

Curriculum Vitae

CHARLES MICHAEL LEWIS

Address:

School of Computing and Information
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RESEARCH INTERESTS

Human-Robot Interaction, Human Factors, Human Computer Interaction, Visualization, CSCW, Virtual Environments, Software Agents, Human Error

TEACHING INTERESTS

Human Factors, Human Computer Interface, Human Computer Interaction, Decision Making/Decision Support, Interactive Systems

EDUCATION

Ph.D. in Psychology (engineering psychology), Georgia Institute of Technology, 1986,
Thesis: Identification of Rule-Based Models. Advisor: W.B. Rouse

M.S. in Psychology (engineering psychology), Georgia Institute of Technology, 1982,
Thesis: Modeling from Video Display in Repair Performance. Advisor: E.J. Rinalducci

B.A. in Experimental Psychology, University of California, Santa Barbara, 1973

PROFESSIONAL EMPLOYMENT and EXPERIENCE

Professor 2006-present School of Computing and Information, Department of Informatics and Distributed Systems and Intelligent Systems Program, University of Pittsburgh

Associate Professor 1993-2006 Department of Information Science and Telecommunications, School of Information Sciences with joint appointment in Intelligent Systems Program, University of Pittsburgh

Assistant Professor 1987-1993 Department of Information Science and Telecommunications, School of Information Sciences, University of Pittsburgh

Senior Human Factors Engineer 1986 Iowa Electric Light & Power Co., Cedar Rapids, IA, Lead HFE on Control Room Design Review of Duane Arnold nuclear power plant

Graduate Research Assistant and Instructor 1984-1986, Center for Human-Machine Systems Research, School of Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta, GA 30332

Associate Scientist 1984-1986, General Physics Corp., 1770 The Exchange NW, Atlanta, GA

Human Factors Specialist 1980-1984, Human Performance Group, Institute of Nuclear Power Operations, 1100 Circle 75 Parkway, Atlanta, GA

Contract and Grant Support to Michael Lewis

- Katia Sycara, Nilanjan Chakraborty, and **Michael Lewis**, *Trustworthy Human Interaction with Robotic Swarms*, (June 2015-June 2018), *Air Force Office of Scientific Research*
- Katia Sycara, Christian Lebiere, Meeko Oishi, and **Michael Lewis**, *Formal Models of Human Control and Interaction with CPS*, *National Science Foundation*, (September 2013-September 2016), *Air Force Office of Scientific Research*.
- Katia Sycara and Michael Lewis, *The influence of Cultural Factors on Trust in Automation*, (June 2013-May 2016), *Air Force Office of Scientific Research*.
- Katia Sycara, Paul Scerri, **Michael Lewis**, Michael Goodrich (May 2009-May 2014), *Cognitively Compliant Command for Multirobot Teams*, *Science of Autonomy, Office of Naval Research*
- Katia Sycara, Baruch Fischhoff, Geoffrey Gordon, **Michael Lewis**, Katherine Tinsley, Robin Dillon, Scott Atran, Robert Axelrod, Charles Grindle, David Traum (May 2008-April 2013), *Cultural Models of Collaboration and Negotiation*, Multidisciplinary University Research Initiative, *Army Research Organization*.
- Katia Sycara, Paul Scerri, Christian Lebiere, **Michael Lewis**, Jonathon How, Mary Cummings, Mark Campbell, and Raja Parasuraman (May 2008-April 2013), *Modeling Synergies in Large Human-Machine Networked Systems*, Multidisciplinary University Research Initiative, *Air Force Office of Scientific Research*.
- Katia Sycara and **Michael Lewis** (December 2006-November 2009) *Large Scale Computation for Human Agent Team Coordination in Dynamic Environments*, *Air Force Office of Scientific Research*.
- Eduardo Salas, Nancy Cooke, **Michael Lewis** and Alex Kirlik (May 2006-April 2011) *Reconfigurable Human-Agent Collaboration: Human Performance in*

Network-Centric Operations, Multidisciplinary University Research Initiative, Office of Naval Research.

- **Michael Lewis** (April 2005-April 2006) *Extending USARsim to Support MOAST Framework, National Institute of Standards and Testing.*
- Katia Sycara, Illah Nourbakhsh and **Michael Lewis** (July 2002-July 2006) *Coordination of Heterogeneous Teams (Humans, Agents, Robots) for Emergency Response, Information Technology Research Initiative, National Science Foundation.*
- Katia Sycara and **Michael Lewis** (May 2003-November 2005) *Cooperative Attack Testbed for Aircraft, Munitions, and Ground Vehicles, Air Force Research Laboratories AFRL/MN.*
- Katia Sycara and **Michael Lewis** (September 2001-August 2006) *Information Fusion for Command and Control: from Data to Actionable Knowledge and Decision, Air Force Office of Scientific Research.*
- Katia Sycara and **Michael Lewis** (September 1997-February 2002) *Integrating Intelligent Assistants into Human Teams, Multidisciplinary University Research Initiative, Office of Naval Research.*
- Robert Korfhage and **Michael Lewis** (March 1996-February 1999) *Visual Information Retrieval Interfaces, Interactive Systems Program, National Science Foundation.*
- **Michael Lewis** (January 1999-December 1999) *Smooth Navigation through a Cluttered Virtual Environment, Fellowship in Advanced Simulation and Training, Supervision for Jeffrey Jacobson, Link Foundation.*
- **Michael Lewis** (January 1991-December 1993) *Ecological Cognition in Visualization, Interactive Systems Program, National Science Foundation.*

Editorial Boards

IEEE Transactions on Systems, Man, and Cybernetics: Part A, now reorganized as *IEEE Transactions on Human Machine Systems* (past associate editor)

Human Factors (Journal of the Human Factors and Ergonomics Society) (past associate editor)

Group Decision and Negotiation: Kluwer Academic Publishers (affiliated with Institute for Operations Research and Management Sciences) (past associate editor)

IEEE International Conference on Robotics and Automation (ICRA)

Autonomous Agents and Multi-Agent Systems: Kluwer Academic Publishers (past associate editor)

Cognition, Technology, and Work: International Journal for the Analysis, Design, and Use of Joint Cognitive Systems: Springer-Verlag (past associate editor)

Reviewer

Grant proposals National Science Foundation, Interactive Systems Program, various programs (1991-present)

IEEE Transactions on Systems, Man, and Cybernetics

IEEE Transactions on Robotics

IEEE Transactions on Reliability

Journal of Visual Languages and Computing

International Journal of Human Computer Studies

IEEE International Conference on Systems, Man, and Cybernetics

International Joint Conference on Autonomous Agents and Multiagent Systems

Human Factors and Ergonomics Society Annual Meeting, Computer Systems Technical Group, Cognitive Engineering and Decision Making, and general sessions

ACM/IEEE Conference on Human-Robot Interaction

IEEE International Conference on Robotics and Automation

IEEE/RSJ International Conference on Intelligent Robots and Systems

RoboCup Rescue

RoboCup 2008 team placed 3rd in Virtual Robots Urban Search & Rescue Competition

RoboCup 2007 Winner Virtual Robots Urban Search & Rescue Competition

RoboCup 2006 User Interface Award, Virtual Robots Urban Search & Rescue Competition

American Open 2006 team placed 1st in autonomy

Member of RoboCup Organizing Committee 2004 & 2005

American Open 2005, team placed 1st in mobility, 1st in autonomy and 3rd in rescue competitions

American Open 2004, team placed 3rd in rescue competition

Member

Association for Computing Machinery
Special Interest Group on Computer Human Interaction

Institute of Electrical and Electronics Engineers
Computer Society
Systems, Man, and Cybernetics Society

Human Factors and Ergonomics Society
Computer Systems Technical Group
Cognitive Engineering and Decision Making Technical Group

Sigma Xi

Dissertation Chair

Shafiq Abedin April 2016, *3D Generalization of Brain Model to Visualize and Analyze Neuroanatomical Data*, School of Information Sciences, University of Pittsburgh, Research Scientist, IBM Research-Almaden

Huadong, Wang, August 2013, *Asynchronous Visualization of Spatiotemporal Information for Multiple Moving Targets*, School of Information Sciences, University of Pittsburgh, Senior User Experience Researcher, Uber, San Francisco, CA

Jijun Wang, April 2008, *Human Control of Cooperating Robots*, School of Information Sciences, University of Pittsburgh, Software Engineer, Intel Corp, Philadelphia, PA.

Jumpol Polvichai, April 2008, *Modeling Team Performance for Coordination Configurations of Large Multi-Agent Teams*, School of Information Sciences, University of Pittsburgh, Lecturer, King Mungkut's Institute of Technology (Thailand)

Yang Xu, April 2008, *Token-Based Approach for Scalable Team Coordination*, School of Information Sciences, University of Pittsburgh, Associate Professor and Chair, University of Electronic Science and Technology, Chengdu, China

Jeffrey Jacobson, April 2008, *Ancient Architecture in Virtual Reality; Does Immersion Really Aid Learning?* School of Information Sciences, University of Pittsburgh, Director PublicVR, Boston, MA

Stephen Hughes August 2005. *Assisted Viewpoint Interactions for 3D Visualizations*, Department of Information Science and Telecommunications, School of Information Sciences, University of Pittsburgh, previously Assistant Professor, Coe College, Cedar Rapids, IA

Cholyeun Hongpaisanwiwat December 2002. *The Influence of Animated Characters on Comprehension and Attention Performance in a Multimedia Presentation*, Department of Information Science and Telecommunications, School of Information Sciences, University of Pittsburgh, Assistant Professor Thammasat University (Thailand)

Terri Lenox May 2000. *Supporting Teamwork Using Software Agents in Human-Agent Teams*, Department of Information Science and Telecommunications, School of Information Sciences, University of Pittsburgh, Professor and Chair of Mathematics and Computer Science and Chair of the faculty, Westminster College

Jeffrey Campbell May 2000. *Concurrency Control for Collaborative Diagramming*, Department of Information Science and Telecommunications, School of Information Sciences, University of Pittsburgh, Research Professor, University of Maryland, Baltimore County

Emile Morse June 1999. *Evaluating Visual Information Browsing Displays*, Department of Information Science and Telecommunications, School of Information Sciences, University of Pittsburgh, Research Scientist, Information Technology Laboratory, National Institute of Standards and Technology

Jozsef Toth 1997. *The Effect of Representation in Computer-Mediated Small Group Decision Making*, Department of Information Science and Telecommunications, School of Information Sciences, University of Pittsburgh, previously Research Staff, Institute for Defense Analysis, now deceased

Postdoctoral Researchers

Alin Coman (2010-2012) Assistant Professor of Psychology, Princeton University

Andreas Kolling (2009-2012) Research Scientist, iRobot Corp., Pasadena, CA

Publications

Refereed Journals & Magazines

1. Chien, S., **Lewis, M.**, Sycara, K., Liu, J. & Kumru, A. (accepted 2018). The Effect of Culture on Trust in Automation: Reliability and Workload, *ACM Transactions on Interactive Intelligent Systems*.
2. Chien, S., Lin, Y., Lee, P., Han, S., **Lewis, M.** & Sycara, K. (accepted 2018) Attention Allocation for Human Multi-Robot Control: Cognitive Analysis based on Behavior Data and Hidden States, *International Journal of Human-Computer Studies*
3. Kolling, A., Walker, P., Chakraborty, N., Sycara, K., **Lewis, M.** (2015, October). Human Interaction with Robot Swarms: A Survey. In *Human-Machine Systems (HMS), 2015 IEEE Transactions on.* (pp. 9-26). IEEE.
4. Kolling, A., Sycara, K., Nunnally, S., & **Lewis, M.** (2013). Human swarm interaction: An experimental study of two types of interaction with foraging swarms, *Journal of Human-Robot Interaction*, 2(2), 103-128.
5. Kleiner, A., Kolling, A., **Lewis, M.**, & Sycara, K. (2013) Hierarchical Visibility for Guaranteed Search in Large-Scale Outdoor Terrain, *Journal of Autonomous Agents and Multi-Agent Systems*, 26(1), 1-36.
6. **Lewis, M.**, Wang, H., Chien, S., Ma, Z., Velagapudi, P., Scerri, P., & Sycara, K. (2011) Process and performance in human-robot teams, *Journal of Cognitive Engineering and Decision Making*, 5(2), 186-208.
7. Scerri, P., Ma, Z., Chien, S., Wang, H., Lee, P., **Lewis, M.** & Sycara, K. (2011) An initial evaluation of approaches to building entry for large robot teams, *Journal of Intelligent and Robotic Systems* ,64, 145-159.
8. **Lewis, M.**, Wang, H., Chien, S., Velagapudi, P., Scerri, P. & Sycara, K. (2010). Choosing autonomy modes for multirobot search, *Human Factors*, 52(2), 225-233.
9. **Lewis, M.**, Sycara, K., & Scerri, P. (2009). Scaling up wide-area-search-munition teams, *IEEE Intelligent Systems*, 24(3), 10-13.
10. Sycara, K., Glington, R., Yu, B., Giampapa, J., Owens, S., **Lewis, M.**, & Grindle, C. (2009). An integrated approach to high-level information fusion, *Information Fusion*, 10(1), 25-50.

11. Balakirsky, S., Carpin, S., Kleiner, A., **Lewis, M.**, Visser, A., Wang, J., and Zipara, V. (2007). Toward heterogeneous robot teams for disaster mitigation: Results and performance metrics from RoboCup Rescue, *Journal of Field Robotics*, 24(11-12), 943-967.
12. **Lewis, M.**, Wang, J., and Hughes, S. (2007). USARsim : Simulation for the Study of Human-Robot Interaction, *Journal of Cognitive Engineering and Decision Making*, 1(1), 98-120.
13. **Lewis, M.** and Wang, J. (2007). Gravity referenced attitude display for mobile robots: Making sense of what we see, *Transactions on Systems, Man and Cybernetics Part A*, 37(1), 94-105.
14. Hughes, S. and **Lewis, M.** (2005). Partially guided viewpoint control in virtual environments, *Human Factors*, 47(3), 630-643.
15. Hughes, S. and **M. Lewis**. (2005). Task-Driven Camera Operations for Robotic Exploration. *Transactions on Systems, Man and Cybernetics Part A*, IEEE, 35(4), 513-522.
16. Jacobson, J. and **Lewis, M.** (2005). Game engine virtual reality with CaveUT. *IEEE Computer*, 38(4), 79-82.
17. Nourbakhsh, I., Sycara, K., Koes, M., Young, M., **Lewis, M.**, and Burion, S. (2005). Human-Robot Teaming for Search and Rescue, *Pervasive Computing*, IEEE, 72-78.
18. Prasithsangaree, P., Manojlovich, J., Hughes, S., and **Lewis, M.** (2004). UTSAF: A Multi-Agent-Based Software Bridge for Interoperability between Distributed Military and Commercial Gaming Simulation, *Simulation*, 80(12), 647-657.
19. Giampapa, J., Sycara, K., Owens, S., Glinton, R., Seo, Y., Yu, B., Grindle, C., and **Lewis, M.** (2004). Extending the ONESAF Testbed into a C4ISR Testbed, *Simulation*, 80(12), 681-691.
20. **Lewis, M.** & Jacobson, J. (2002) Game Engines in Research. *Communications of the Association for Computing Machinery (CACM)*, NY: ACM 45(1), 27-48.
21. Morse, E., **Lewis, M.**, and Olsen, K. (2002) Testing visual information retrieval methodologies case study: comparative analysis of textual, icon graphical and 'spring' displays. *Journal of the American Society for Information Science and Technology (JASIST)*, Silver Spring, MD: ASIST 53(1) 28-40
22. Morse, E., **Lewis, M.** and Olsen, K. (2000) Evaluating visualizations: Using a taxonomic guide. *International Journal of Human Computer Studies*, 53(5), 637-662.
23. **Lewis, M.** (1998). Designing for human-agent interaction. *AI Magazine*.67-78.

24. **Lewis, M.** (1993). Assessing decision heuristics using machine learning. *Decision Support Systems*, 10, 199-212.
25. **Lewis, M.** & Sycara, K. (1993). Reaching informed agreement in multi-specialist cooperation, *Group Decision and Negotiation*, vol 2, 3, 279-300.
26. **Lewis, Michael** (1992). Situated visualization: Building interfaces from the mind up. *Multimedia Review*, 4(1), Spring, 23-40.
27. **Lewis, M.** & Heidorn, B. (1991). Identifying tacit strategies in aircraft maneuvers. *IEEE Transactions on Systems, Man, and Cybernetics*, 21(6), 1560-1571.
28. Sycara, K. & **Lewis M.** (1991). Modeling Group Decision making and negotiation in concurrent product design. *Systems Automation: Research and Applications*, 1(3), 217-238
29. Weiss, M. & **Lewis, M.** (1991). Telecommunications pricing and consumer expectation: The case of alternate operator services. *Telecommunications Policy*, Dec 91, 497-508.
30. **Lewis, C. Michael** and Stine, Wm Wren (1989) Hidden dependence in human errors, *IEEE Transactions on Reliability*, 38:3, NY: IEEE, 296-300.
31. Rouse, William B., Hammer, John M., and **Lewis, C. Michael** (1989) Algorithmic approaches to knowledge engineering, *IEEE Transactions on Systems, Man, and Cybernetics*, 19, 558-573.
32. Jamison, Wesley and **Lewis, C. Michael** (1990) UnixTutor: A Menu-Based Transitional Interface, *SIGCHI Bulletin*, NY: ACM.
33. **Lewis, C. Michael** and Hammer, John M. (1986) Significance testing of rules in rule-based models of human problem solving. *IEEE Transactions on Systems, Man, and Cybernetics*, vol SMC-16, no. 1, 154-157
34. Gerth, J.M., **Lewis, C.M.**, Stine, Wm, Maple, T.I. (1982) Evaluation of two computerized data collection devices for research in zoos. *Zoo Biology*, New York: Alan R. Liss, Inc.

Book Chapters

1. **Lewis, M.**, Sycara, K. and Walker, P. (2017). The role of trust in human-robot interaction, In Abbass, H., Scholz, J., & Reid, D. (Eds.), *Foundations of Trusted Autonomy*, Springer-Verlag, Berlin-Heidelberg.
2. Nunnally, S., Walker, P., **Lewis, M.**, Chakraborty, N. and Sycara, K. (2015). Using haptic feedback in human swarm interaction, In Ying Tan (Ed.), *Handbook of Research on Design, Control, and Modeling of Swarm Robotics*, Hershey, PA: IGI Global.

3. **Lewis, M.** (2013). Human Interaction with Multiple Remote Robots, In D. Kaber (Ed), Human Factors Reviews Volume 9, on *Human Performance in Teleoperation and Beyond*, HFES, 131-174.
4. Sukthankar, Gita and Shumaker, Randall and **Lewis, Michael** (2011) Intelligent Agents as Teammates. In: *Theories of Team Cognition: Cross-Disciplinary Perspectives*. Routledge Academic, pp. 313-343.
5. **Lewis, M.** & Wang, J. (2010). Coordination and automation for controlling robot teams, in M. Barnes & F. Jentsch (Eds), *Human-Robot Interactions in Future Military Operations*, Burlington, VT: Ashgate, 397-418.
6. **Lewis, M.** and Wang, J. (2009). Assessing coordination demand in cooperating robots, In Madhavan, Tunstel and Messina (Ed.) *Performance Evaluation and Benchmarking of Intelligent Systems*, Springer, New York, 169-186.
7. Y. Xu, P. Scerri, **M. Lewis**, and K. Sycara (2008). Token-based approach for scalable team coordination," in *Cooperative Networks: Control and Optimization*, Edward Elgar Publishing.
8. Wang, J. and **Lewis, M.** (2007). Mixed-initiative multirobot control in USAR, In N. Sarkar Ed., *Human-Robot Interaction*, Itech Education and Publishing: Vienna, Austria, 405-422.
9. **Lewis, M.**, Polvichai, J., Sycara, K., and Scerri, P. (2006) Scaling-up Human Control for Large UAV Teams, In N. Cooke (Ed.), *The Human Factors of Remotely Piloted Vehicles*, New York: Elsevier, pp. 237-250.
10. Wang, J. **Lewis, M.**, and Hughes, S. (2006) USARsim: Simulation for the Study of Urban Search and Rescue Robotics, In S. Carpin, A. Birk, A. Jacoff, A. Nardi, and S. Tadokoro (Eds), *Rescue Robotics, Lecture Notes in Computer Science*, Springer-Verlag, Berlin Heidelberg, 98-120.
11. Xu, Y., Liao, E., Scerri, P., Yu, B., K. Sycara, and **Lewis, M.** (2006) Towards Flexible Coordination of Large Scale Multi-Agent Teams, in *Coordination of Large Scale Multiagent systems*, Springer, 287-209.
12. Scerri, P., Xu, Y., Polvichai, J., Yu, B., Okamoto, S., **Lewis, M.** and Sycara, K. (2005). Challenges in Building Very Large Teams, in *Massively Multiagent Systems I*, 86-103.
13. Scerri, P., Xu, Y., Liao, E., Lai, G., **Lewis, M.** and Sycara, K. (2004) Coordinating large groups of wide area search munitions. In D. Grundel, R. Murphey, and P. Pandalos (Ed.), *Recent Developments in Cooperative Control and Optimization*, Singapore: World Scientific, 451-480.

14. Sycara, K. and **Lewis, M.** (2004). Integrating intelligent agents into human teams. In E. Salas and S. Fiore (Eds.) *Team Cognition: Understanding the Factors that Drive Process and Performance*, Washington, DC: American Psychological Association, 203-232.
15. Toth, J. & **Lewis, M.** (2002) The Role of working memory and external representation in individual decision making In M. Anderson, B. Meyer, and P. Olivier (Eds.) *Diagrammatic Representation and Reasoning*, Springer- Verlag, Berlin-Heidelberg, 207-221.
16. **Lewis, M.** (1999). Anticipation, delegation, and demonstration: Why talking to agents is hard. In Klusch, Shehory, & Weiss (Eds): *Cooperative Information Agents III, Lecture Notes in Artificial Intelligence* vol. 1652, Springer-Verlag, Berlin Heidelberg, 365-389.
17. **Lewis, M.** and J. Toth (1994). Situated cognition in diagrammatic reasoning, AAI Technical Report on Reasoning with Diagrammatic Representations, SS-92-02 Menlo Park, CA: AAI. 47-52.
18. **Lewis, M.** & Sycara, K. (1993). Modeling multispecialist decision making, In M. Smith & G. Salvendy (Eds.) *Human-Computer Interaction: Applications and Case Studies.*, New York: Elsevier, 481-486.
19. **Lewis, M.** (1991). Visualization and situations. In J. Barwise, M. Gawron, G. Plotkin, & S. Tutiya (Eds.), *Situation Theory and Its Applications, II*, Stanford, CA: CSLI Publications, 553-580.

Refereed Conferences and Workshops

1. Iyer, R., Li, Y., Li, H., **Lewis, M.**, Sundar, R. & Sycara, K. (2018). Transparency and explanation in deep reinforcement learning neural networks, AAAI/ACM Conference on Artificial Intelligence, Ethics, and Society [**Best Paper Award**]
2. Bahmani, K., Semnani-Azad, Z., Sycara, K. & **Lewis, M.** (2018). Team Faultline Measures: Rescaling the Weights of Diversity Attributes, *Proceedings of the 51st Hawaii International Conference on System Sciences*, 379-387.
3. Nagavalli, S., Chandarana, M., **Lewis, M.**, & Sycara, K. (2017). Multi-Operator Gesture Control of Robotic Swarms Using Wearable Devices, Tenth International Conference on Advances in Computer-Human Interactions (ACHI 2017).
4. Nam, C., Walker, P., **Lewis, M.**, & Sycara, K. (2017). Predicting trust in human control of swarms via inverse reinforcement learning, 26th IEEE International Symposium on Robot and Human Interactive Communication (Ro-Man), August 28-31, pp. 528-533.
5. Yuqing Tang, Christian Lebiere, Katia Sycara, Don Morrison, **Michael Lewis**, Paul Smart, "Information Sharing for Collective Sensemaking", HICSS, 2016, *2016 49th Hawaii International Conference on System Sciences (HICSS)* pp. 377-385, doi:10.1109/HICSS.2016.53
6. Chien, S., **Lewis, M.**, Sycara, K., Liu, J. S., & Kumru, A. (2016). Influence of Cultural Factors in Dynamic Trust in Automation. Proceedings of the 2016 IEEE International Conference on Systems, Man, and Cybernetics (IEEE SMC 16).
7. Chien, S., **Lewis, M.**, Sycara, K., Liu, J. S., & Kumru, A. (2016). Relation between Trust Attitudes Toward Automation, Hofstede's Cultural Dimensions, and Big Five Personality Traits. Proceedings of the 60th Annual Meeting of the Human Factors and Ergonomics Society (HFES 16).
8. Walker, P., **Lewis, M.**, Sycara, K. (2016). The effect of display type on operator prediction of future swarm states. In Systems, Man, and Cybernetics (SMC), 2016 IEEE International Conference on. IEEE.
9. Walker, P., **Lewis, M.**, Sycara, K. (2016). Characterizing human perception of emergent swarm behaviors. In Systems, Man, and Cybernetics (SMC), 2016 IEEE International Conference on. IEEE.
10. Anqi Li, **Michael Lewis**, Christian Lebiere, Katia Sycara, Shehzaman khatib, Yuqing Tang, Matthew Siedsma, Don Morrison (2016). "A computational model based on human performance for fluid management in critical care", *2016 IEEE Symposium on Computational Intelligence in Healthcare and e-health (CICARE)*, December 2016.
11. Abraham P. Vinod, Yuqing Tang, Meeko M. K. Oishi, Katia Sycara, Christian Lebiere and **Michael Lewis** (2016). "Validation of Cognitive Models for Collaborative Hybrid Systems with Discrete Human Input," 2016 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2016).

12. Chien, S., **Lewis, M.**, Hergeth, S., Semnani-Azad, Z., & Sycara, K. (2015). Cross-Country Validation of a Cultural Scale in Measuring Trust in Automation. *Proceedings of the 59th Annual Meeting of the Human Factors and Ergonomics Society (HFES 15)*.
13. Nagavalli, S., Chien, S., **Lewis, M.**, Chakraborty, N., & Sycara, K. (2015). Bounds of Neglect Benevolence in Input Timing for Human Interaction with Robotic Swarms. *Proceedings of the 10th ACM/IEEE International Conference on Human-Robot Interaction (HRI 15)*.
14. Zhaleh Semnani-Azad, Katia P. Sycara, **Michael Lewis** (2015). Cooperation in Face and Dignity Cultures: Role of Moral Identity and Gender. *HICSS 2015: 275-283*
15. Ronghuo Zheng, Ying Xu, Nilanjan Chakraborty, **Michael Lewis**, & Katia Sycara (2015). Multi agent coordination for demand management with energy generation and storage, *International Conference on Group Decision and Negotiation (GDN' 15)*.
16. Katia Sycara, Christian Lebiere, Yulong Pei, Don Morrison, Yuqing Tang, and **Michael Lewis** (2015). Abstraction of analytical models from cognitive models of human control of robotic swarms, *International Conference on Cognitive Modeling, (ICCM' 15)*, 13-18.
17. Zadorozhny, V., **Lewis, M.** Fusing Information, Crowdsourcing and Mobility (tutorial). *Proceedings of the 15th International Conference on Mobile Data Management (MDM' 14)*, 2014.
18. Phillip M. Walker, Saman Amirpour Amraii, Nilanjan Chakraborty, **Michael Lewis**, Katia P. Sycara (2014). Human control of robot swarms with dynamic leaders. *2014 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2014: 1108-1113*
19. Phillip M. Walker, Saman Amirpour Amraii, **Michael Lewis**, Nilanjan Chakraborty, Katia P. Sycara (2014). Control of swarms with multiple leader agents. *SMC 2014: 3567-3572*
20. Chien, S., Semnani-Azad, Z., **Lewis, M.**, & Sycara, K. (2014). An Empirical Model of Cultural Factors on Trust in Automation. *Proceedings of the 58th Annual Meeting of the Human Factors and Ergonomics Society (HFES 14)*.
21. **Lewis, M.**, Chien, S., Mehrotra, S., Chakraborty, N., & Sycara, K. (2014). Task Switching and Cognitively Compatible guidance for Control of Multiple Robots. *Proceedings of the 2014 IEEE International Conference on Robotics and Biomimetics (IEEE ROBIO 14)*.
22. Amirpour Amraii, S., Walker, P., **Lewis, M.**, Chakraborty, N. & Sycara, K. (2014) Explicit vs. Tacit Leadership in Influencing the Behavior of Swarms, *IEEE International Conference on Robotics and Automation (ICRA 2014)*, 2209-2214.
23. Chien, S., Semnani-Azad, Z., **Lewis, M.**, & Sycara, K. (2014) Towards the development of an inter-cultural scale to measure trust in automation, *International Conference on Human-Computer Interaction, (LNCS 8532)*, Springer International Publishing Switzerland [**Best Paper Award**], 35-46.
24. **Lewis, M.**, Chien, S., Mehrotra, S., Chakraborty, N. & Sycara, K. (2014) Task switching and single vs. multiple alarms for supervisory control of multiple robots, *International Conference on Human-Computer Interaction, (LNCS 8532)*, Springer International Publishing Switzerland, 499-510.

25. Alizadeh, M., Coman, A., **Lewis, M.**, Sycara, K. (preprint) Intergroup conflict escalation leads to more extremism, *Journal of Artificial Societies and Social Simulation*, <<http://jasss.soc.surrey.ac.uk>>.
26. Chien, S., Mehrotra, N., **Lewis, M.** & Sycara, K. (2013). Imperfect automation in scheduling operator attention on control of multi-robots,. *Proceedings of the 57th Annual Meeting of the Human Factors and Ergonomics Society* (HFES'13), 1169-1173.
27. Nunnally, S., Walker, P., Chakraborty, N., **Lewis, M.**, Sycara, K (2013). Using Haptic feedback in human robotic swarm interaction, *Proceedings of the 57th Annual Meeting of the Human Factors and Ergonomics Society* (HFES'13), 1047-1051.
28. Walker, P, Nunnally, S., Chakraborty, N., **Lewis, M.**, Sycara, K. (2013). Levels of automation for human influence of robot swarms, *Proceedings of the 57th Annual Meeting of the Human Factors and Ergonomics Society* (HFES'13), [**Best Paper Award**], 429-433.
29. Nunnally, S., Walker, P., Chakraborty, N., **Lewis, M.** Sycara, K. (2013). Using coverage for measuring the effect of haptic feedback in human robot swarm interaction, In *Proceedings of the Conference on System Man and Cybernetics*, 516-521 .
30. Walker, P., Amnipur Amraii, S., **Lewis, M.**, Chakraborty, N., Sycara, K.(2013). Human control of leader-based swarms, *Proceedings of the Conference on System Man and Cybernetics*, 2712-2717.
31. Zadorozhny, V., **Lewis, M.** (2013). Information fusion for USAR operations based on crowdsourcing, *Proceedings of the 16th International Conference on information Fusion*, 1450-1457.
32. Zadorozhny, V., **Lewis, M.** (2013). Information fusion based on collective intelligence for multi-robot search and rescue missions, *Proceedings of the 14th International Conference on Mobile Data Management* (MDM'13)
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