Cyber vigilance: effects of signal probability and event rate. *Proceedings of the 2014 Human Factors and Ergonomics Society Annual Meeting*, 58(1), 1771-1775. Chicago, IL.

Sawyer, B. D. and Hancock, P. A., 2014, An evaluation of drivers using an ignition interlock breath test while driving. *Proceedings of the 2014 Human Factors and Ergonomics Society Annual Meeting*, 58(1), 2098-2101. Chicago, IL.

Sawyer, B. D. and Hancock, P. A., 2013, Performance degradation due to automation in texting while driving. *Proceedings of the 7th International Driving Symposium on Human Factors in Driving Assessment, Training and Vehicle Design*, No. 68, 446-452. Bolton, NY.

Sawyer, B. D. and Hancock, P. A., 2012, Development of a linked simulation network to evaluate intelligent transportation system vehicle to vehicle solutions. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 56(1), 2316-2320.

Fok, A. W., Frischmann, T. B., Sawyer, B., Robin, M. and Mouloua, M., 2011, The impact of GPS interface design on driving and distraction. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 55(1), 1755–1759.

Blalock, L. D., Sawyer, B. D., Kiken, A. and Clegg, B. A., 2009, The impact of load on dynamic versus static situational knowledge while driving. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 53(18), 1338-1342.

1f. Conference Presentations without Proceedings

Hernandez, C. I., Rahill, K., Pham, M., Manriquez, L., Louis, P., Figueroa, A., Medina, B., Wolfe, B., & Sawyer, B. D., (2020, May). *Prevalence effects are not driving hazard detection on the road*. Poster session presented at the Vision Sciences Society Annual Meeting, St. Pete Beach, FL.

Sawyer, B. D. (Chair), 2019, Autonomy-Brain Exchange: Toward Neuroergonomic Integration of Human and Machine. *Panel presented at Smart Conference*, Orlando, FL.

Sawyer, B. D. (Chair), Schuster, D. and Hancock, P.A., 2016, How human factors must change to address cybersecurity. *Featured invited panel presented at The Human Factors & Ergonomics Society Annual Meeting*, Washington, D. C.

Vieane, A. (Chair), Hale, K. (Cochair), Sawyer, B. D., Funke, G., Mancuso, V. and Wickens, C., 2016, Addressing human factors gaps in cyberdefense. *Panel presented at The Human Factors & Ergonomics Society Annual Meeting*, Washington, D. C.

*Walker, J. A., Hancock, G. M., Sawyer, B. D., Karwowski, W., Sims, V. K. and Hancock, P. A., 2016, An Examination of individual differences in the context of vigilance. *Poster at University of Central Florida's Annual Showcase of Undergraduate Research*, Orlando, FL.

*Walker, J. A., Sawyer, B. D., Hancock, G. M., Karwowski, W., Sims, V. K. and Hancock, P. A., 2016, Individual differences in working memory capacity and the role they play in performance on a feedback v. no feedback vigilance task. *Poster at Tampa University's Florida Undergraduate Research Conference*, Tampa, FL.

Sawyer, B. D., Oppold, P. and Hancock, P. A., 2015, Using the Population Specific User Mastery (PSUM) Scale to determine training needs. *Presented at the 19th Triennial Congress of the International Ergonomics Association 2015*. Melbourne, Australia.

*Shankle, J., Nir, T., Stafford, S., Hancock, P.A. and Sawyer, B. D., 2015, *Measuring judgment, reaction time, and reaction type in drivers: comparing collision rates of four scenarios*. Poster presented at *University of Central Florida's annual Showcase of Undergraduate Research Excellence, Orlando, FL*.

◇*Walker, J. A., Xanthopoulos, P., Karwowski, W., Hancock, P. A. and Sawyer, B. D., 2015, Interpreting electroencephalography output for error-related negativity. *Presentation at the 8th annual Student Conference on Human Factors and Applied Psychology, Daytona Beach, FL*. Winner of Best Student Poster.

*Walker, J. A., Xanthopoulos, P., Karwowski, W., Hancock, P.A. and Sawyer, B. D., 2015, Qualitative analysis of event-related potential EEG data. *Poster presented at the University of Central Florida's Annual Showcase of Undergraduate Research Excellence, Orlando, FL*.

*Nir, T., Shankle, J., Vermillion, B. Hancock, P. A. and Sawyer B. D., April 2015, Driver distraction simulation testbed (building). *Poster presented at University of Central Florida's annual Showcase of Undergraduate Research Excellence, Orlando, FL*.

*Nir, T., Shankle, J., Stafford, S., Hancock, P. A. and Sawyer, B. D., March 2015, Driver reaction: collision rates in four maps. *Poster presented at the 2nd annual Undergraduate Psychology Conference, Orlando, FL*.

Sawyer, B. D., Finomore, V. S., Funke, G., Warm, J. S. and Hancock, P. A., 2014, Vigilance in cyber defense: a strategy and individual differences based approach. *Presented at the American Psychological Association 2014 annual convention*. Washington, D. C.

*MacArthur, K. R., Greenstein, S., Sawyer, B. D. and Hancock, P. A., 2014, PSUM: Training in Google Glass and Android. *Presented at the American Psychological Association 2014 Annual Convention*. Washington, D. C.

*Sawyer, B. D., Calvo, A., Finomore, V.S. and Hancock, P. A., 2014, Evaluating Google Glass by building serendipity in simulation. *Presented at the Human Factors & Applied Psychology Student Conference at Embry-Riddle Aeronautical University*. Daytona Beach, FL.

Sawyer, B. D., Finomore, V. S., Funke, G. and Hancock, P. A., 2014, Are cyber tasks examples of vigilant attention? *Presented at the Human Factors & Applied Psychology Student Conference at Embry-Riddle Aeronautical University*. Daytona Beach, FL.

*Siler, J., Sawyer, B. D., Stafford, S. and Hancock, P. A., 2014, Driving simulation: Ecological validation and participant perception. *Presented at the Human Factors & Applied Psychology Student Conference at Embry-Riddle Aeronautical University*. Daytona Beach, FL.

*MacArthur, K. R., Greenstein, S., Sawyer, B. D. and Hancock, P. A., 2014, Mastering Google Glass. *Presented at the Human Factors & Applied Psychology Student Conference at Embry-Riddle Aeronautical University*. Daytona Beach, FL.

*Walker, J. A. Diaz, D. A., Finomore, V., Funke, G., Sawyer, B. D. and Hancock, P. A., 2014, Can you think through the boredom? An examination of executive functioning in cybernetic vigilance tasks. *Presented at the Human Factors & Applied Psychology Student Conference at Embry-Riddle Aeronautical University*. Daytona Beach, FL.

*Walker, J., McPeak, B., Perkins, S., Fishburn, D., Tungate, A., Stafford, S., Sawyer, B. D. and Hancock, P. A., 2014, Event labeling in the context of weapon discrimination. *Presented at the 60th annual meeting of the Southeastern Psychological Association*. Nashville, TN.

*Siler, J., Niederman, E., Sawyer, B. D. and Hancock, P. A., 2014, Braking the chain: A brake light impact prevention system. *Presented at the 60th meeting of the Southeastern Psychological Association*. Nashville, TN.

*Niederman, E., Siler, J., Diaz, D. A., Sawyer, B. D. and Hancock, P. A., (2014). Texting with your own phone does not improve driving performance. *Presented at the 60th annual meeting of the Southeastern Psychological Association*. Nashville, TN.

*Diaz, D. A., Walker, J. A., Finomore, V., Funke, G., Sawyer, B. D. and Hancock, P. A., 2014, Personality impact on vigilance performance. *Presented at the Showcase of Undergraduate Research Excellence at the University of Central Florida*. Orlando, FL.

*Niederman, E., Diaz, D. A., Siler, J., Sawyer, B. D. and Hancock, P. A., 2014, Driving performance while texting does not improve by using a familiar phone. *Presented at the Showcase of Undergraduate Research Excellence at the University of Central Florida*. Orlando, FL.

*Greenstein, S., Sawyer, B. D., Niederman, E., Oppold, P. and Hancock, P. A., 2013, Piloting with the PSUM Scale: Establishing usability first. *Presented at Vehicular 2013*. Nice, France.

*Niederman, E., Price, J., Sawyer, B. D., Hancock, P. A., 2013, Neatness of dress affects perceived personality. *Presented at the Association for Psychological Science 25th Annual Convention*. Washington, D. C.

*Laborde, P., Perkins, S., Niederman, E, Sawyer, B. D., Hancock P. A., 2013, Surprising effects of priming on incidence of simulator sickness. *Presented at the Association for Psychological Science 25th Annual Convention*. Washington, D. C.

*Siler, J., Sawyer, B. D. and Hancock, P. A., 2013, Generation and the Google effect: Transactive memory system preference across age. *Presented at the Showcase of Undergraduate Research Excellence*. Orlando, FL.

*Laborde, P., Perkins, S., Niederman, E, Sawyer, B. D. and Hancock P. A., 2013, Simulation sickness: An unexpected effect of priming. *Presented at the Showcase of Undergraduate Research Excellence at the University of Central Florida*. Orlando, FL.

*Niederman, E., Sawyer, B. D. and Hancock, P. A., 2013, Contribution of physiological limitations of vision to change blindness. *Presented at the Showcase of Undergraduate Research Excellence at the University of Central Florida*. Orlando, FL.

*Perkins, S., LaBorde, P., Niederman, E., Sawyer, B. D. and Hancock, P. A., 2013, A replication of a surprising effect in a priming and simulation sickness study. *Presented at the Human*

Factors & Applied Psychology Student Conference at Embry-Riddle Aeronautical University.
Daytona Beach, FL.

*Niederman, E., Price, J., Sawyer, B. D. and Hancock, P. A., 2013, Can neatness of dress affect perceived personality? *Presented at the Human Factors & Applied Psychology Student Conference at Embry-Riddle Aeronautical University.* Daytona Beach, FL.

Sawyer, B. D., Fok, A., Ludvigson, J and Hancock, P. A., 2012, Simulator sickness, dare I speak thy name? *Presented at American Psychological Association 2012 Annual Convention.* Orlando, FL.

Sawyer, B. D., Teo, G, and Mouloua, M., 2012, DriveID: Vehicle safety innovation through individuation. *Presented at the 11th Congress of the International Ergonomics Association.* Recife, Brazil.

Fok, A., Frischman, T., Sawyer, B. D. and Mouloua, M, 2012, An evaluation of keyboard interface types on driver distraction. *Presented at the 11th Congress of the International Ergonomics Association.* Recife, Brazil.

Fok, A., Frischman, T., Sawyer, B. and Robin, M., 2011, Effects of navigational interface type on distracted driving. *Presented at the 2011 Meeting of the Association for Psychological Science.* Washington, D. C.

Ryals, A. J., Sawyer, B. D., Nomi, J. S., Cleary, A. M. and Brown, A. S., 2010, Eliciting déjà vu using virtual reality: Support for the Gestalt familiarity hypothesis. *Presented at the Annual Meeting of the Psychonomic Society.* St. Louis, MO.

Sawyer, B. and Clegg, B. A., 2010, Impact of components of text messaging on simulated driving performance. *Presented at the 2010 Meeting of the Association for Psychological Science.* Boston, MA.

Blalock, L. D., Sawyer, B., Kiken A. and Clegg, B. A., 2010, The impact of load on dynamic versus static situational knowledge while driving. *Presented at the 80th meeting of the RMPA.* Denver, CO.

Sawyer, B., Ahmed, A., Mong, H. M. and Clegg, B. A., 2009, Virtually there: A comparison of conventional navigational aids with HUD alternatives. *Presented at the 79th annual convention of the Rocky Mountain Psychological Association.* Albuquerque, NM.

Sawyer, B. and Clegg, B. A., 2009, Cognitive versus motor components of text messaging impairment of driving. *Presented at the 79th annual convention of the Rocky Mountain Psychological Association.* Albuquerque, NM.

1g. Popular Press Coverage of My Research

COVID-19 Health Systems and Data Structure

AP (2020, May) [Concerns Erupt Over Integrity of Florida's COVID-19 Website](#). NY Times.

Human Factors Engineering Class

IDC (2018, February) [Human factors engineering class tackles design for aging](#). MIT News
Autonomy in Trucking

Clevenger, S. (2017, November) [Human-Machine Interaction, Computing Power Key to Development of Autonomous Trucks](#). Transport Topics.

Menzies, J. (2017, October) [Government collaboration required on automated trucks](#). Truck News.

Engineering Typography for Augmented Reality

Steven, R., 2017, [Monotype, Google and MIT AgeLab team up to research how we read at a glance](#). Creative Review.

Monotype (2017, November) [Transcend imagery. Transport audiences](#).

Tselentis, J. (2017, August) [The Art of the Glance](#). Print.

Semi-autonomous Interface Engineering

Marshall, A. (2017, July) [To End Distracted Driving, MIT Figures out How People Really Drive](#). Wired.

Driving Distraction and Google Glass

“Google Glass: Driving distraction cause or cure?” (2014), was covered by TV, radio and [over 200 print sources](#):

Ackerman, E. (2014, September). [Research Reveals Danger Of Texting While Driving With Google Glass](#). Forbes.

Liston, B. (2014, September). [Driving while texting with Google Glass as distracting as phone – study](#). Reuters.

Creating DejaVu in Virtual Environments

Choi, C.Q. (2012, June) [Been There, Done That—or Did I?: Déjà Vu Found to Originate in Similar Scenes](#). Scientific American

Cleary, A. (2017) [Déjà vu](#). TEDx

2. GRANTS, CONTRACTS, AND CONSORTIA

2a. External Research Grants, Awards, and Gifts

Sawyer, B.D. (Co-principal Investigator), *The Phishing Tails: An Examination of the Individual Traits of Repeat Clickers and Protective Stewards*. National Institute of Standards and Technologies, \$192,120. *University of Central Florida*. 2020, 1 year effort.

Sawyer, B.D. (Principal Investigator), Adobe, Inc. Unrestricted Gift for Research. \$350,000. 2020.

Sawyer, B.D. (Principal Investigator), Monotype, Inc. Unrestricted Gift for Research. \$3,000. 2020.

Sawyer, B.D. (Principal Investigator), *Influencing Trust in Cybersecurity by Hacking the Human Factor*. Air Force Office of Scientific Research, Young Investigator Research Program (USAF YIP), \$450,000. Massachusetts Institute of Technology. 2017, 3 year effort.

Hancock, P.A., (Principal Investigator), Sawyer, B.D. (Co-Principal Investigator), *Workload and Scheduling Tools for Long Duration Missions*. NASA Johnson Space Center, Contract Number: 64016363, \$22,615. University of Central Florida. 2016, 1 year effort.

Hancock, P.A., (Principal Investigator), Sawyer, B.D. (Co-Principal Investigator), *Factors Influencing Search in Complex Driving Environments*. Component Element of the Georgia Institute of Technology/NHTSA UTC Project, Contract Number: RC614 G3, \$45,000. University of Central Florida. 2014, 2 year effort.

2b. Internal Research Grants

Sawyer, B.D. (Principal Investigator), P3 Postdoctoral Award, 25,000 to support Dr. Dave Miller. 2020, up to three year award at 25k/year.

Sawyer, B.D. (Principal Investigator), P3 Postdoctoral Award, 25,000 to support Dr. Katherine Rahill. 2020, one year award.

Sawyer, B.D. (Senate Bill Author), HFES SGA Travel Grant, \$100,000+ to date (renews annually), 2011-present

Sawyer, B.D. (Principal Investigator), IEMS Equipment Grant (EEG System), \$19,000, 2014

Hancock, P.A. (Principal Investigator), Sawyer, B.D. (Co-Principal Investigator), Eye-tracking Equipment Grant, \$60,000, 2011

Sawyer, B.D. (Principal Investigator), Simulator Upgrade & Software Development Grant, \$19,000 2011

2c. Industry Consortia

Lead, The Readability Consortium. Precompetitive consortium including Adobe, Readability Matters, Typography for Good, \$400,000, Jan 1, 2021 onwards. *University of Central Florida*.

Lead, Clear Information Presentation (ClearIP). Precompetitive consortium including Monotype, Google, & Mazda, \$215,000, June 1st, 2017 to March, 2018. *Massachusetts Institute of Technology*.

Technical Team, Advanced Human Factors Evaluator for Human Factors Demand (AHEAD). Noncompetitive consortium including Google, Jaguar/Landrover, DENSO, Honda, Subaru, & Panasonic. \$2,000,000, January 1st, 2017 to Present. *Massachusetts Institute of Technology*.

2d. Funding Under Review

Sawyer, B.D. (Principal Investigator), Testing Trust in the Prevalence Paradox through The Online Email Testbed (oET), Air Force Reseach Laboratories. \$450,000. University of Central Florida. 2020, 3 year effort.

Sawyer, B.D. (Principal Investigator), *National Cyber Range Complex Event*. Booz Allen Hamilton, IDIQ. University of Central Florida. 2020, 10 year effort.

Sawyer, B.D. (Co-principal Investigator), *Developing the Hyperlocal Asynchronous Social Net*. USDOD, \$1,500,000. University of Central Florida. 2020, 3 year effort with Georgia Tech Research Institute.

Sawyer, B.D. (Principal Investigator), *Resilience Against Cyber-Based Attacks*, USDOD. \$1,802,861. University of Central Florida. 2020, 3 year effort.

Sawyer, B.D. (Principal Investigator), *CAREER: Optimizing Textual Information Delivery*. National Science Foundation. \$1,500,000. University of Central Florida. 2020, 3 year effort.

Sawyer, B.D. (Principal Investigator), *DROID: Language-agnostic, Communication Theory-grounded Information Targeting*. DARPA. \$1,500,000. University of Central Florida. 2020, 3 year effort.

V. SERVICE ACTIVITY

1. Reviewer of Research Proposals for:

- Society for Military Psychology (Div 19)
- The Pacific Northwest Transportation Consortium, UTC for Region 10

2. Editorial Board for archival peer-review journals:

- Theoretical Issues in Ergonomics Science (Taylor & Francis) – new appointment
- Editorial Board, Augmented Human Research (Springer)
- Editorial Board, Human-Intelligent Systems Integration (Springer)

3. Reviewer for archival peer-review journals and Notable Conferences:

- Computer Human Interaction (CHI)
- Ergonomics
- Human Factors
- Applied Ergonomics
- IEEE Transactions on Human-Machine Systems
- Presence: Teleoperators and Virtual Environments
- Frontiers in Human Neuroscience

4. Other Professional Activities

- Cofounder, Awayr AI Inc., June 2018-present
- Subject Matter Expert in Human Factors and Industrial Engineering, Martin Trust Center for MIT Entrepreneurship, June 2016-present
- Volunteer Mentor, MIT Make Cool ShMIT Student Hackathons, May 2016-December 2017
- Engineering Postdoctoral Liaison for Sloan School of Business Executive MBA Program July 2016 to December 2017
- Repair Leader, Circular Cambridge Repair Café, 2017-present
- Member, MIT Postdoctoral Association, January 2016-December 2017
- Usability testing lead for UCF's POPUP online educational platform, Summer 2012