

CV

EDUCATION

2015 Ph.D. Modeling & Simulation, University of Central Florida
2015 PGC Cognitive Science, University of Central Florida
2012 M.S. Human Factors & Systems, Embry-Riddle Aeronautical University
2009 B.S. Psychology, University of Central Florida

ACADEMIC APPOINTMENTS

2016 – Postdoctoral Fellow, Department of Language and Communication, University of Southern Denmark
2015 –2016 Postdoctoral Fellow, Psychology, Dynamical Systems Lab, University of Utah
2015 Adjunct Professor, Cognitive Psychology, Stetson University

HONORS AND AWARDS

2016 Outstanding Dissertation Award, University of Central Florida, College of Graduate Studies Nomination, Modeling & Simulation Program Nomination
2015 1st Place Best Student Paper Award, Human Factors and Ergonomics Society, Cognitive Engineering and Decision Making Technical Group
2015 Young Researcher Award, Dynamics of Social Interaction: A Search for Universals, Conference on Complex Systems
2015 Excellence in Graduate Research Award, Human Factors and Applied Psychology Student Conference, Embry-Riddle Aeronautical University
2015 Merit-Based Scholarship Award, UCF Modeling & Simulation Knights
2014 1st Place Best Student Paper Award, Human Factors and Ergonomics Society, Cognitive Engineering and Decision Making Technical Group
2014 Graduate Research Excellence Fellowship, University of Central Florida (2014-2015)
2014 Financial Travel Award, American Psychological Association's Science Directorate, Advanced Training Initiative for Nonlinear Methods in Psychological Science
2014 Internationally Competitive Attendance Award for the Center for Human Adaptive Systems and Environments' Summer School on the Dynamics of Music and Language
2014 Presentation Fellowship, University of Central Florida, College of Graduate Studies
2013 2nd Place Best Student Paper Award, Human Factors and Ergonomics Society, Cognitive Engineering and Decision Making Technical Group
2012 Doctoral Student Fellowship, UCF Modeling & Simulation Program (2012-2013)
2009 Dean's List, University of Central Florida (2007-2009)

GRANTS AWARDED

Carlsberg Foundation

Postdoctoral Fellowship in Denmark, 2017-2018, DKK 1,222,156.
Title: Multi-scale Social Coordination Dynamics during Collaboration.
Role: Primary Investigator (PI)

Human Factors and Ergonomics Society, Training Technical Group

Student Grant Award, 2013, \$750. Title: Improving Collaborative Problem Solving in Space Flight Teams Through Incorporation of Metacognitive and Narrative Prompting Across the Training Cycle. Role: Primary Investigator

JOURNAL ARTICLES

Crowell, S. E., Butner, J. E., Wiltshire, T. J., Munion, A. K., Yaptangco, M. & Beauchaine, T. P. (Accepted). Evaluating emotional and biological sensitivity to maternal behavior among depressed and self-injuring adolescent girls using nonlinear dynamics. *Clinical Psychological Science*.

Perry, N. S., Baucom, K. J. W., Bourne, S., Butner, J., Crenshaw, A. O., Hogan, J. N., Imel, Z., Wiltshire, T. W., & Baucom, B. R. (Accepted). Graphic methods for interpreting longitudinal dyadic patterns from repeated-measures actor-

partner interdependence models. *Journal of Family Psychology*.

Wiltshire, T. J., Butner, J. E., & Fiore, S. M. (Accepted). Phase transitions during team collaboration. *Cognitive Science*.

Euler, M. J., Wiltshire, T. J., Niermeyer, M. A., & Butner, J. E. (2016). Working memory performance inversely predicts spontaneous delta and theta-band scaling relations. *Brain Research*, 1637, 22-33.

<http://dx.doi.org/10.1016/j.brainres.2016.02.008>

Fiore, S. M., & Wiltshire, T. J. (2016). Technology as teammate: Examining the role of external cognition in support of team cognitive processes. *Frontiers in Psychology: Cognitive Science*. doi: 10.3389/fpsyg.2016.01531

Wiltshire, T. J., Warta, S., Barber, D., & Fiore, S. M. (In press). Enabling robotic social intelligence by engineering human social-cognitive mechanisms. *Cognitive Systems Research*. <http://dx.doi.org/10.1016/j.cogsys.2016.09.005>

Wiltshire, T. J. (2015). A prospective framework for the design of ideal artificial moral agents: Insights from the science of heroism in humans. *Minds and Machines*, 25(1), 57-71.

Wiltshire, T. J., Lobato, E. J. C., McConnell, D., & Fiore, S. M. (2015). Prospects for direct social perception: A multi-theoretical integration to further the science of social cognition. *Frontiers in Human Neuroscience*, 8(1007). DOI: 10.3389/fnhum.2014.01007.

Fiore, S. M., Wiltshire, T. J., Oglesby, J., O'Keefe, W., & Salas, E. (2014). Complex collaborative problem solving processes in Mission Control. *Aviation, Space, and Environmental Medicine*, 85(4), 456-461.

Keebler, J. R., Wiltshire, T. J., Smith, D., Fiore, S. M., & Bedwell, J. S. (2014). Shifting the paradigm of music instruction: Implications of embodiment stemming from an augmented reality guitar learning system. *Frontiers in Psychology: Theoretical and Philosophical Psychology*, 5(471). DOI: 10.3389/fpsyg.2014.00471

Wiltshire, T. J. & Fiore, S. M. (2014). Social, cognitive, and affective neuroscience in human-machine systems: A roadmap for improving training, human-robot interaction, and team performance. *IEEE Transactions on Human-Machine Systems*, 44(6), 779-787.

Wiltshire, T. J., Neville, K., Lauth, M., Rinkinen, C., & Ramirez, L. (2014). Applications of cognitive transformation theory: Examining the role of sensemaking in the instruction of air traffic control students. *Journal of Cognitive Engineering and Decision Making*, 8(3), 219-247. DOI: 10.1177/1555343414532470

Fiore, S. M., Wiltshire, T. J., Lobato, E. J. C., Jentsch, F. G., Huang, W. H. , & Axelrod, B. (2013). Toward understanding social cues and signals in human-robot interaction: Effects of robot gaze and proxemic behavior. *Frontiers in Psychology: Cognitive Science*, 4(859), 1-15. DOI: 10.3389/fpsyg.2013.00859

Wiltshire, T. J., Lobato, E. J. C., Jentsch, F. G., & Fiore, S. M. (2013). Will (dis)embodied LIDA agents be socially interactive? A commentary on Franklin et al.'s (2013) Conceptual Commitments of the LIDA Model of Cognition. *Journal of Artificial General Intelligence*, 4(2), 42-47. DOI: 10.2478/jagi-2013-0004.

CONFERENCE PROCEEDINGS

** Paper Recognized with Best Paper Award; * Mentored Undergraduate Co-Authors

Wiltshire, T. J., & Steffensen, S. V. (under review). Examining multiscale movement coordination in collaborative problem solving. Submitted to the 39th Annual Meeting of the Cognitive Science Society.

Goodwin, M. S., Wiltshire, T. J., & Fiore, S. M. (2015). Applying research in the cognitive sciences to the design and delivery of instruction in virtual reality learning environments. In *Virtual, Augmented and Mixed Reality* (pp. 280-291). Springer International Publishing.

Lobato, E. J. C., Warta, S., Wiltshire, T. J., & Fiore, S. M. (2015). Varying social cue constellations results in different attributed signals in a simulated surveillance task. In *Proceedings of the 28th Annual Meeting of the Florida Artificial Intelligence Research Society*, 61-66.

- **Wiltshire, T. J., Lobato, E. J. C., *Garcia, D. R., Fiore, S. M., Jentsch, F. G., Huang, W., & Axelrod, B. (2015). Effects of robotic social cues on interpersonal attributions and assessments of robot interaction behaviors. In Proceedings of the Human Factors and Ergonomics Society 59th Annual Meeting, 801-805.
- **Lobato, E. J. C., Wiltshire, T. J., *Hudak, S., & Fiore, S. M. (2014). No time, no problem: Mental state attributions made quickly or after reflection do not differ. In Proceedings of the Human Factors and Ergonomics Society 58th Annual Meeting, 1341-1345.
- Wiltshire, T. J., Lobato, E. J. C., *Velez, J., Jentsch, F. G., & Fiore, S. (2014). An interdisciplinary taxonomy of social cues and signals in the service of engineering robotic social intelligence. In SPIE 9084 Unmanned Systems Technology XVI. 90840F (June 3, 2014). DOI:10.1117/12.2049933
- Wiltshire, T. J., *Rosch, K., Fiorella, L., & Fiore, S. M. (2014). Training for collaborative problem solving: Improving team process and performance through metacognitive prompting. In Proceedings of the Human Factors and Ergonomics Society 58th Annual Meeting, 1154-1158.
- Wiltshire, T. J., *Snow, S. L., Lobato, E. J. C., & Fiore, S. M. (2014). Leveraging social judgment theory to examine the relationship between social cues and signals in human-robot interactions. In Proceedings of the Human Factors and Ergonomics Society 58th Annual Meeting, 1336-1340.
- Keebler, J. R., Wiltshire, T. J., Smith, D. C., & Fiore, S. M. (2013). Picking up STEAM: Educational implications for teaching with an augmented reality guitar learning system. In *Virtual, Augmented and Mixed Reality. Systems and Applications* (pp. 170-178). Springer Berlin Heidelberg.
- Lobato, E. J. C., Wiltshire, T. J., & Fiore, S. M. (2013). A dual-process approach to understanding human-robot interaction. In Proceedings of the Human Factors and Ergonomics Society 57th Annual Meeting, 1263-1267.
- **Wiltshire, T. J., Barber, D., & Fiore, S. M. (2013). Towards modeling social-cognitive mechanisms in robots to facilitate human-robot teaming. In Proceedings of the Human Factors and Ergonomics Society 57th Annual Meeting, 1278-1282.
- Wiltshire, T. J., Lobato, E. J. C., *Wedell, A., Huang, W., Axelrod, B., & Fiore, S. M. (2013). Effects of robot gaze and proxemic behavior on perceived social presence during a hallway navigation scenario. In Proceedings of the Human Factors and Ergonomics Society 57th Annual Meeting, 1273-1277.
- Wiltshire, T. J., Smith, D. C., & Keebler, J. R. (2013). Cybernetic teams: Towards the implementation of team heuristics in HRI. In *Virtual Augmented and Mixed Reality. Designing and Developing Augmented and Virtual Environments* (pp. 321-330). Springer Berlin Heidelberg.

TECHNICAL REPORTS

- Fiore, S. M., Wiltshire, T. J., Sanz, E. J., & Pajank, M. E. (2015). Critical Team Cognitive Processes for Long-Duration Exploration Missions, NASA Technical Manuscript, TM-2015-218583, 7/1/2015, pp. 1-90.

INVITED, CONFERENCE, AND CAMPUS PRESENTATIONS

- Wiltshire, T. J., Philipsen, J. S., & Steffensen, S. V. (2017, April). Human interaction dynamics during psychotherapy: Challenges and solutions. To be presented at the 6th International Conference of the Scandinavian Association for Language and Cognition, April 20-22, Centre for Languages and Literature, Lund University, Lund, SE.
- Wiltshire, T. J., Butner, J. E., & Munion, A. K. (2016). Using attractor dynamics to model multi-agent social coordination. Presented at the Centre for Human Interactivity Annual Symposium IV: Social Agency and Interactivity, September 14-15, University of Southern Denmark, Odense, DK.
- Wiltshire, T. J., Butner, J. E., Fiore, S. M. (2016). Dynamical phase transitions during collaborative problem solving interactions. Third International Conference on Interactivity, Language, and Cognition, June 29-July 1, Kingston University,

London, UK.

Wiltshire, T. J., Euler, M. J., Butner, J. E., McKinney, T. L., & Munion, A. K. (2016). Changes in dimensionality and fractal scaling as evidence for softly-assembled dynamics in human EEG. Society for Chaos Theory in Psychology & Life Sciences 26th Annual International Conference, July 29-31, University of Utah, Salt Lake City, UT.

Wiltshire, T. J. (2015, September). Identifying phase transitions during collaborative problem solving. Presented at Conference on Complex Systems Society Satellite session on The Dynamics of Social Interaction: A Search for Universals, Tempe, Arizona.

Wiltshire, T. J. (2015). Team synchronization and complementarity during collaborative problem solving. Presented at the Cognitive Sciences Summer Lecture Series. Institute for Simulation & Training, July 9, Orlando, FL.

Wiltshire, T. J. & Fiore, S. M. (2015, April). Team interaction dynamics during collaborative problem solving. Presented at the 2015 Human Factors and Applied Psychology Student Conference, Daytona Beach, FL.

Abney, D., Bryant, G., Dale, R., Hutka, S., Lanneau, B., Paxton, A., Wiltshire, T. J., & Yerkes, B. (2014, May). An optical flow analysis of interpersonal coupling in dyadic musician movement. Lecture presented at the Center for Human Adaptive Systems and Environments (CHASE) Summer School I: The Dynamics of Music and Language, May 18-24, 2014, Merced, CA.

Fiore, S. M., Wiltshire, T. J., & Berry, L. (2014). Team cognition and complex collaborative problem solving during EVA 21. Presented at the NASA ISS SFRM Problem Solving Technical Interchange Meeting (EVA 21), August 25, Houston, TX.

Keebler, J., Wiltshire, T. J., Smith, D., & Fiore, S. M. (2013, July). Picking up STEAM: Educational implications for teaching with an augmented reality guitar learning system. Presented at the Proceedings of the Human-Computer Interaction International 2013 Conference, Las Vegas, NV.

Wiltshire, T. J. (2013). Towards a biologically-inspired embodied social intelligence in robots: A set of guidelines for the next era of human-robot teams. Presented at the IHMC Afternoon Lecture Series. Florida Institute of Human & Machine Cognition. September 10, Ocala, FL.

Wiltshire, T. J., Barber, D., & Fiore, S. M. (2013, October). Towards modeling social-cognitive processes in robots to facilitate human-robot teaming. Invited lecture presented based on award given at the Cognitive Engineering and Decision Making Technical Group Meeting during the Human Factors and Ergonomics Society 57th Annual Meeting, San Diego, CA.

Wiltshire, T. J., Lobato, E. J. C., & Fiore, S. M., (2013). Understanding social signals in human-robot interaction: Effects of robot gaze and proxemic behavior. Presented at the Cognitive Sciences Summer Lecture Series. Institute for Simulation and Training, May 3rd, Orlando, FL.

Wiltshire, T. J., Smith, D., & Keebler, J. (2013, July). Cybernetic teams: Towards the implementation of team heuristics in HRI. Presented at the Proceedings of the Human-Computer Interaction International 2013 Conference, Las Vegas, NV.

Fiore, S. M., Wiltshire, T. J., & Oglesby, J. (2012, October). An Examination of Collaborative Problem Solving in NASA's Mission Control Center. Presented at the Florida Space Institute Speaker Series. Florida Space Institute.

Fiore, S. M., Wiltshire, T. J., Oglesby, J., Salas, E. (2012, July). Team cognition and complex collaborative problem solving. Paper presented at NASA's Space Flight Resource Management (SFRM) Team Problem Solving in Mission Control Technical Interchange Meeting, Houston, TX.

Wiltshire, T. J. & Neville, K. (2012, April). Exploration of Sensemaking in Education to Facilitate the Acquisition of Expertise in Cognitive Work Domains. Paper presented at the Human Factors and Applied Psychology Student Conference, Daytona Beach, FL.

POSTER PRESENTATIONS

- McKinney, T. L., Wiltshire, T. J., Euler, M. J., Butner, J. E., & Munion, A. K. (2016). Human EEG exhibits task related changes in fractal scaling and dimensionality congruent with a soft-assembled system. Society for Neuroscience's 46th Annual Meeting, November 12-16, San Diego, CA.
- Wiltshire, T. J. & Fiore, S. M. (2015, March). Team interaction dynamics during collaborative problem solving. Presented at the University of Central Florida's 2015 Graduate Research Forum, Orlando, FL.
- Fiore, S. M., Wiltshire, T. J., & Sanz-Lust, E. J. (2015). A research and operations agenda for understanding team cognitive processes during long-duration exploration missions. Presented at the NASA Human Research Program Investigators Workshop, January 13th, Galveston, TX.
- Lobato, E. J. C., Wiltshire, T. J., & Fiore, S. M. (2014). The utility of human's ontological knowledge of social robots for human robot interaction research. Presented at the 58th Annual Meeting of the Human Factors and Ergonomics Society (October 27th-31th) Chicago, IL.
- Lobato, E. J. C., Wiltshire, T. J., *Hudak, S. & Fiore, S. M. (2014). No time, no problem: Mental state attributions made quickly or after reflection do not differ. Presented at the 58th Annual Meeting of the Human Factors and Ergonomics Society (October 27th-31th) Chicago, IL.
- *Velez, J., Lobato, E. J. C., Wiltshire, T. J., & Fiore, S. M. (2014, April). An interdisciplinary social cues taxonomy for social cognition research. Poster presented at the Undergraduate Psychology Conference Hosted by UCF-Palm Bay Psi Chi chapter, Palm Bay, FL.
- Wiltshire, T. J., Rosen, M., & Fiore, S. M. (2014, June). Identifying phase transitions during team collaboration. Poster presenting at the American Psychological Association Advanced Training Institute for Nonlinear Methods in Psychological Science. June 16-20, Cincinnati, OH.
- Wiltshire, T. J., Keebler, J. R., Smith, D., Fiore, S. M., & Bedwell, J. S. (2014, May). Learning with an augmented reality guitar lowers the barrier for instrument learning. Poster presented at the Center for Human Adaptive Systems & Environments' Summer School I: The dynamics of music and language. May 18-24, 2014, Fish Camp, CA.
- Wiltshire, T. J., *Rosch, K., Fiorella, L., & Fiore, S. M. (2014). Training for collaborative problem solving: Improving team process and performance through metacognitive prompting. Presented at the 58th Annual Meeting of the Human Factors and Ergonomics Society (October 27th-31th) Chicago, IL.
- Wiltshire, T. J., *Snow, S. L., Lobato, E. J. C., & Fiore, S. M. (2014). Leveraging social judgment theory to examine the relationship between social cues and signals in human-robot interactions. Presented at the 58th Annual Meeting of the Human Factors and Ergonomics Society (October 27th-31th) Chicago, IL.
- Wiltshire, T. J., Sanz, E. J., & Fiore, S. M. (2014). Critical team cognitive processes for long-duration exploration missions. Presented at the NASA Human Research Program Investigators Workshop, February 13th, Galveston, TX.
- Fiore, S. M., Wiltshire, T. J., Oglesby, J., O'Keefe, W., & Salas, E. (2013). Macrocognition in mission control teams: Understanding complex collaborative problem solving processes. Presented at the NASA Human Research Program Investigators Workshop, February 13th, Galveston, TX.
- Lobato, E. J. C., Wiltshire, T. J., & Fiore, S. M. (2013, October). A dual-process approach to understanding HRI. Presented at the 57th Annual Meeting of the Human Factors and Ergonomics Society, San Diego, CA.
- Wiltshire, T. J., Barber, D., & Fiore, S. M. (2013, October). Towards modeling social-cognitive processes in robots to facilitate human-robot teaming. Presented at the 57th Annual Meeting of the Human Factors and Ergonomics Society, San Diego, CA.

Wiltshire, T. J., Lobato, E. J. C., *Wedell, A., & Fiore, S. M. (2013, April). Effects of robot gaze and proxemic behavior on perceived social presence during a hallway navigation scenario. Presented at the University of Central Florida's 2013 Graduate Research Forum, Orlando, FL.

Wiltshire, T. J., Lobato, E. J. C., *Wedell, A., Huang, W., Axelrod, B., & Fiore, S. M. (2013, October). Effects of robot gaze and proxemic behavior on perceived social presence during a hallway navigation scenario. Presented at the Proceedings of the Human Factors and Ergonomics Society 57th Annual Meeting, San Diego, CA.

SYMPOSIUM

Fiore, S. M. & Wiltshire, T. J. (2017). Social cognition viewed through the lens of embodied and enactive cognitive neuroscience. Part of the symposium on Integrating Perspectives on Collaborative Knowledge Construction: How explanatory pluralism enables multi-theoretic and interdisciplinary model building. To be presented at the International Convention of Psychological Science, March 23-March 25, 2017, Vienna, Austria.

Crowell, S., Butner, J., Wiltshire, T.J., Munion, A., & Yaptangco, M. (2016). Maternal behavior drives teen behavior and physiology during conflict: Implications for understanding self-injury and depression. Society for Research on Adolescence Biennial Meeting, March 31 - April 2, 2016, Baltimore, Maryland.

Jordan, J. S., Wesselmann, E., Ritchie, T., Wiltshire, T. J., McCuskey, B., & Langley, T. (2016). Wild Heroes: Media, Society, and the Need for Narrative. Presented at the International Society for the Empirical Study of Literature Biennial Meeting, July 6 – July 9, 2016, Chicago, Illinois.

Fiore, S. M. & Wiltshire, T. J. (July 2013). The role of virtual, augmented, and mixed reality in STEAM education for the 21st century. Symposium Presented at the 2013 Human-Computer Interaction International Conference. Las Vegas, NV.

RESEARCH EXPERIENCE

2016 -Present Postdoc, Centre for Human Interactivity, Institute for Language and Communication, University of Southern Denmark, Advisor: Sune Steffensen

2015 -2016 Postdoctoral Fellow, Department of Psychology, Dynamical Systems Lab, University of Utah
Advisor: Jonathan E. Butner

2014 - 2015 Lab Coordinator, Cognitive Sciences Laboratory, Institute for Simulation & Training, Orlando, FL
Advisor: Stephen M. Fiore

2012 - 2015 Graduate Research Associate, Cognitive Sciences Laboratory, Institute for Simulation & Training, Orlando, FL
Advisor: Stephen M. Fiore

2008 - 2009 Undergraduate Research Assistant, Team Performance Laboratory, Institute for Simulation & Training, Orlando, FL
Advisors: Florian Jentsch & Joseph Keebler

TEACHING EXPERIENCE

Stetson University,

Adjunct Professor

Cognitive Psychology, Spring 2015

University of Central Florida

Teaching Assistant

Topics in Cognitive Science, Fall 2012 – Fall 2014

Research Methods in Cognitive Science, Spring 2013 – Spring 2015

Participant

Preparing Tomorrow's Faculty Program, University of Central Florida, Spring 2013

RELATED EMPLOYMENT

2010 - 2011 Junior Instructional Systems Designer, Camber Corporation, Training & Simulation Solutions Directorate, Orlando, FL

PROFESSIONAL SERVICE

Reviewer Experience

Ad Hoc Journal Manuscript Reviewer, Human Factors, Journal of Cognitive Engineering and Decision Making, Cognitive Technology, International Journal of Human-Computer Studies, Translational Issues in Psychological Science, Journal of Behavioral Medicine, Presence

Ad Hoc Journal Manuscript Student Co-Reviewer, Journal of Applied Psychology, IEEE Transactions on Human-Machine Systems

Conference Proceedings Paper Reviewer, Human Factors & Ergonomics Society, Cognitive Engineering & Decision Making, Training
Organization and Conference Leadership Experience

Student Session Chair, Problem Solving/Human Factors: 2015 Human Factors and Applied Psychology Student Conference, Daytona Beach, FL.

Student Session Chair, Simulations & Training: 2014 Human Factors and Applied Psychology Student Conference, Daytona Beach, FL.

Invited Officer, '13, Human Factors and Ergonomics Society, UCF Student Chapter Executive Council

Contributing Student Symposium Organizer and Manuscript Reviewer, The role of virtual, augmented, and mixed-reality in STEAM education for the 21st century, Human-Computer Interaction International Conference 2013

Student Session Chair, Cognition: 2012 Human Factors and Applied Psychology Student Conference, Daytona Beach, FL.