

Arizona State University
Human Systems Engineering
Santa Catalina Hall 150A
7271 E. Sonoran Arroyo Mall
Mesa, AZ 85212

Phone: 814-880-7203
Email: nathan.mcneese@gmail.com
Web: nathanmcneese.weebly.com

Research Interests

Human factors, team decision-making, information science, human computer interaction, computer supported collaborative work, team cognition, cognitive science, systems engineering, healthcare, usability research and design, human-centered design, team mental models, mental models, collaboration, collaborative information seeking, cognitive task analysis, knowledge elicitation, human-autonomy teaming, big data

Current Appointment

Postdoctoral Scholar & Research Associate, Human Systems Engineering
The Ira A. Fulton Schools of Engineering, Arizona State University

- Working directly with Dr. Nancy Cooke

Education

The Pennsylvania State University, University Park, PA, USA

PhD, Information Sciences and Technology - (2010-2014)

- Focus on Team Decision-Making and Computer Supported Collaborative Work
- Advisor: Dr. Madhu Reddy
- Dissertation Title: The Role of Team Cognition in Collaborative Information Seeking During Team Decision-Making
- Committee: Dr. Madhu Reddy, Dr. Susan Mohammed, Dr. Jim Jansen, and Dr. Shawn Clark

Bachelor of Science, Psychology- (2005-2009)

- Business Option
- Focus on Industrial and Organizational Psychology
- Minor in Security Risk and Analysis

Research Experience

Arizona State University, The Ira A. Fulton Schools of Engineering, Human Systems Engineering
Mesa, AZ

Postdoctoral Scholar & Research Associate, (Dec 2014-Present)

- Conducted multiple research studies pertaining to human factors, team cognition, cognitive science, human computer interaction, collaboration, and team decision-making.
- Outcomes: [JA.1], [JA.2], [JA.3], [JA.4], [JA.5], [B.2], [B.3], [BK.1], [C.9], [C.10], [C.11], [C.12], [C.13], [C.14], [C.15], [C.16], [C.17], [C.18], [C.19], [C.20], [C.21], [C.22], [C.23], [C.24], [C.25], [C.26], [BK.1], [TR.1], [P.4], [P.5], [P.6], [PR.3], [PR.4], [PAN.1], [PAN.2], [PRE.11], [PRE.12], [PRE.13], [PRE.14], [PRE.15], [PRE.16], [PRE.17], [PRE.18]

Mayo Clinic, Phoenix, AZ

Professional Research Affiliate, (April 2015-Present)

- Conducted work related to teamwork and the development of team cognition during Code Blue resuscitations and palliative care.

Cognitive Engineering Research Institute, Phoenix, AZ

Consultant, (April 2015-Present)

- Consultant on projects relating to human factors, team cognition, and team decision-making.

Penn State College of Information Sciences & Technology, University Park, PA

Research Assistant, (2010-2014):

- Conducted multiple research studies pertaining to team decision-making, team cognition, human computer interaction, computer supported collaborative work, collaborative information seeking, and medical informatics.
- Outcomes: [D.1], [C.2], [C.3], [C.4], [C.5], [C.6], [C.7], [C.8], [WP.1], [P.1], [P.2], [P.3], [W.1], [W.2], [W.3], [PRE.2], [PRE.3], [PRE.4], [PRE.5], [PRE.6], [PRE.7], [PRE.8], [PRE.9], [PRE.10]

Penn State College of Information Sciences & Technology, University Park, PA

Undergraduate Researcher, (2008-2010):

- Conducted research on human-centered data fusion with the Dean of the College of Information Sciences and Technology.
- Outcomes: [B.1]

Penn State Department of Psychology, University Park, PA

Head Coordinator of Research, (2007-2010):

- As an undergraduate, developed experimental design examining the effectiveness of distributed cognition in face-to-face, teleconferencing, and virtual worlds communication mediums. Processed information through IRB and conducted experiment with no assistance.
- Outcomes: [C.1], [PR.1], [PR.2], [PRE.1]

Penn State Department of Psychology, University Park, PA

Undergraduate Research Assistant, (2006-2007):

- Conducted and helped design various experiments pertaining to attitudes based on race and gender. Input and coded data for statistical analysis.

Research Projects

Current Projects

Designing Usability for Team Cognition

Collaborators: Nancy Cooke

- There is little known about how to actually apply human computer interaction principles to adequately help in the development of team cognition. While much is known about HCI and team cognition separately, there is a knowledge gap in understanding their shared relationship. This study includes multiple investigations into better understanding what HCI design principles are imperative to team cognition. Through these investigations, we are starting to understand how to design interfaces and systems to best allow for team cognition.

Information Visualization of Big Data for Team Based Cognition

Collaborators: Nancy Cooke, Ross Maciejewski

- Investigations into the impact of different information visualization techniques and how they subsequently impact the development of team cognition. An empirical testbed was created that allows individuals, groups, and teams to make movie box office predications using multiple information visualizations directly linked to big data. Qualitative and quantitative measurements are currently being recorded to better understand the relationship of information visualization and team cognition, in addition to information visualizations impact on performance in the individual, group, and team condition.

Human-Autonomy Teaming & the Development of a Synthetic Teammate

Collaborators: Nancy Cooke

- Work focused on better understanding the relationship between humans who team with autonomous systems. More specifically, experiments are being conducted that further explore the interactions between a synthetic teammate and human teammates in the context of an unmanned air vehicle

synthetic task environments. In this environment there are 3 roles within the team: Air Vehicle Operator, Mission Planner, and Payload Operator. Teamwork must occur between and among all three roles for a successful mission to be accomplished. In experiments focused on the synthetic teammate interaction, the Air Vehicle Operator is a cognitively plausible ACT-R based computational model serving as a full-fledged teammate.

Code Blue Resuscitations & Teamwork

Collaborators: Nancy Cooke, Susan Hallbeck, Ayan Sen

- Investigations into better understanding the teamwork that occurs during code blue resuscitations. More specifically, this work has focused on the impact that multiple variables of team cognition have on teamwork within this context.

The Role of Team Cognition During Stem Cell Therapy and Palliative Care

Collaborators: Nancy Cooke, Ayan Sen

- Palliative care is an extremely complicated process involving multiple medical practitioners and family members having to make critical decisions about end of life care. Unfortunately, far too often these decisions are disjointed and lead to lack of shared understanding among the providers and the family. This research seeks to better understand how team cognition can be utilized to make more effective shared decisions.

Human-Robot Teaming

Collaborators: Nancy Cooke, Subbarao Kambhampati, Yu Zhang

- Work in this area focuses on the effect that differing levels of robot autonomy have on teaming, the effects of automated planning technologies on human robot teaming, and the role of team situational awareness in human-robot teams.

The Cognitive Science & Human Factors of Intelligence Analysis

Collaborators: Nancy Cooke, Ross Maciejewski, Nadya Bliss, Dave White

- Multiple investigations into better understanding how intelligence analysts conduct their work. Currently, little is actually known from a Human Factors or Cognitive Science perspective about how intelligence analysts complete individual and team based work. Moving forward, it is necessary to learn more about what the analysts' work is like in order to better design user centered technologies to aid in their analysis. Literature reviews, surveys, and experiments are currently taking place to better understand intelligence analysts' work. This work was part of a \$20M funding agreement with the National Geospatial Agency.

Theoretical & Methodological Methods to Studying Team Cognition During Sports

Collaborators: Nancy Cooke, Rob Gray

- Work focused on advancing the conceptual understanding and application of team cognition during team sports. Up to this point, team cognition has rarely been studied within the context of team sports, resulting in a lack of theoretical and methodological methods to accurately study the relationship of team cognition and sports. Within this overarching project, multiple studies have and are being conducted to identify the impact that team cognition has on team sports. More specifically, studies in collaboration with university level varsity teams are resulting in a better understanding of how team cognition develops and occurs during team sports. In addition, conceptual pieces and methods for studying team cognition within this context have been published and identified within this overall project.

Human Systems Engineering of Gas Ballooning

Collaborators: Nancy Cooke, Steven Shope

- A study focused on understanding the real time cognition of two gas balloonists while they set a world record for duration and distance of a gas balloon. Multiple cognitively oriented measurements were taken, resulting in real time data from the pilots while they were flying. This data was then analyzed on the fly and recommendations were made to mission control.

Past Projects

The Role of Team Cognition During Collaborative Information Seeking

**Dissertation*

Collaborators: Madhu Reddy, Susan Mohammed, Jim Jansen, Shawn Clark

- Investigation on the role of team cognition during collaborative information seeking (CIS). The success of a team is dependent on the activity of CIS, as the team must find relevant information to accurately and successfully solve a problem. To this point, CIS has mainly been studied from an interactional perspective, with very little focus on team cognition. This work focuses on understanding the development of cognitive processes during CIS. More specifically, the cognitive construct, the team mental model, was examined. Teams conducted a CIS task and then cognitive interviews and individual/team concept maps were collected in both face-to-face and distributed conditions. In addition, evaluations of CIS tools were conducted with specific inquiry into understanding what features have the ability to help/hurt team cognition during CIS. Analysis indicated that the development of team cognition is readily apparent during CIS, and that it significantly impacts a teams' CIS work in many ways.

Non-Traditional Clinical Users of the Electronic Medical Record (EMR)

Collaborators: Madhu Reddy, Chris DeFlicht

- Work focused on how non-traditional clinical users (social workers, medical secretaries, physical therapists) interact with and use the EMR. Qualitative work was utilized to understand how these users collaborate via the EMR. In addition, potential design implications were developed to better equip the EMR to support these users.

Team Performance in Real & Virtual Worlds

Collaborators: Mark Pfaff, Gerry Santoro, Michael McNeese

- Experimental investigation on the effectiveness of distributed cognition in face-to-face, teleconferencing, and virtual communication mediums. Team performance was captured and analyzed. Results showed that team members perceived the face-to-face modality to better aid the team than the virtual world or the auditory teleconferencing mode, yet the data also showed an experience-based bias toward face-to-face interaction.

Enhanced Messaging for Emergency Response (EMERSE)

Collaborators: John Yen, Lee Giles, Jim Jansen, Andrea Tapia, Prasenjit Mitra

- Investigation on how text messaging can be better utilized within third world countries during emergencies. The specific emergency that this project focused on was the Haiti earthquake, in which we had access to real world text message through the Ushahidi platform.

Human Centered Data Fusion: The Characterization of Soft Sensors

Collaborators: David Hall, James Llinas

- Work focused on the collaboration and synthesis of hard and soft data. Specifically, in this study humans were characterized as soft sensors that have the ability to observe data and be active sensors. This study successfully developed specific characterizations of soft sensors, a framework for modeling performance, and a literature review on human observational performance.

Hospital-to-Hospital Health Information Technology Partnerships: A New Model for IT Diffusion in Rural Hospitals

Collaborators: Madhu Reddy, Sandeep Puro

- Study of the benefits, critical success factors, and challenges related to the hospital-to-hospital partnership (HHP). In-depth qualitative work and a broad survey were both utilized to further understand and gauge hospitals interest in such a partnership.

Collaborative Information Behavior (CIB)

Collaborators: Madhu Reddy

- Investigation into what collaborative information behavior is. Specifically, how does CIB differ from individual information behavior, what role do current information retrieval tools play, what are the

design requirements for collaborative information retrieval (CIR). Work was done within the healthcare domain, which focused on patient care teams and IT teams.

Research Grants

Awarded:

- Planning Challenges in Human Robot Teaming: An Integrated Exploration of Representations, Algorithms and Human Factors. PI: Kambhampati, Co-PI: Cooke, Senior Personnel: **McNeese** & Zhang. Office of Naval Research. \$774,376.00. 6/1/16-5/31/19.
- Human-Autonomy Teaming in Remotely Piloted Aircraft Systems Operations Under Degraded Conditions. PI: Cooke, Co-PI: **McNeese**. Office of Naval Research. Awarded to Cognitive Engineering Research Institute (CERI). \$920,652.00.
- A Biometric Measurement Suite to Understand the Processes Behind Human Learning and Performance in Complex Settings. PI: Cooke, Co-I: Becker, Branaghan, Craig, Gray, **McNeese**, Kula, Roscoe, Wu. ONR DURIP. (Recommended for award). \$286,155.00.

Under Review:

- Improving Situation Awareness in Distributed Human-Robot Teams. PI: Cooke, Kambhampati. Co-I: Choui, **McNeese**, Zhang. Consultant: Endsley. AFOSR. (Under Review).

Publications

* Denotes a student advisee

Dissertation (Approved by Committee)

- [D.1] **McNeese, N.** (2014). The Role of Team Cognition in Collaborative Information Seeking During Team Decision-Making. The Pennsylvania State University. Doctoral Dissertation.

Journal Articles (Refereed):

- [JA.5] *Buchanan, V., Lu, Y., **McNeese, N.**, Steptoe, M., Maciejewski, R., & Cooke, N. (2017). The Role of Teamwork in the Analysis of Big Data- A Study of Visual Analytics and Box Office Prediction. *Big Data*.
- [JA.4] *Demir, M., **McNeese, N.**, & Cooke, N. (2017). Team Situational Awareness within the Context of Human-Autonomy Teaming. *Cognitive Systems Research*.
- [JA.3] **McNeese, N.**, Cooke, N., Branaghan, R., Knobloch, A., & Taylor, A. (2016). Identification of the Emplacement of Improvised Explosive Devices by Experienced Mission Payload Operators. *Applied Ergonomics*, 60, 43-51.
- [JA.2] **McNeese, N.**, Khera, N., Wordingham, S., Arring, N., Nyquist, S., Gentry, A., Tomlinson, B., Cooke, N., & Sen, A. (2016). Team Cognition As a Means to Improve Care Delivery in Critically Ill Patients With Cancer After Hematopoietic Cell Transplantation. *Journal of Oncology Practice*, JOPR013672.
- [JA.1] **McNeese, N.** & Reddy, M. (2015). The Role of Team Cognition in Collaborative Information Seeking. *Journal of the Association for Information Science and Technology*. doi: 10.1002/asi.23614

Journal Articles Under Review or Revision:

- [UR.3] Gray, R., Cooke, N., **McNeese, N.**, & McNabb, J. Investigating Team Coordination in Baseball Using a Novel Joint Decision-Making Paradigm. *Frontiers in Psychology*.
- [UR.2] **McNeese, N.**, *Demir, M., Cooke, N., & Myers, C. Teaming with a Synthetic Teammate: Insights into Human Autonomy Teaming. *Human Factors*. [Under Revision]

- [UR.1] Narayan, V., **McNeese, N.**, Zhang, Y., Cooke, N., & Kambhampati, S. Evaluating Automated Planning Technologies and Proactive Decision Support in Human Robot Teaming. *Theoretical Issues in Ergonomics Science*. [Under Revision]

Book Chapters (Refereed)

- [B.3] **McNeese, N.**, *Demir, M., & Reddy, M. (Forthcoming). “Methodological Techniques and Approaches to Developing Empirical Insights of Cognition During Collaborative Information Seeking”, Chapter in *Cognitive Systems Engineering: An Integrative Living Lab Framework*. CRC Taylor & Francis.
- [B.2] **McNeese, N.**, Cooke, N., *Fedele, M., & Gray, R. (2016). “Perspectives on Team Cognition and Team Sports”, Chapter in *Sport and Exercise Psychology Research*. European Federation of Sport Psychology.
- [B.1] Hall, D., **McNeese, N.**, & Llinas J. (2010). "H-Space: Humans as Observers", Chapter 3 in *Human-Centered Fusion*, D. Hall and J. Jordan. pg. 59-84. Artech House.

Conference Full Papers (Refereed):

- [C.26] *Demir, M., **McNeese, N.**, & Cooke, N. (Accepted). Team Synchrony in Human-Autonomy Teaming. *8th International Conference on Applied Human Factors and Ergonomics (AHFE 2017) and the Affiliated Conferences*. Los Angeles, CA.
- [C.25] **McNeese, N.**, Cooke, N., Shope, S., & *Knobloch, A. (2016). The Extreme Environment of High Altitude Gas Ballooning: Lessons Learned in Assessing Cognition. *2016 Annual Meeting of Human Factors and Ergonomic Society*. Washington D.C. Human Factors and Ergonomics Society. Sept 19-23, 2016. pp. 1409-1413.
- [C.24] Cooke, N., Shope, S., & **McNeese, N.** (2016). Human Systems Integration: A 28,000 Foot View. *2016 Annual Meeting of Human Factors and Ergonomic Society*. Washington D.C. Human Factors and Ergonomics Society. Sept 19-23, 2016. pp. 1459-1463.
- [C.23] *Demir, M., **McNeese, N.**, Cooke, N., & Myers, C. (2016). The Synthetic Teammate as a Team Player in Command-and-Control Teams. *2016 Annual Meeting of Human Factors and Ergonomic Society*. Washington D.C. Human Factors and Ergonomics Society. Sept 19-23, 2016. pp. 116-116.
- [C.22] McNeese, M., & **McNeese, N.** (2016). Intelligent Teamwork: A History, Framework, and Lessons Learned. *2016 Annual Meeting of Human Factors and Ergonomic Society*. Washington D.C. Human Factors and Ergonomics Society. Sept 19-23, 2016. pp. 153-157.
- [C.21] Myers, C., Ball, J., Cooke, N., *Demir, M., **McNeese, N.**, Caisse, M., Freiman, M., Halverson, T. (2016). Maintaining Team Training Efficacy with Autonomous Synthetic Teammates. *2016 Interservice/Industry Training, Simulation, and Education Conference*. Orlando, FL.
- [C.20] **McNeese, N.**, Cooke, N., Gray, R., & *Fedele, M. (2016). Knowledge Elicitation Methods for Developing Insights into Team Cognition During Team Sports. *7th International Conference on Applied Human Factors and Ergonomics (AHFE 2016) and the Affiliated Conferences*. Orlando, FL. July 27-31, 2016. pp. 3-15.
- [C.19] McNeese, M., **McNeese, N.**, Endsley, T., Reep, J., & Forster, P. (2016). Simulating Team Cognition in Complex Systems: Practical Considerations for Researchers. *7th International Conference on Applied Human Factors and Ergonomics (AHFE 2016) and the Affiliated Conferences*. Orlando, FL. July 27-31, 2016. pp. 255-267.

- [C.18] **McNeese, N.** & Cooke, N. (2016). Team Cognition As A Mechanism For Developing Collaborative and Proactive Decision Support in Unmanned Aerial Systems. *18th International Conference on Human- Computer Interaction*. Toronto, CA. July 17-22, 2016. pp. 198-209.
- [C.17] *Demir, M., **McNeese, N.**, & Cooke, N. (2016). Team Communication Behaviors of The Human-Automation Teaming. *2016 IEEE International Multi-Disciplinary Conference on Cognitive Methods in Situation Awareness and Decision Support (COGSIMA)*. San Diego, CA. March 21-25, 2016. pp. 28-34.
***Best Paper of 2016 Cogsima Conference**
- [C.16] *Hinski, S., Cooke, N., **McNeese, N.**, Sen, A., & Patel, B. (2016). A Human Factors Approach to Building High-Performance Multi-Professional Cardiac Arrest Teams: Developing a Code Blue Team Performance Metric. *HFES 2016 International Symposium on Human Factors and Ergonomics in Health Care*. San Diego, CA. pp. 68-71.
- [C.15] **McNeese, N.**, Cooke, N., & *Buchanan, V. (2015). Human Factors Guidelines for Developing Collaborative Intelligence Analysis Technologies. *2015 Annual Meeting of Human Factors and Ergonomic Society*. Los Angeles, CA. Human Factors and Ergonomics Society. October 26-30, 2015. pp. 821-825.
- [C.14] **McNeese, N.**, *Buchanan, V., & Cooke, N. (2015). The Cognitive Science of Intelligence Analysis. *2015 Annual Meeting of Human Factors and Ergonomic Society*. Los Angeles, CA. Human Factors and Ergonomics Society. October 26-30, 2015. pp. 826-830.
- [C.13] **McNeese, N.**, & Reddy, M. (2015). Concept Mapping as a Methodology to Develop Insights on Cognition During Collaborative Information Seeking. *2015 Annual Meeting of Human Factors and Ergonomic Society*. Los Angeles, CA. Human Factors and Ergonomics Society. October 26-30, 2015. pp. 245-249.
- [C.12] **McNeese, N.**, & Reddy, M. (2015). Articulating and Understanding the Development of a Team Mental Model in a Distributed Medium. *2015 Annual Meeting of Human Factors and Ergonomic Society*. Los Angeles, CA. Human Factors and Ergonomics Society. October 26-30, 2015. pp. 240-44.
- [C.11] *Demir, M., **McNeese, N.**, Cooke, N., Ball, J, Myers, C. (2015). Synthetic Teammate Communication and Coordination with Humans. *2015 Annual Meeting of Human Factors and Ergonomic Society*. Los Angeles, CA. Human Factors and Ergonomics Society. October 26-30, 2015. pp. 951-955.
- [C.10] *Demir, M., & **McNeese, N.** (2015). The Role of Recognition Primed Decision Making in Human Automation Teaming. *International Conference on Naturalistic Decision Making 2015*. McLean, VA.
- [C.9] **McNeese, N.**, Cooke, N., *Fedele, M., & Gray, R. (2015). Theoretical and Methodical Approaches to Studying Team Cognition in Sports. *6th International Conference on Applied Human Factors and Ergonomics (AHFE 2015) and the Affiliated Conferences*. Las Vegas, NV. Applied Human Factors & Ergonomics. July 26-30, 2015. pp. 1211-1218.
- [C.8] McNeese, M., Mancuso, V., **McNeese, N.**, & Glantz, E. (2015). What Went Wrong, What Can Go Right: A Prospectus on Human Factors Practice. *6th International Conference on Applied Human Factors and Ergonomics (AHFE 2015) and the Affiliated Conferences*. Las Vegas, NV. Applied Human Factors & Ergonomics. July 26-30, 2015. pp. 5222-5229.
- [C.7] **McNeese, N.**, Reddy, M., & *Friedenberg, E. (2014). Team Mental Models within Collaborative Information Seeking. *2014 Annual Meeting of the Human Factors and Ergonomic Society*. Chicago, IL. Human Factors and Ergonomics Society. October 27-31, 2014, pp. 335-339.
- [C.6] McNeese, M., Mancuso, V., **McNeese, N.**, Endsley, T. & Forster, P. (2014). An Integrative Simulation to Study Team Cognition in Emergency Crisis Management. *2014 Annual Meeting of the*

Human Factors and Ergonomic Society. Chicago, IL. Human Factors and Ergonomics Society. October 27-31, 2014, pp. 285-289.

- [C.5] Murphy, A., Reddy, M., & **McNeese, N.** (2014). Exploring the Perceptions and Use of Electronic Medical Record Systems by Non-Clinicians. *Proc. of ACM Conf. on Designing Interactive System 2014 (DIS 2014)*. Vancouver, Canada. June 21-25, 2014. pp. 429-432.
- [C.4] Johnson, N., Murphy, A., **McNeese, N.**, Reddy, M., & Puroo, S. (2013). A Survey on Rural Hospitals' Perspectives on Health Information Technology Outsourcing. *2013 American Medical Informatics Association (AMIA'13)*. Washington, DC. Nov. 16-20, 2013. pp. 732-741.
- [C.3] McNeese, M., Mancuso, V., **McNeese, N.**, Endsley, T., & Forster, P. (2013). Using the Living Laboratory Framework as a Basis for Understanding Next Generation Analyst Work. *2013 SPIE Defense, Security, and Sensing*. Baltimore, MD. pp. 87580F-87580F-12.
- [C.2] Caragea, C., **McNeese, N.**, Jaiswal, A., Traylor, G., Kim, W., Mitra, P., Wu, D., Tapia, A., Giles, L., Jansen, B. J., & Yen, J. (2011). Classifying Text Messages for the Haiti Earthquake. *Proceedings of the 8th international ISCRAM conference*. Lisbon, Portugal.
- [C.1] **McNeese, N.**, Pfaff, M., Santoro, G., & McNeese, M. (2008). Team Performance in Real and Virtual Worlds: The Perceived Value of Second Life. *Proceedings of the 52nd Annual Meeting of the Human Factors and Ergonomic Society*. New York City, NY: Human Factors and Ergonomics Society. pp. 1435-1439.

Book (Under Contract)

- [BK.1] **McNeese, N.**, & Cooke, N. Human Factors Methods: Knowledge Elicitation [working title]. (Forthcoming 2017) *Human Factors & Ergonomics Society*.

Technical Reports:

- [TR.1] Cooke, N., Demir, M., **McNeese, N.** (2016) Synthetic Teammates as Team Players: Coordination of Human and Synthetic Teammates. Technical Report for Grant no. N000141110844.

Workshop Papers (Peer Reviewed):

- [WP.1] **McNeese, N.** & Reddy, M. (2013). Studying Team Cognition during Collaborative Information Seeking: A Position Paper. Workshop on Collaborative Information Seeking: Consolidating the Past, Creating the Future. *2013 ACM Conference on Computer Supported Cooperative Work (CSCW'13)*. San Antonio, Tex. Feb. 24, 2013.

Research Posters:

- [P.7] *Hinski, S., **McNeese, N.**, Khera, N., Wordingham, S., Arring, N., Nyquist, S., Gentry, A., Tomlinson, B., Cooke, N., & Sen, A. Team Cognition As a Means to Improve Care Delivery in Critically Ill Patients With Cancer After Hematopoietic Cell Transplantation. *HFES 2017 International Symposium on Human Factors and Ergonomics in Health Care*. New Orleans, LA. March 7, 2017.
- [P.6] *Buchanan, V., **McNeese, N.**, Lu, Y., Wang, F., Cooke, N., & Maciejewski, R. (2015). An Empirical Testbed for Human-in-the-Loop Studies of Collaboration with Visualization. *Foresight Partner Meeting*, Arizona State University, Tempe, AZ. February 19, 2015.
- [P.5] **McNeese, N.**, *Fedele, M., *Buchanan, V., & Cooke, N. (2015). Human Factors Guidance for Collaborative Intelligence Analysis. *Foresight Partner Meeting*, Arizona State University, Tempe, AZ. February 19, 2015.
- [P.4] **McNeese, N.**, *Buchanan, V., & Cooke, N. (2015). The Cognitive Science of Intelligence Analysis. *Foresight Partner Meeting*, Arizona State University, Tempe, AZ. February 19, 2015.

- [P.3] **McNeese, N.** (2014). Studying Team Cognition During Collaborative Information Seeking. *The 2014 Pennsylvania State University Graduate Exhibition*, The Pennsylvania State University, University Park, PA. April 6, 2014.
- [P.2] Murphy, A., **McNeese, N.**, & Reddy, M. (2012). “Supporting Multi-Disciplinary Team (MDT) Collaboration through the EMR.” Poster Presentation. *NSF CHOT Industry Advisory Board Meeting*, Hershey, PA. September 6-7, 2012.
- [P.1] Murphy, A., **McNeese, N.**, Reddy, M., & DeFlicht, C. (2012). Exploring How Electronic Medical Record (EMR) Systems Support Non-Clinical Users. *The 2012 Center for Health Organization Transformation (CHOT) Advisory Board Meeting*, Hershey, PA, Sep 6, 2012.

Written Journal Articles to be Submitted

- [WIP.5] *Bartlett, C., **McNeese, N.**, Cooke, N., Zhang, Y., & Kambhampati, S. Planning for Peer-to-Peer Human-Robot Teaming in Open Worlds.
- [WIP.4] *Hinski, S., Sen, A., **McNeese, N.**, Cooke, N. Team Training in Healthcare: A Systematic Review of Human Factors and Medical Perspectives.
- [WIP.3] **McNeese, N.**, *Fedele, M., Cooke, N. Work- It’s Not an Either/Or Paradigm. Perspectives on Co-located/Distributed, Individual/Team, Asynchronous/Synchronous Work & Technology.
- [WIP.2] Myers, C., Ball, J., Cooke, N., Freiman, M., Caisse, M., Rodgers, S., *Demir, M., & **McNeese, N.** Empirically Evaluating An Autonomous Synthetic Teammate.
- [WIP.1] **McNeese, N.** & Reddy, M. How Do Searchers Collaborate? Insights into Different Approaches to Collaborative Web Searching.

Public Relations Coverage

- [PR.4] Amelia Huggins. “ASU, NGA to address national security risks of climate change.” *ASU News Science & Tech*. 6/18/14 <https://asunews.asu.edu/20140618-asu-nga-address-climate-change>.
- [PR.3] Shannon Keeler. “Two Eagles transoceanic balloon trek has Fulton engineering connection.” *Full Circle*. 1/29/15 <http://fullcircle.asu.edu/research/two-eagles-transoceanic-balloon-trek-has-fulton-engineering-connection/>.
- [PR.2] Mark Harris. “Second Life beats real life for collaboration” *TechRadar*. 9/28/08 <http://www.techradar.com/us/news/internet/second-life-beats-real-life-for-collaboration-471985>.
- [PR.1] “IST student, faculty examine problem solving in Second Life” *Penn State News*. 9/22/08 <http://news.psu.edu/story/183485/2008/09/22/ist-student-faculty-examine-problem-solving-second-life>.

Panels

- [PAN.2] Vorm, E., **McNeese, N.** (2016). Proactive Decision Support: Applications and Implications in Military Unmanned Aerial Systems. *18th International Conference on Human-Computer Interaction*. Toronto, CA.
- [PAN.1] **McNeese, N. (chair)**, Cooke, N., Hoffman, R., Klein, G., McNeese, M., Patterson, E. (2015) The Human Factors of Intelligence Analysis. *2015 Annual Meeting of Human Factors and Ergonomic Society*. Los Angeles, CA. Human Factors and Ergonomics Society. October 26-30, 2015. pp. 130-134.

Presentations (Conference & Invited)

- [PRE.23] A Transdisciplinary Approach to Teamwork: Improving Systems through Team Cognition in Multiple Sociotechnical Settings. Presented to The Department of Human Systems Engineering, Arizona State University. February 2017. Mesa, AZ.
- [PRE.22] A Transdisciplinary Approach to Teamwork: Improving Sociotechnical Settings through Team Cognition and Human-Centered Collaborative Technology. Presented to The School of Computing, Clemson University. February 2017. Clemson, SC.
- [PRE.21] Improving Healthcare Systems Through Team Cognition and Human-Centered Collaborative Technology. Presented to The Department of Biomedical Informatics, Vanderbilt University. February 2017. Nashville, TN.
- [PRE.20] A Transdisciplinary Approach to Teamwork: Improving Systems through Team Cognition in Multiple Sociotechnical Settings. Presented to The Department of Systems & Industrial Engineering, University of Arizona. February 2017. Tucson, AZ.
- [PRE.19] A Transdisciplinary Approach to Teamwork: Improving Systems through Team Cognition in Multiple Sociotechnical Settings. Presented to The Department of Industrial & Systems Engineering, University of Wisconsin-Madison. January 2017. Madison, WI.
- [PRE.18] A Transdisciplinary Approach to Teamwork and Collaboration: Perspectives of Information Science, Human Factors, Human Computer Interaction, and Computer Supported Cooperative Work. Presented at ASU Human Systems Engineering Brown Bag, September 2016. Mesa, AZ.
- [PRE.17] Knowledge Elicitation Methods for Developing Insights into Team Cognition During Team Sports. Presented at the 2016 AHFE Annual Conference, July 2016. Orlando, FL.
- [PRE.16] Team Cognition As A Mechanism For Developing Collaborative and Proactive Decision Support in Unmanned Aerial Systems. Presented at the 2016 HCII Annual Conference, July 2016. Toronto, CA.
- [PRE.15] Improving Cancer Care Coordination Through Team Science. Presented at the Science of Team Science (SciTS) 2016 Conference, May 2016. Phoenix, AZ.
- [PRE.14] Concept Mapping as a Methodology to Develop Insights on Cognition During Collaborative Information Seeking. Presented at 2015 Human Factors and Ergonomics Annual Meeting, October 2015. Los Angeles, CA.
- [PRE.13] Articulating and Understanding the Development of a Team Mental Model in a Distributed Medium. Presented at 2015 Human Factors and Ergonomics Annual Meeting, October 2015. Los Angeles, CA.
- [PRE.12] Methodologies and Theories for Studying Team Cognition In Sports. Presented at the 2015 AHFE Annual Conference, July 2015. Las Vegas, NV.
- [PRE.11] How Do Teams Collaborate? The Importance of Team Cognition During Collaborative Information Seeking. Presented at ASU Research Brown Bag, March 2015.
- [PRE.10] The Role of Team Cognition in Collaborative Information Seeking During Team Decision-Making. Presented at Penn State Dissertation Defense, November 2014. University Park, PA.
- [PRE.9] Towards a Team Mental Model of Collaborative Information Seeking During Team Decision-Making. Presented at 2014 HFES Annual Meeting, October 2014. Chicago, IL.

- [PRE.8] Studying Team Cognition during Collaborative Information Seeking. Presented at 16th Annual CSCW conference, February 2013. San Antonio, TX.
- [PRE.7] The Role and Effect of Experience and Diversity on Collaboration. Presented to IST 541, December 2011. University Park, PA.
- [PRE.6] Health Information Technology: An Overview, Presented to IST 501, December 2011. University Park, PA.
- [PRE.5] Health Informatics Information Challenges. Presented to IST 501, September 2011. University Park, PA.
- [PRE.4] The Development of a Collaborative Space: IST CollabSPACE. Presented to IST 521, April 2011. University Park, PA.
- [PRE.3] The Learning of Database and Web Programming Concepts Through End User Programming. Presented to IST 511, December 2010. University Park, PA.
- [PRE.2] Rural Hospitals Adoption of Health Information Technology. Presented to IST 531, December 2010. University Park, PA.
- [PRE.1] Team Performance in Real and Virtual Worlds: The Perceived Value of Second Life. Presented at the 2008 HFES Annual Meeting, October 2008. New York, NY

Teaching Experience

Arizona State University, Mesa, AZ

Instructor for HSE 225: Human Systems Integration (Spring 2017)

- Developing class curriculum from ground up
- Grade and provide feedback for assignments throughout the semester
- Will provide individual guidance to students

Instructor for PSY 437: Human Factors (Spring 2016)

- Student's Course Evaluation: **4.85/5**
- Developed class curriculum from ground up
- Graded and provide feedback for assignments throughout the semester
- Provided individual guidance to students

Instructor for PSY 399: Individualized Study on Teamwork (Fall 2015)

- Guided and mentored students at an individual level
- Developed and provided students with curriculum
- Graded and provided feedback for assignments throughout the semester

The Pennsylvania State University, University Park, PA (Spring 2010)

Graduate Teaching Assistant for IST 301: Information and Organizations (with Dr. Madhu Reddy & Dr. Carleen Maitland)

- Outlined grading criteria and graded class assignments
- Developed class material
- Provided mentorship and guidance to undergraduate students working on team projects

Students Supervised and Mentored

As a Postdoctoral Scholar & Research Associate at Arizona State University:

Mustafa Demir- PhD Simulation, Modeling, and Applied Cognitive Science (*Arizona State University, Fall 2014-Present*)

- Project focused on human automation teaming and the development of a synthetic teammate. Co-authored [C.10], [C.11], [C.16], [C.21], [C.24], [B.3].

Saliha Akca-Hobbins- PhD Simulation, Modeling, and Applied Cognitive Science (*Arizona State University, Spring 2015- 2016*)

- Project focused on better understanding the impact of team cognition within medical emergency teams.

Sandra Hinski- PhD Simulation, Modeling, and Applied Cognitive Science (*Arizona State University, Spring 2015- Present*)

- Project focused on better understanding the teamwork that occurs during code blue resuscitations and developing more effective training applications.

Verica Buchanan- PhD Simulation, Modeling, and Applied Cognitive Science (*Arizona State University, Fall 2014- Present*)

- Work focused on better understanding the individual and team work associated with intelligence analysts. Co-authored [C.14], [C.15].

Michael Fedele- MS Human Systems Engineering (*Arizona State University, Spring 2015- Present*)

- Project focused on the theoretical and methodological methods to studying team cognition in sports. In addition, work has also focused on better understanding the individual and team work associated with intelligence analysts. Co-authored [C.9], [C.19], [B.2].

Jade Best- MS Human Systems Engineering (*Arizona State University, Fall 2015- Present*)

- Project focused on human automation teaming and the role of different experience and background.

Carrie Russell- MS Human Systems Engineering (*Arizona State University, Fall 2016- Present*)

- Work focused on human-robot teaming.

Cade Bartlett- MS Human Systems Engineering (*Arizona State University, Spring 2015- Summer 2016*)

- Work focused on human-robot teaming.

Kyle Walter- MS Human Systems Engineering (*Arizona State University, Fall 2016*)

- Work focused on human-robot teaming.

Alec Wightman- MS Human Systems Engineering (*Arizona State University, Fall 2016*)

- Work focused on human-robot teaming.

Joe O'Brian- MS Human Systems Engineering (*Arizona State University, Summer 2015*)

- Work focused on better understanding the individual and team work associated with intelligence analysts.

Rachel Howes- MS Human Systems Engineering (*Arizona State University, Fall 2015- Spring 2016*)

- Work focused on better understanding the individual and team work associated with intelligence analysts.

Bryant Armistead- BS Human Systems Engineering (*Arizona State University, Fall 2016*)

- Work focused on human-robot teaming.

Hailey Torres- BS Human Systems Engineering (*Arizona State University, Fall 2015-Present*)

- Advised for PSY 399 Individual Study on Teamwork and MacArthur 100&Change

Lais Goncalves de Lima- BS (*University of Pittsburgh, Summer 2016*)

- Summer advisement on multiple projects

Serena Mata- BS Human Systems Engineering (*Arizona State University, Fall 2015*)

- Advised for PSY 399 Individual Study on Teamwork

Pamela Coleman- BS Human Systems Engineering (*Arizona State University, Fall 2015*)

- Advised for PSY 399 Individual Study on Teamwork

As a PhD Student at Pennsylvania State University:

Evan Friedenber- BS Information Sciences and Technology (*Penn State Schreyer's Honors College, Fall 2011-2014*)

- Project focused on understanding team mental models within collaborative information seeking. Co-authored [C.7].

Kelsey Bailey- BS Information Sciences and Technology, Political Science (*Penn State, Spring 2011-2012*)

- Project focused on the adoption of information technologies and the ability for rural hospitals to outsource IT to regional networks.

Michael Cwenar- BS Information Sciences and Technology (*Penn State, Spring 2011*)

- Project focused on the adoption of information technologies within rural hospitals.

Greg Traylor- BS Information Sciences and Technology (*Penn State, Fall -Spring 2011*)

- Project focused on the classification of “tweets” from the 7.0 earthquake in Haiti. An iOS application was developed with the intent to help victims of disasters report their needs in a more manageable and accurate manner. Co-authored [C.2].

Academic Committee Member

PhD

- Mustafa Demir, Simulation, Modeling, and Applied Cognitive Science- 2014 – present

Masters

- Michael Fedele, Human Systems Engineering- 2014 – present

Professional Activities

Memberships

- *Association for Computing Machinery*
 - SIGCHI
- *Human Factors and Ergonomics Society*
 - Cognitive Engineering and Decision Making
 - Health Care
 - Perception and Performance
- *American Psychological Association*
- *National Postdoctoral Association*

Publication Reviewer

Journals

- Human Factors: The Journal of the Human Factors and Ergonomics Society
- Journal of the Association for Information Sciences and Technology
- International Journal of Human-Computer Studies
- Frontiers in Psychology
- Theoretical Issues in Ergonomics Science
- Journal of Behaviour & Information Technology
- Small Group Research

Conferences

- ACM Conference on Human Factors in Computing Systems (CHI)
- ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW)

- Human Factors and Ergonomics Society Annual Meeting (HFES)

Editorial Boards

- Human Factors: The Journal of the Human Factors and Ergonomics Society

Community Service

- Co-Chair of Teamwork Session at HFES 2016
- Participant in NCI-ASCO Teams in Cancer Care Delivery Workshop (2016)
- Chair of Panel on Intelligence Analysis at HFES 2015
- Invited Participant for the Future of Proactive & Adaptive Decision Support (Future PADS) (ONR) (2015)
- Student Volunteer for 2013 ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW)

University Service

- Co-Director of the Industrial Advisory Board for Human Systems Engineering (Arizona State University)
- Planning Taskforce for Human Systems Engineering (Arizona State University)
- Mentor to HFES Student Chapter (Arizona State University)
- Faculty Host for Prospective Graduate Students (Arizona State University)
- Student Host for Prospective Graduate Students (The Pennsylvania State University)
- Judge for The Graduate Exhibition (The Pennsylvania State University)

Honors & Awards

- AZ Computing Postdoc Best Practice Fellow (NSF Sponsored)
- ASU institutional endorsement for MacArthur Foundation 100&Change proposal (McNeese PI)
- 2016 Cogsim Conference Best Paper Award
- Selected to participate in NCI-ASCO Teams in Cancer Care Delivery Project (over 200 teams applied)
- Center for Integrative Healthcare Delivery Scholar
- College of IST Night of Honors- Acknowledgement for Outstanding Research Assistant
- Graduate Research Assistantship, Spring 2010-Fall 2014
- Psi Chi Honor Society Member
- Multiple Dean's List as Undergrad