

Sara Lu Riggs

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A. PROFESSIONAL APPOINTMENTS

2021 – Present Assistant Chair for Research and Strategy, Department of Engineering Systems and Environment, University of Virginia, Charlottesville, VA

2019 – Present Member, Link Lab, University of Virginia, Charlottesville, VA

2019 – Present Assistant Professor, Department of Engineering Systems and Environment, University of Virginia, Charlottesville, VA

2014 – 2019 Assistant Professor, Department of Industrial Engineering, Clemson University, Clemson SC

B. EDUCATION

2014 Ph.D., Industrial and Operations Engineering, University of Michigan

2011 M.S.E., Industrial and Operations Engineering, University of Michigan

2009 B.S., Industrial and Systems Engineering (Business Minor), Virginia Polytechnic Institute and State University

2009 B.A., Economics, Virginia Polytechnic Institute and State University

C. HONORS AND AWARDS

2020 Jerome H. Ely Human Factors Article Award (Best article in *Human Factors*)

2020 Advisor to the Winner of the HFES Perception and Performance Technical Group Best Student Paper Award (Logan Clark)

2020 Advisor to the Winner of the HFES Cognitive Engineering and Decision Making Technical Group Best Student Paper Award (Shannon Devlin)

2019 Advisor to the Mobile Health Applications for Consumers Student Design Competition Finalist (Logan Clark)

- 2019 Advisor to the Second-place Winner of the IISE Regional Undergraduate Technical Paper Competition (Jennifer Byham)
- 2018 NSF CAREER Award
- 2018 Advisor to the Third-place winner of the HFES Healthcare Technical Group Best Student Paper Award (Kylie Gomes)
- 2018 Clemson College of Engineering, Computing, and Applied Sciences Dean's Faculty Fellows Award
- 2016 APA George E. Briggs Dissertation Award
- 2016 Advisor to the Winner of the HFES Perception and Performance Technical Group Best Student Paper Award (Kylie Gomes)
- 2016 Advisor to the Second-place winner of the IIE Regional Undergraduate Technical Paper Competition (Shannon Devlin)
- 2012, 2013 Michigan Space Grant Consortium Graduate Fellowship
- 2009 1st Place IIE Regional Undergraduate Technical Paper Competition

D. PUBLICATIONS



Archival Journal Publications

1. Devlin, S., Byham, J., & ***Riggs, S.L.** Does what we see shape history? Examining workload history as a function of performance and ambient/focal visual attention. (2021). *ACM Transactions on Applied Perception*, 18(2). 1–17. Impact Factor: 1.378
2. Devlin, S., Moacdieh, N., Wickens, C.D., & ***Riggs, S.L.** (2020). Transitions between low and high levels of mental workload can improve multitasking performance. *IISE Transactions on Occupational Ergonomics and Human Factors*, 8(2), 82–87. Impact Factor: Not yet available (new journal for IISE)
3. Clark, L., Bhagat, A., & ***Riggs, S.L.** (2020). Extending Fitts' law in three-dimensional virtual reality environments with current low-cost virtual reality technology. *International Journal of Human - Computer Studies*, 139, 1–17. Impact Factor: 3.163
4. Moacdieh, N., Devlin, S., Jundi, H., & ***Riggs, S.L.** (2020). Effects of workload and workload transitions on performance and attention: Evidence from eye tracking metrics. *Journal of Cognitive Engineering and Decision Making*, 14(2), 132–151. Impact Factor: 1.630
5. Gomes, K., Betza, S., & ***Riggs, S.L.** (2020). Now you feel it, now you don't: The effect of movement, cue complexity, and body location on tactile change detection. *Human Factors*, 62(4), 643–655. Impact Factor: 3.165

6. Gomes, K., Reeves, S., & ***Riggs, S.L.** (2019). The evaluation of tactile parameters and display prototype to support physiological monitoring and multitasking for anesthesia providers in the operating room. *IEEE Transactions on Haptics*, 13(3), 628–644. Impact Factor: 3.099
7. Cull, J., Riggs, R., **Riggs, S.**, Byham, M., Witherspoon, M., Baugh, N., Metcalf, A., Kitchens, D., & Manning, B. (2019). Development of trauma level prediction models using emergency medical service vital signs to reduce over- and under-triage rates in penetrating wounds and falls of the elderly. *The American Surgeon*, 85(5), 524–529. Impact Factor: 0.531
8. Gomes, K. & ***Riggs, S.L.** (2019). Evaluating methods of crossmodal matching of multimodal displays in younger and older adults. *International Journal of Human-Computer Studies*, 126, 1–13. Impact Factor: 3.163
9. ***Riggs, S.** & Sarter, N. (2019). Tactile, visual, and crossmodal visual-tactile change blindness: The effect of transient type and task demands. *Human Factors*, 61(1), 5–24. Impact Factor: 3.165
 - Jerome H. Ely Human Factors Article Award winner (best *Human Factors* paper published in 2019)
10. ***Riggs, S.** & Sarter, N. (2019). Crossmodal matching: The case for developing and employing a valid and feasible approach to equate perceived stimulus intensities in multimodal research. *Human Factors*, 61(1), 29–31. Impact Factor: 3.165
11. ***Riggs, S.**, Wickens, C., Sarter, N., Thomas, L., Nikolic, M., & Sebok, A. Multimodal information presentation in support of NextGen operations. (2017). *The International Journal of Aerospace Psychology*, 27(1-2), 29–43. Impact Factor: 1.111
12. Gildersleeve, R., **Riggs, S.L.**, Cheriavvsky, D.R., DeBoer, M.D. (2017). Improving the safety and functionality of an artificial pancreas system for use in young children: Input from parents and physicians. *Diabetes Technology and Therapeutics*, 19(11), 660–674. Impact Factor: 4.403
13. **Riggs, S.** & Sarter, N. (2016). The development and evaluation of countermeasures to tactile change blindness. *Human Factors*, 58, 482–495. Impact Factor: 3.165
14. Pitts, B., **Riggs, S.**, & Sarter, N. (2016). Crossmodal matching: A critical but neglected step in multimodal research. *IEEE Transactions on Human-Machine Systems*, 46(3), 445–450. Impact Factor: 3.374
15. **Lu, S.**, Wickens, C., Prinet, J., Hutchins, S., Sarter, N., & Sebok, A. (2013). Supporting interruption management and multimodal interface design: Three meta-analyses of task performance as a function of interrupting task modality. *Human Factors*, 55, 697–724. Impact Factor: 3.165
 - Jerome H. Ely Human Factors Article Award finalist (best *Human Factors* paper published in previous year's volume)

Peer-Reviewed, Archival Conference Proceedings

Italicized authors are presenters

1. Clark, L. & **Riggs, S.L.** (2021). Movement strategies in virtual reality: Exploring the influence of 3D endpoint variability. *Proceedings of the 65th Annual Meeting of the Human Factors and Ergonomics Society*, Baltimore, MD.

2. Alami, J., Borowitz, S., & **Riggs, S.L.** (2020). Usability challenges with EHRs during pre-rounding in the pediatric acute care department. *Proceedings of the 64th Annual Meeting of the Human Factors and Ergonomics Society*, Chicago, IL (virtual), pp. 1282-1286.



3. Clark, L. & ***Riggs, S.L.** (2020). Movement strategies in virtual reality: The influence of effort costs and target depth. *Proceedings of the 64th Annual Meeting of the Human Factors and Ergonomics Society*, Chicago, IL (virtual), pp. 1600–1604.
 - Winner of the HFES Perception and Performance Technical Group Best Student Paper Award



4. Devlin, S., Flynn, J., & ***Riggs, S.L.** (2020). How coordinated visual attention on a target area of interest is impacted by a change in workload over time. *Proceedings of the 64th Annual Meeting of the Human Factors and Ergonomics Society*, Chicago, IL (virtual), pp. 366–370.
 - Winner of the HFES Cognitive Engineering and Decision Making Technical Group Best Student Paper Award

5. Devlin, S., Flynn, J., & **Riggs, S.L.** (2020). How shared visual attention patterns of pairs unfold over time when workload changes. *ETRA 2020: ACM Symposium on Eye Tracking Research and Applications*, 41, 1–5.

6. Clark, L. & **Riggs, S.L.** (2019). Investigating the use of movement kinematics to assess perceptual ambiguity in virtual reality. *Proceedings of the 63rd Annual Meeting of the Human Factors and Ergonomics Society*, Seattle, WA, pp. 2318–2322.

7. Devlin, S., Flynn, J., & **Riggs, S.L.** (2019). Examining the visual attention of pairs of operators during a low to high workload change. *Proceedings of the 63rd Annual Meeting of the Human Factors and Ergonomics Society*, Seattle, WA, pp. 201–205.

8. Gomes, K., Reeves, S., & **Riggs, S.L.** (2019). Evaluating the effectiveness of a set of tactile cues to communicate patient information with anesthesia providers. *Proceedings of the 63rd Annual Meeting of the Human Factors and Ergonomics Society*. Seattle, WA, not paginated.

9. Devlin, S., Flynn, J., & **Riggs, S.L.** (2018). Connecting the Big Five taxonomies: Understanding how individual traits contribute to team adaptability under workload transitions. *Proceedings of the 62nd Annual Meeting of the Human Factors and Ergonomics Society*, Philadelphia, PA, pp. 119–123.

10. Devlin, S. & **Riggs, S.L.** (2018). The effect of video game experience and the ability to handle workload and workload transitions. *Proceedings of the 62nd Annual Meeting of the Human Factors and Ergonomics Society*, Philadelphia, PA, pp. 736–740.



11. Gomes, K., Reeves, S., & **Riggs, S.L.** (2018). The “up-side” and “down-side” of tactile parameters: An evaluation of increases and decreases in tactile cue magnitude to support anesthesia monitoring. *Proceedings of the 62nd Annual Meeting of the Human Factors and Ergonomics Society*, Philadelphia, PA, pp. 622–626.
 - Third-place winner of the HFES Healthcare Technical Group Best Student Paper Award

12. Betza, S., Reeves, S., Abernathy, J., & **Riggs, S.L.** (2017). The effect of movement and cue complexity on tactile change detection. *Proceedings of the 61st Annual Meeting of the Human Factors and Ergonomics Society*, Austin, TX, pp. 1541–1545.




13. Devlin, S. & **Riggs, S.L.** (2017). Analyzing eye tracking data using a Markovian framework to assess differences in scan patterns. *Proceedings of the 61st Annual Meeting of the Human Factors and Ergonomics Society*, Austin, TX, pp. 1814–1818.
14. Gomes, K. & **Riggs, S.L.** (2017). Analyzing visual search techniques using eye tracking for a computerized provider order entry (CPOE) task. *Proceedings of the 61st Annual Meeting of the Human Factors and Ergonomics Society*, Austin, TX, pp. 691–695.
15. Gomes, K. & **Riggs, S.L.** (2017). The effect of age on crossmodal matching using auditory frequency. *Proceedings of the 61st Annual Meeting of the Human Factors and Ergonomics Society*, Austin, TX, pp. 1552–1556.
16. Gomes, K. & **Riggs, S.L.** (2016). Crossmodal matching: A comparison of two methods. *Proceedings of the 60th Annual Meeting of the Human Factors and Ergonomics Society*, Washington, DC, pp. 1595–1599.
 - Winner of the HFES Perception and Performance Technical Group Best Student Paper Award
17. Betza, S., Jurewicz, K., Neyens, D., **Riggs, S.L.**, Abernathy, J.H., & Reeves, S.T. (2016). Anesthesia maintenance and vigilance: Examining task switching. *Proceedings of the 60th Annual Meeting of the Human Factors and Ergonomics Society*, Washington, DC, pp. 608–612.
18. **Lu, S.** & Sarter, N. (2014). Tactile change blindness in an unmanned aerial vehicle control task. *Proceedings of the 58th Annual Meeting of the Human Factors and Ergonomics Society*, Chicago, IL, pp. 1706–1710.
19. **Lu, S.**, Nemshak, M., Schumacher, R., & Seagull, F.J. (2013). Identifying, quantifying, and projecting single-day quality measures within the neonatal ICU. *Proceedings of the 57th Annual Meeting of the Human Factors and Ergonomics Society*, San Diego, CA, pp. 1760–1764.
20. **Lu, S.** (2013). Modeling Attention-Deficit Hyperactivity Disorder (ADHD) under a dual task paradigm using a Markovian framework for ADHD diagnosis. *Proceedings of the 57th Annual Meeting of the Human Factors and Ergonomics Society*, San Diego, CA, pp. 798–802.
21. Pitts, B., **Lu, S.**, & Sarter, N. (2013). Crossmodal matching: The development and evaluation of a new technique. *Proceedings of the 57th Annual Meeting of the Human Factors and Ergonomics Society*, San Diego, CA, pp. 1760–1764.
22. **Lu, S.**, Wickens, C., Sarter, N., Thomas, L., Nikolic, M., & Sebok, A. (2012). Redundancy gains in communication tasks: A comparison of auditory, visual, and redundant auditory-visual information presentation on NextGen flight decks. *Proceedings of the 56th Annual Meeting of the Human Factors and Ergonomics Society*, Boston, MA, pp. 1476–1480.
23. **Lu, S.**, Wickens, C., Sarter, N., & Sebok, A. (2011). Informing the design of multimodal displays: A meta-analysis of empirical studies comparing auditory and tactile interruptions. *Proceedings of the 55th Annual Meeting of the Human Factors and Ergonomics Society*, Las Vegas, NV, pp. 1170–1174.
24. Li, H., **Lu, S.**, Schumacher, R., & Seagull, F. (2011). Why multidisciplinary rounds are not multidisciplinary: Examination of a neonatal ICU rounding process. *Proceedings of the 55th Annual Meeting of the Human Factors and Ergonomics Society*, Las Vegas, NV, pp. 758–762.

25. Herrmann, J., Lu, S., & Schalliol, K. (2009). Delivery volume improvement for planning medication distribution. In *Proceedings of the 2009 IEEE International Conference on Systems, Man, and Cybernetics*, San Antonio, TX, pp. 3605–3609.

Conference Proceedings Not Critically Reviewed

1. Chappidi, S., Gustad, L., Hu, A., Kyaw, K., & Riggs, S. (2021). The design and evaluation of user-interface prototypes for a next-generation dishwasher mobile application. In *2021 IEEE Systems and Information Engineering Design Symposium (SIEDS)*, Sweet Briar College, Sweet Briar, VA (virtual), pp. 1–2.
2. Gerling, G.J., Riggs, S.L., Heo, S., Panagiotis, A., Clark, L.D., & Rogers, C.C. (2021). Crafting an effective portfolio in user experience design. In *2021 IEEE Systems and Information Engineering Design Symposium (SIEDS)*, Sweet Briar College, Sweet Briar, VA (virtual), pp. 1–2.
3. Herrmann, J., Lu, S., & Schalliol, K. (2009). A routing and scheduling approach for planning medication distribution. In *Proceedings of the 2009 Industrial Engineering Research Conference*. Miami, FL, pp. 1298–1303.

Conference Posters/Abstracts Not Critically Reviewed

1. Gomes, K., Reeves, S., & Riggs, S. (2020). The evaluation of tactile parameters and display prototype to support physiological monitoring and multitasking for anesthesia providers in the operating room. Poster presented at the *2020 IEEE Haptics Symposium*, Washington, DC. June.
2. Gomes, K. & Riggs, S. (2019). Evaluation of a prototype tactile display to support physiological monitoring in anesthesia. Presented at the *2019 International Symposium on Human Factors and Ergonomics in Health Care*. Chicago, IL. March.
3. Clark, L., Murphy, E., Huffer, E., Guadagnino, G., Evans, C., & Riggs, S. DiaBuddy. Presented at the *2019 International Symposium on Human Factors and Ergonomics in Health Care*. Chicago, IL. March. [**Mobile Health Applications for Consumers Student Design Competition finalist**]
4.  Byham, J. (2019). Quantifying eye movement: Changes in entropy and K-coefficient over time as a function of gradual and sudden workload shifts. Presented at the *IISE Student Regional Undergraduate Conference*. Morgantown, WV. February.
 - Second-place winner of the IISE Regional Undergraduate Technical Paper Competition
5. Byham, J. & Riggs, S. (2018). Quantifying eye movement: Changes in entropy over time as a function of gradual and sudden workload shifts. Poster presented at the *Clemson University Summer Undergraduate Research Symposium*. Clemson, SC. July.
6. Gomes, K. & Riggs, S. (2018). The evaluation of tactile technology for continuous informing displays in anesthesia. Presented at the *2018 International Symposium on Human Factors and Ergonomics in Health Care*. Baltimore, MD. March.
7. Jundi, H. & Riggs, S. (2017). Entropy-based statistical analysis of visual attention. Poster presented at the *Clemson University Summer Undergraduate Research Symposium*. Clemson, SC. July.



8. Bidwick, L., Gomes, K., & Riggs, S. (2016). Crossmodal matching using the method of bracketing and adjustment. Poster presented at the *Clemson University Summer Undergraduate Research Symposium*. Clemson, SC. July.
9. Devlin, S. (2016). Toward adaptive display design: Modeling eye tracking data using a Markovian framework. Presented at the *IIE Student Regional Undergraduate Conference*. Blacksburg, VA. February.
 - Second-place winner of the IIE Regional Undergraduate Technical Paper Competition
10. Hutula, K. & Riggs, S. (2015). Using visualization to effectively capture multimodal data over time. Poster presented at the *College of Charleston CCS REU Mini Conference*. Charleston, SC. July.
11. Gomes, K. & Riggs, S. (2015). Crossmodal links between vision and audition: How visual attention changes over time. Presented at the *Industrial Engineering Research Conference (ISERC)*. Nashville, TN. May.
12. Vaigneur, H. & Riggs, S. (2015). A model of groupthink antecedents to quantitatively support hospital safety culture. Poster presented at the *2015 International Symposium on Human Factors and Ergonomics in Health Care*. Baltimore, MD. April.
13. Pitts, B., Lu, S., & Sarter, N. (2013). Cross-modal matching: Towards the development of a novel technique. Poster presented at the *Michigan Engineering Graduate Symposium*. Ann Arbor, MI. November.
14. Lu, S., Wickens, C., Sarter, N., Thomas, L., Nikolic, M., & Sebok, A. (2013). Supporting conflict avoidance in NextGen operations through tactile and auditory information presentation. Presented at the *17th International Symposium on Aviation Psychology*. Dayton, OH. May.
15. Lu, S., Nemshak, M., Schumacher, R., & Seagull, F.J. (2013). Single-day quality measures within the neonatal ICU. Presented at the *2013 International Symposium on Human Factors and Ergonomics in Health Care (Next-Generation Scholars: Student Forum)*. Baltimore, MD. March.
16. Lu, S., Wickens, C., Sarter, N., Thomas, L., Nikolic, M., & Sebok, A. (2012). Comparing auditory, visual, and redundant auditory-visual: Information presentation on NextGen flight decks. Poster presented at the *16th Annual Michigan Space Grant Consortium (MSGC) Conference*. Ann Arbor, MI. October.
17. Lu, S. (2009). The medical distribution problem. Presented at the IIE Annual Conference and Expo International Undergraduate Technical Paper Competition, Miami, FL. May.
18. Lu, S., Malla, P., Purdue, A., & Veit, T. (2009). Universal design of a workstation. Presented at the *Center of Engineering Logistics and Distribution (CELDi) Conference*, Charlotte, NC. April 7-8.
19. Lu, S. & Malla, P. (2009). Universal design of a workstation. Presented at the *Atlantic Coast Conference (ACC) Meeting of the Minds Conference*, Raleigh, NC. April.
20. Lu, S. (2009). The medical distribution problem. Presented at the *IIE Student Regional Undergraduate Conference*, Clemson, SC. February.
 - Winner of the IIE Regional Undergraduate Technical Paper Competition

21. **Lu, S., Wyatt, S., & Radnoti, K.** (2006). Sunspot equilibriums in decision making. Presented at the 4th Annual Virginia Polytechnic Institute and State University Undergraduate Research Conference, Blacksburg, VA. April.

E. H-INDEX AND CITATION COUNT (Google Scholar as of 10/7/2021)

	All	Since 2016
Citations	284	223
h-index	9	8
i10-index	7	4

F. GRADUATE STUDENTS

Doctoral Students

1. Jad Atweh, 2021 – Present
2. Nicholas Gardella, 2021 – Present
 - NSF NRT recipient
3. Lauren Horde, 2021 – Present
4. Mohamad Iskandarani, 2021 – Present
5. Wendy Qi, 2021 – Present
 - Jefferson Fellowship
6. Jawad Alami, 2019 – Present
 - Passed qualifying exam
7. Logan Clark, 2018 – Present
 - Passed dissertation proposal
 - Facebook Fellowship recipient
8. Shannon Devlin, 2016 – 2021
 - Ph.D., Systems Engineering, University of Virginia, June 2021
 - Dissertation: *Design recommendations for managing mental workload transitions in multitasking environments: Evidence from eye tracking and growth curve modeling*
 - Current position: Research Scientist at the Naval Research Lab (NRL)
9. Kylie Gomes, 2015 – 2020
 - Ph.D., Systems Engineering, University of Virginia, June 2020
 - Dissertation: *Towards a tactile display to support patient monitoring in anesthesia*
 - NSF GRFP recipient
 - Current position: Research Fellow at the National Center for Human Factors in Healthcare

Master's of Science Students

1. Aaron Moore, August 2020 – Present (Expected Fall 2021)
 - M.S., Systems Engineering
2. Scott Betza, 2015 – 2017
 - M.S., Industrial Engineering
 - Thesis: *Investigating tactile displays to support anesthesia providers in the operating room*
 - Current position: Lead Systems Engineer at Naval Information Warfare Systems Command

Undergraduate Researchers and Short-Term Trainees

University of Virginia

1. Jeffrey Richbart, B.S., Computer Science, 2021 – Present
2. Peiyu Zhang, B.S., Computer Science, 2021 – Present
3. Eric Chandrasekhar, B.S., Computer Science, 2021
4. Srinivasa Josyula, B.S., Computer Science, 2021
5. Gabriel Mallari, B.S., Computer Science, 2021
6. Rupal Saini, B.S., Computer Science, 2021
7. Soumya Chappidi, B.S., Systems Engineering, 2020 – 2021
8. Maddie Robinson, B.S., Systems Engineering, 2020 – 2021
9. Aatmika Deshpande, B.S. Systems Engineering & Economics, 2019 – 2020
10. Clare Hammonds, B.S., Systems Engineering, 2019 – 2021
11. Erin Hensien, B.S., Systems Engineering, 2019 – 2020
12. Samuel Smith, B.A., Computer Science, 2019 – 2020
13. JiaJia Liang, B.A., Computer Science, 2019 – 2020
14. An Luong, B.S., Systems Engineering, 2019 – 2020
15. Zaeda Meherin, B.A., Computer Science, 2019 – 2020
16. Dustin Nguyen, B.A., Computer Science, 2019 – 2020
17. Jad Atweh, B.S. Industrial Engineering, Summer 2020 (American University of Beirut Intern)
18. Mohamad Iskandarani, B.S. Computer Engineering, Summer 2020 (American University of Beirut Intern)
19. Jenan Khraibani, B.S. Computer and Communications Engineering, Summer 2020 (American University of Beirut Intern)

Clemson University

1. Sydney Granger, B.S. Industrial Engineering, 2018 – 2019
2. William Humphrey, B.S. Industrial Engineering, 2018 – 2019
3. Erin Murphey, B.S. Industrial Engineering, 2018 – 2019
4. Daniel O'Brien B.S. Computer Science, 2019
5. Ebony Johnson, B.S. Industrial Engineering, 2017 – 2018
6. Haley Meier, B.S. Industrial Engineering, 2017 – 2018
7. Alexzander Lee, B.S. Computer Science, 2017 – 2018
8. Shane Ragusa, B.S. Computer Science, 2017 – 2018
9. Jawad Alami, B.S. Computer Engineering, 2018 (American University of Beirut Intern)
10. Nicolas Threatt, B.S. Computer Science, 2018
11. Hussein Jundi, B.S. Industrial Engineering and Computer Engineering, 2017 (American University of Beirut Intern)

12. Alexei Yankovsky, B.S. Computer Science, 2016 – 2017
13. Julian Dixon, B.S. Computer Science, 2016
14. Nicholas Duenas, B.S. Computer Science, 2018
15. Megan Fowler, B.S. Computer Science, 2016 – 2017
16. James Hatfield, B.S. Computer Science, 2015
17. Karina Hutula, B.S. Industrial Engineering, 2015
18. Ashutosh Singhal, B.S. Computer Science, 2015

G. UNDERGRADUATE THESES SUPERVISED

University of Virginia

2020 – 2021

1. Soumya Chappidi, Laura Gustad, Alexander Hu, Khin Kyaw
 - Thesis: *The design and evaluation of user-interface prototypes for a next-generation dishwasher mobile application*

Clemson University

2018 – 2019

1. Jennifer Byham
 - Thesis: *Examining workload history as a function of performance and ambient/focal visual attention*
2. Jake Flynn
 - Thesis: *Examining the visual attention of pairs of operators during a low to high workload change*

2017 – 2018

1. Aakash Bhagat
 - Thesis: *Predicting movement time and movements in 3D: Fitts' law revisited in virtual reality*

2015 – 2016

1. Shannon Kay
 - Thesis: *Using daily smartphone notifications to motivate college-aged students to exercise*

Ph.D. Committees

- Jenn Campbell, Ph.D. (Civil Engineering; *In Progress*)
- Bingxu Li, Ph.D. (Systems Engineering; *In Progress*)
- Davis Loose, Ph.D. (Systems Engineering; *In Progress*)
- Erfan Pakdamanian (Systems Engineering; *In Progress*)
- Merat Razaei, Ph.D. (Systems Engineering; *In Progress*)
- Courtney Rogers, Ph.D. (Systems Engineering; *In Progress*)
- Shan Xu, Ph.D. (Systems Engineering; *In Progress*)
- Wen Ying, Ph.D. (Computer Science; *In Progress*)

- Chang Xu, Ph.D. (Systems Engineering, 2021)
- Daniel Andrews, (Systems Engineering, 2020)
- Sijun Shen, (Industrial Engineering, 2016)

M.S. Committees

- Merat Rezaei, (Systems Engineering, 2021)
- Wen Ying, (Computer Science, 2020)
- Smriti Sridhar, (Systems Engineering, 2020)
- Elizabeth Jamison, (Industrial Engineering, 2016)
- Puneeth Kalavagunta, (Industrial Engineering, 2015)

H. RESEARCH GRANTS AND CONTRACTS

Total external sponsored research: \$6,405,129

Amount directly responsible: \$1,368,608

External Awards

1. Title: Smart cities: Integration and action
 - PIs: John Goodall (PI), Sara Riggs (Co-PI)
 - Sponsor: Commonwealth Cyber Initiative (CCI)
 - Amount: \$330,000 (Riggs: \$50,000)
 - Period of Performance: 9/2020 – 5/2021
2. Title: SutureCoach: Examining vascular suturing skills assessment, training, and transfer of training via objective metrics (Project Number: 1R01HL146843-01)
 - PIs: Joseph Singapogu (PI), Sara Riggs
 - Sponsor: National Institutes of Health (NIH; National Heart, Lung, And Blood Institute)
 - Amount: \$1,071,809 (Riggs: \$107,180)
 - Period of Performance: 9/2019 – 8/2022
3. Title: CAREER: Collaboratively perceiving, comprehending, and projecting into the future: Supporting team situational awareness with adaptive multimodal displays (Award Number: 1750850)
 - PI: Sara Riggs
 - Sponsor: National Science Foundation (NSF; CISE IIS – Division of Information and Intelligent Systems)
 - Amount: \$550,000 (Riggs: \$550,000)
 - Period of Performance: 7/2018 – 5/2023
4. Title: CLB-CAREER Supplement
 - PI: Sara Riggs
 - Sponsor: National Science Foundation (NSF; CISE IIS – Division of Information and Intelligent Systems)
 - Amount: \$21,923 (Riggs: \$21,923)
 - Period of Performance: 12/2019 – 5/2020

5. Title: REU-CAREER Supplement
 - PI: Sara Riggs
 - Sponsor: National Science Foundation (NSF; CISE IIS – Division of Information and Intelligent Systems)
 - Amount: \$16,000 (Riggs: \$16,000)
 - Period of Performance: 6/2017 – 5/2018

6. Title: CRII: Collaboratively perceiving, comprehending, and projecting into the future: Supporting team situational awareness with adaptive collaborative tactons (Award Number: 2002348)
 - PI: Sara Riggs
 - Sponsor: National Science Foundation (NSF; CISE IIS – Division of Information and Intelligent Systems)
 - Amount: \$174,807 (Riggs: \$174,807)
 - Period of Performance: 6/2016 – 11/2019

7. Title: A grid computing laboratory for integrative behavioral and optimization research
 - PIs: Cole Smith (PI), Sandra Eksioglu (Co-PI), Scott Mason (Co-PI), Sara Riggs (Co-PI)
 - Sponsor: Air Force Office of Scientific Research (AFOSR)
 - Amount: \$189,855 (Riggs: \$47,463)
 - Period of Performance: 5/2016 – 4/2018

8. Title: P30: Realizing improved patient care through human-centered design in the OR
 - PIs: Scott Reeves (PI), Sara Riggs (Co-I)
 - Sponsor: Agency for Healthcare Research and Quality (AHRQ)
 - Amount: \$4,000,000 (Riggs: \$391,235)
 - Period of Performance: 9/2016 – 8/2019

9. Title: Design and testing of a closed-loop system for control of type 1 diabetes in young children 5-8 years old
 - PIs: Mark Deboer (PI), Sara Riggs (Co-PI)
 - Sponsor: University of Virginia Launchpad
 - Amount: \$50,735 (Riggs: \$10,000)
 - Period of Performance: 9/2015 – 8/2016

I. PRESENTATIONS AND INVITED TALKS

1. Tactile, visual, and crossmodal visual-tactile change blindness: The effect of transient type and task demands (Jerome H. Ely Human Factors Article Award acceptance). Invited address. 2020 Human Factor and Ergonomics Society Conference, Chicago, IL, October 6, 2020.
2. Multimodal adaptive displays for aviation, military, and manufacturing. Invited presenter. 2020 Raytheon Systems Engineering and Architecture Symposium, Virtual Symposium, September 15, 2020.
3. Cross-Cutting Challenges: Considerations and challenges associated with developing a tactile language: Case studies in healthcare and aviation. Invited presenter. 2020 IEEE Haptics Symposium, Washington, DC, 2020.

4. Supporting human-autonomy collaboration with adaptive multimodal displays. Invited departmental seminar speaker. Department of Engineering Systems & Environment, University of Virginia, Charlottesville, VA, March 29, 2019.
5. Touch in the real world: Overcoming limitations in tactile information processing. Invited lecturer. Multimodal Interaction in Augmented and Virtual Reality Summer School, Weimar, Germany, July 16, 2018.
6. The effect of workload transitions on task performance and attention allocation. Invited seminar speaker. Max Planck Institute for Biological Cybernetics, Tübingen, Germany, July 10, 2018.
7. The effect of workload transitions on task performance and attention allocation. Invited lecturer. Ludwig Maximilian University of Munich, Munich, Germany, July 4, 2018.
8. Towards the development of adaptive multimodal displays. Invited departmental seminar speaker. Department of Industrial & Systems Engineering, University of Wisconsin, Madison, WI, December 8, 2017.
9. Tactile and crossmodal change blindness and its implication for display design (Briggs Dissertation Award acceptance). Invited address. APA Annual Convention. Washington, DC, August 3, 2017.
10. Multimodal display design: Developing design guidelines and identifying potential limitations. Invited speaker. Department of Industrial and Systems Engineering, University of Oklahoma, OK, March 13, 2014.
11. Multimodal display design: Developing design guidelines and identifying potential limitations. Invited speaker. Department of Industrial Engineering, Clemson University, Clemson, SC, February 27, 2014.
12. Multimodal display design: Developing design guidelines and identifying potential limitations. Invited speaker. Department of Industrial and Systems Engineering, Virginia Tech, Blacksburg, VA, February 25, 2014.
13. Multimodal display design: Developing design guidelines and identifying potential limitations. Invited speaker. Department of Systems and Information Engineering, University of Virginia, Charlottesville, VA, November 22, 2013.
14. Overview of graduate school, cognitive ergonomics, and how to get involved with research projects. Invited speaker. Undergraduate Research Opportunity Program (UROP) Seminar. University of Michigan, Ann Arbor, MI, January 25, 2012.

J. INTERNAL SERVICE/LEADERSHIP AT THE UNIVERSITY OF VIRGINIA

Department

- Assistant Chair for Research and Strategy, 2021 – Present
- Search Committee Chair, 2021 – Present
- Human Factors and Ergonomics Society (HFES) Student Chapter, Faculty Advisor, 2019 – Present

- Human Systems Engineering Lab, Lab Designer (2019 – 2020)
- Graduate Committee, Member (2019 – 2020)
- Graduate Committee, Recruitment Weekend Chair (2019 – 2020)

School

- Clark Scholar Faculty Champion, 2021 – Present
- Search Committee, Cybersecurity Cluster Hire Co-Chair (2021)
- Search Committee, ESE DEI Hire Chair (2021)

University

- NSF CAREER award seminar, Panelist, (2020)

Clemson University

- Search committee for open faculty position (2016 – 2017, 2018 – 2019)
- Search committee for lecturer position (2015)
- Graduate committee (2014 – 2019)

K. PROFESSIONAL SERVICES

Professional Society Membership

- Human Factors and Ergonomics Society (HFES)
- Institute of Industrial and Systems Engineers (IISE)
- Institute of Electrical and Electronics Engineers (IEEE)
- American Society for Engineering Education (ASEE)
- American Psychological Association (APA, Division 21)

Associate Editor

- International Journal of Human Computer Studies, 2020 – Present
- Human Factors and Ergonomics in Manufacturing & Service Industries, 2017 – Present

Conference Organizer

- Editorial board, 2021 IEEE Systems, Man & Cybernetics Conference, 2021
- Committee member, HFES Student Member with Honors, 2020
- Committee member, HFES WOMAN Group, 2017 – Present
- Selection Committee, Alphonse Chapanis Best Student Paper, 2017, 2018
- Panelist, Student Career and Professional Development, 2015
- Chair, Displays to Support Cognition, 2015
- Chair, Situation Awareness and Observer Judgment, 2015
- Co-chair, Aids and Alerting, 2015
- Chair, Displays and Imaging Session. 2014
- Co-chair, Human Robot Interaction Session, 2013

Grant Reviewer

- NSF Computer and Information Science and Engineering (CISE), Proposal Review Panelist, 2015, 2016, 2021

Reviewer for Journals and Conferences

- Journal paper reviewer for: *Ergonomics*; *Frontiers in Psychology*; *Journal of Manufacturing Systems*; *Human Factors*; *IEEE Haptics*; *International Journal of Human-Computer Interaction*; *International Journal of Human Computer Studies*; *International Journal of Industrial Ergonomics*; *Journal of Cognitive Engineering and Decision Making*
- Conference paper reviewer for: *ACM CHI*; *American Society of Mechanical Engineering (ASME IDETC/CIE)*; *Industrial and Systems Engineering Research Conference*; *HFES*; *HFES Healthcare Symposium*; *IEEE International Conference on Systems, Man, and Cybernetics*

Public Service

- UNLADYLIKE Scientific Academic Advisory Board, 2019 – 2020
 - Provided input on Lillian Gilbreth, an industrial engineering pioneer, as part of a series of animated shorts about women trailblazers. UNLADYLIKE released 26 shorts and a broadcast hour on PBS American Masters profiling some remarkable women from the turn of the 20th century, and contemporary women who follow in their footsteps. The short on Lillian Gilbreth can be found here: <https://www.pbs.org/wnet/americanmasters/pioneering-inventor-lillian-gilbreth-e8ylkg/13862/>
- SWE's Spring High School Visitation Lab Tour Volunteer, Fall 2020, Spring 2021
 - Gave an overview of ongoing research in the Riggs Lab and answered questions from attendees

News Coverage

- Boosting multitasking efforts during mental workload transitions. (2020, December). *ISE Magazine: Industrial and Systems Engineering at Work*, 52(12), p. 52.
- Lighting the Lawn. Retrieved from: <http://www.lightingofthelawn.com/>
- Tyree, C. (2020, October 12). After Covid dashed their plans, students solved real-world problems for UVA health. Retrieved from: <https://news.virginia.edu/content/after-covid-dashed-their-plans-students-solved-real-world-problems-uva-health>
- Tyree, C., (2020, September 22). Saving Summer: UVA Engineering students salvaged a season of lost internships and travel by working with engineering faculty to solve a complex problem for UVA Health physicians at the University's Fontaine Research Park. Retrieved from: <https://engineering.virginia.edu/news/2020/09/saving-summer>
- Simulator could help vascular surgeons improve their skills. (2019, December 12). Retrieved from: <https://newsstand.clemson.edu/mediarelations/simulator-could-help-vascular-surgeons-improve-their-skills/>
- Colmenares, C. (2019, March 1). Seven Clemson Faculty Win NSF CAREER Awards. *Clemson World*. Retrieved from: <https://clemson.world/research/nsf-career-awards/>
- Norton, R. (2018, March 30). Research a boost for workers with disabilities. Retrieved from: <https://gsabusiness.com/news/education/74158/>

- Alongi, P. (2018, March 29). Workstation research could simplify jobs. Retrieved from: https://www.eurekaalert.org/pub_releases/2018-03/cu-wrc032918.php