

Ben D. Sawyer, Ph.D., M.S.I.E

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Interests

I am fascinated by successes and failures of attention in human-machine systems. Exploring such cognition has led me to apply psychology, neuroscience and engineering in diverse contexts, including surface transport, cybersecurity, dismantled combat and human-robotic teaming. I enjoy learning new systems, taking apart what I do not understand, refining and documenting what I reassemble.

Education

Ph.D., Experimental Psychology: Applied and Human Factors 2015
University of Central Florida, Orlando, FL

M.S., Industrial Engineering: Ergonomics and Human Systems 2014
University of Central Florida, Orlando, FL

B.S., in Psychology, Honors Scholar 2010
Colorado State University, Fort Collins, CO

Experience

Visiting Researcher, University of Canterbury 2015

- Installed cyber defense testbed and designed research in cooperation with USAFA

Lab Manager, MIT² Lab, University of Central Florida 2011-2015

- Directed publicity, media, facilities and personnel management
- Mentored 14 Research Assistants in grant funded and honors research
- Grant Manager, “Factors Influencing Visual Search” 2012-2014
- Project Lead, “Robotics Collaborative Technology Alliance” 2012

Research Engineer, Industrial Engineering Dept., University of Central Florida 2014-2015

- Designed and executed programmatic neuroimaging (EEG) experimentation

Repperger Program, Air Force Research Labs 711th Human Performance Wing 2013-2015

- Two-time Repperger Scholar with Drs. V. Finomore and J. Warm
 - Vigilant attention in cyber defense for Applied Neuroscience (RHCP)
 - Special ops equipment evaluation for Battlefield Acoustics (RHCB)
- Transitioned by both AFRL branches to contractor status (under ORISE)

Lab Manager, Transportation Research Group 2010-2011

- Supported and upgraded an iSim driving simulator cluster with Dr. M. Mouloua

Research Assistant 2007- 2010

- Driving and goggle based simulation work with Dr. A. Cleary and Dr. B. Clegg
- Independent research, honors thesis, & co-authored resultant publications

Awards (selected, for the extended list see bendsawyer.com/awards)

- 2015 IEA KU Smith student award- Best HF/Ergonomics Journal Article \$ 3,000
- 2015 ICCAE Intelligence Community Academic Excellence Scholarship \$ 5,000
- 2014 American Psychological Foundation Ungerleider/Zimbardo Travel Scholarship \$ 300
- 2013 & 2014 USAFRL Repperger Scholarship \$24,000
- 2013 Division 19 (Military Psychology) Student Research Grant \$ 2,250
- 2011 NHTSA ESV Student Design Competition International Finalist \$ 3,750

Publications: For copies of my work please email me a request or visit bendsawyer.com

Journal Publications

1. Hancock, P. A., **Sawyer, B. D.**, (2015). Judging thieves of attention. *Human Factors*, in press.
2. Hancock, P. A., Hancock, G., **Sawyer, B. D.** (2015). Cybernomics and the implications of cyber-deception. *Ergonomics in Design*, 537, 1-3.
3. Hancock, P. A., **Sawyer, B. D.**, & Stafford, S. (2015). The effects of display size on performance. *Ergonomics*, 58(3), 337-354.
4. **Sawyer, B. D.**, Finomore, V. S., Calvo, A. A., & Hancock, P. A. (2014). Google glass: A driver distraction cause or cure? *Human Factors*, 56(7), 1307-1321.
5. Blalock, L. D., **Sawyer, B. D.**, Kiken, A., Gutzwiller, R. S., McGrill, C. L., & 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.
6. **Sawyer, B. D.**, & Hancock, P. A. (2012). Assisted entry mitigates text messaging based driving detriment. *Work: A Journal of Prevention, Assessment and Rehabilitation*, 41(2012), 4279–4282.
7. Cleary, A. M., Brown, A. S., **Sawyer, B. D.**, Nomi, J. S., Ajoku, A. C., & 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.
8. **Sawyer, B. D.**, Hancock, P. A., Deaton, J., & Suedfeld, P. (2012). Finding the team for Mars: a psychological and human factors analysis of a Mars Desert Research Station crew. *Work: A Journal of Prevention, Assessment and Rehabilitation*, 41(2012), 5481–5484.
9. **Sawyer, B.**, Teo, G., & Mouloua, M. (2012). DriveID: safety innovation through individuation. *Work: A Journal of Prevention, Assessment and Rehabilitation*, 41(2012), 4273–4278.
10. Ledbetter, J. L., Boyce, M. W., Fekety, D. K., **Sawyer, B.**, & Smither, J. A. (2012). Examining the impact of age and multitasking on motorcycle conspicuity. *Work: A Journal of Prevention, Assessment and Rehabilitation*, 41, 5384-5385.

In Review

11. **Sawyer, B. D.**, Finomore, V. S., Funke, G., Warm, J. S., Matthews, G, Hancock, P. A. (*In Review*). Cyber vigilance: the human factor. Submitted.
12. **Sawyer, B. D.**, Karwowski, W., Xanthopoulos, P., Hancock, P. A. (*In Review*). Detection of error related negativity in complex visual stimuli: A new technique in the practitioner’s toolbox. Submitted.
13. **Sawyer, B. D.**, Oppold, P., & Hancock, P. A. (*In Review*). PSUM: A unified metric linking designers and trainers to user goals. Submitted.

Proceedings

14. **Sawyer, B. D.**, Finomore, V. S., Funke, G., Mancuso, V., Warm, J. S., & 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.
15. **Sawyer, B. D.**, Calvo, A., Finomore, V.S., & 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.
16. Hancock, G., & **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.
17. **Sawyer, B. D.**, Finomore, V. S., Funke, G., & 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.

18. **Sawyer, B. D.**, & 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.
19. **Sawyer, B. D.**, & 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.
20. **Sawyer, B. D.**, & 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.
21. Fok, A. W., Frischmann, T. B., **Sawyer, B.**, Robin, M., & 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.
22. Blalock, L. D., **Sawyer, B. D.**, Kiken, A., & 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.

Professional Presentations

23. **Sawyer, B. D.**, Oppold, P., & Hancock, P. A. (2015). Using the Population Specific User Mastery (PSUM) Scale to determine training needs. *Paper accepted for presentation at the 19th Triennial Congress of the International Ergonomics Association, Melbourne, Australia. August.*
24. **Sawyer, B. D.**, Finomore, V. S., Funke, G., Warm, J. S., & 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.
25. MacArthur, K. R., Greenstein, S., **Sawyer, B. D.**, & Hancock, P. A. (2014). PSUM: Training in Google Glass and Android. *Presented at the American Psychological Association 2014 annual convention.* Washington D.C.
26. **Sawyer, B. D.**, Calvo, A., Finomore, V.S., & 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.
27. **Sawyer, B. D.**, Finomore, V. S., Funke, G., & 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.
28. Siler, J., **Sawyer, B. D.**, Stafford, S., & 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.
29. MacArthur, K. R., Greenstein, S., **Sawyer, B. D.**, & Hancock, P. A. (2014). Mastering Google Glass. *Presented at the Human Factors & Applied Psychology Student Conference at Embry-Riddle Aeronautical University.* Daytona Beach, FL.
30. Walker, J. A. Diaz, D. A., Finomore, V., Funke, G., **Sawyer, B. D.**, 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.
31. Walker, J., McPeak, B., Perkins, S., Fishburn, D., Tungate, A., Stafford, S., **Sawyer, B. D.**, & 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.
32. Siler, J., Niederman, E., **Sawyer, B. D.**, & 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.
33. Niederman, E., Siler, J., Diaz, D. A., **Sawyer, B. D.**, & 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.
34. Diaz, D. A., Walker, J. A., Finomore, V., Funke, G., **Sawyer, B. D.**, & 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.
 35. Niederman, E., Diaz, D. A., Siler, J., **Sawyer, B. D.**, & 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.
 36. Greenstein, S., **Sawyer, B. D.**, Niederman, E., Oppold, P., & Hancock, P. A. (2013). Piloting with the PSUM scale: Establishing usability first. *Presented at International Academy, Research, and Industry Association: Vehicular 2013*. Nice, France.
 37. 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, DC.
 38. 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, DC.
 39. Siler, J., **Sawyer, B. D.**, & 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.
 40. Laborde, P., Perkins, S., Niederman, E., **Sawyer, B. D.**, 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.
 41. Niederman, E., **Sawyer, B. D.**, & 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.
 42. Perkins, S., LaBorde, P., Niederman, E., **Sawyer, B. D.**, & 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.
 43. Niederman, E., Price, J., **Sawyer, B. D.**, & 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.
 44. **Sawyer, B. D.**, Fok, A., Ludvigson, J, Hancock, P. A., (2012). Simulator sickness, dare I speak thy name? *Presented at American Psychological Association 2012 Annual Convention*. Orlando, FL.
 45. **Sawyer, B. D.**, Teo, G, Mouloua, M., (2012). DriveID: Vehicle safety innovation through individuation. *Presented at the 11th Congress of the International Ergonomics Association*.
 46. Fok, A., Frischman, T., **Sawyer, B. D.**, & Mouloua, M, (2012). An evaluation of keyboard interface types on driver distraction. *Presented at the 11th Congress of the International Ergonomics Association*.
 47. **Sawyer, B. D.**, Teo, G., & Mouloua, M. (2011). DriveID: NHTSA ESV Student Design Finalist Presentation. Washington D.C.
 48. Fok, A., Frischman, T., **Sawyer, B.**, & Robin, M. (2011). Effects of navigational interface type on distracted driving. *Presented at the 2011 Meeting of the Association for Psychological Science*. Washington, DC.
 49. **Sawyer, B. D.**, Teo, G., Olsen, K., & Mouloua, M. (2011). DriveID: NHTSA ESV Student Design Contest On-Site Presentation, Orlando, FL.
 50. Ryals, A. J., **Sawyer, B. D.**, Nomi, J. S., Cleary, A. M., & 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.
 51. **Sawyer, B.**, & 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.

52. Blalock, L. D., **Sawyer, B.**, Kiken A., & Clegg, B. A. (2010). The impact of load on dynamic versus static situational knowledge while driving. *Presented at the 80th annual meeting of the Rocky Mountain Psychological Association.* Denver, CO.
53. **Sawyer, B.**, Ahmed, A., Mong, H. M., & 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.
54. **Sawyer, B.**, & 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.

Invited Lectures

55. University of Canterbury: Psychology Department. *Meet E.T.: Cybersecurity Research with the Email Testbed.* (2015). *Christchurch, New Zealand*
56. Purdue University: Krannert School of Management. *The Human Factors and Neuroscience of Entrepreneurship.* (2015). *Lafayette, Indiana*
57. White House Office of Science & Technology Policy & U.S. Dept of Transportation Safety Datapalooza. (2012). *Washington DC, District of Columbia.*

In The Press

“Google Glass: Driving Distraction cause or cure?” (2014) was covered by TV, radio and [over 100 print publications](#), including:

- 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.**
- Karol, G. (2014, September). [Study: Behind the Wheel, Google Glass Distracts as Much as Smartphones.](#) **Fox Business News.**

Familiarity from the configuration of objects in 3-dimensional space and its relation to déjà vu: A virtual reality investigation. (2012) was covered in publications including:

- Volk, P. (2013, April) [Déjà vu in 3D.](#) **Bild der Wissenschaft**
- Choi, C.Q. (2012, June) [Been There, Done That—or Did I?: Déjà Vu Found to Originate in Similar Scenes.](#) **Scientific American**

Awarded Grants & Contracts

External

- Co-PI, Workload and Scheduling Tools for Long Duration Missions. NASA Johnson Space Center, Contract Number: 64016363, \$22,615, April 6th 2015 to February 29th 2016.
- Grant writer, Factors Influencing Search in Complex Driving Environments. Component Element of the Georgia Institute of Technology/NHTSA UTC Project, Contract Number: RC614 G3, \$45,000, January 1st, 2012 to January 31st, 2014.

Internal

- Senate Bill Author, HFES SGA Travel Award, UCF, \$38,000 to date (renews annually), 2011-Present
- P.I., IEMS Internal Equipment Grant (EEG System), UCF, \$19,000, 2014
- P.I., UCF Psychology Department Simulator Upgrade Grant, UCF, \$6,450, 2012

Selected Consulting Experience

Lifesaver, Inc., *Driving Simulation Human Factors Consultant*
Coben & Associates, *Crash Scene Investigator*
UXscience, *Driving Human Factors Consultant*
Popup Project, University of Central Florida, *Online Education Support*
Siemens Wind Energy, *Human Factors Consultant*
IBM Academic, *Web HCI Consultant*

*References
provided upon
request.*

Teaching

- | | |
|---|------|
| Instructor EXP3604c Cognitive Psychology
• University of Central Florida | 2014 |
| Teaching Assistant PSY210 Research Methods
• The University of Central Florida with Dr. Matthew Chin | 2010 |
| Teaching Assistant PSY453 Cognitive Psychology Lab
• Colorado State University with Dr. Anthony Ryals | 2010 |

Honors Students Mentored

- MacArthur, K.R. (2014). Deindividuation of drivers: Is everyone else a bad driver? *Honors Thesis*, University of Central Florida Orlando, FL.
- Siler, J. (2013). Generation and the Google effect: Transactive memory system preference across age. *Honors Thesis*, University of Central Florida Orlando, FL.
- Niederman, E. (2013). Investigation of visual requirements for change detection. *Honors Thesis*, University of Central Florida Orlando, FL.

Professional Service

- Reviewer: HFES Surface Transportation Technical Group, 2012- Present
- UCF Honors In The Major Graduate Student Mentor, 2012-Present
- Session Chair: American Psychological Association 2012 Meeting, Human Factors Potpourri
- Session Co-Chair: Human Factors & Ergonomics Society 2012 Meeting, Student Research Potpourri
- Student Session Chair: Human Factors & Applied Psychology 2011 Meeting, Transport Session

Community Volunteer Service

- Casselberry Art House, 2014
- Audubon Center for Birds of Prey, 2012-2013
- Howard Phillips Center for Children & Family, 2011