

ROBERT HUBAL

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Education

S.B., Computer Science & Engineering
Massachusetts Institute of Technology

M.S., Computer Science, 1992
North Carolina State University

Ph.D., Cognitive Psychology, 1996
Duke University

Professional Experience

Senior Technical Consultant, 1987-1990
Andersen Consulting

Senior Research Psychologist, 1996-2012
RTI International

Lead Scientist, 2012-2016
Soar Technology

Research Associate Professor, 2016-date
UNC Eshelman School of Pharmacy

Selected Adjunct Positions

Research Scientist, 2021-date
Renaissance Computing Institute

Selected Publications

Journals

- Sugarman, J., McCrory, D.C., & HUBAL, R.C. (1998). Getting meaningful informed consent from older adults: A structured literature review of empirical research. *Journal of the American Geriatrics Society*, 46(4), 517-524. PMID: 9560079
- Kizakevich, P.N., HUBAL, R., Guinn, C., Starko, K., McCartney, M.L., & Magee, J.H. (2001). Virtual simulated patients for trauma and medical care [abstract]. *Telemedicine Journal and e-Health*, 7(2), 150. DOI: 10.1089/153056201750279629
- Paschall, M.J., Fishbein, D.H., HUBAL, R.C., & Eldreth, D. (2005). Psychometric properties of virtual reality vignette performance measures: A novel approach for assessing adolescents' social competency skills. *Health Education Research: Theory and Practice*, 20(1), 61-70. PMID: 15253996
- Fishbein, D.H., Herman-Stahl, M., Eldreth, D.L., Paschall, M.J., Hyde, C., HUBAL, R., Hubbard, S., Williams, J., & Ialongo, N. (2006). Mediators of the stress-substance use relationship in high-risk urban adolescents. *Prevention Science*, 7(2), 113-126. PMID: 16791520
- Fishbein, D.H., Hyde, C., Eldreth, D., Paschall, M.J., HUBAL, R., Das, A., Tarter, R., Ialongo, N., Hubbard, S., & Yung, B. (2006). Neurocognitive skills moderate urban male adolescents' responses to preventive intervention materials. *Drug and Alcohol Dependence*, 82(1), 47-60. PMID: 16154296
- HUBAL, R.C., & Day, R.S. (2006). Informed consent procedures: An experimental test using a virtual character in a dialog systems training application. *Journal of Biomedical Informatics*, 39(5), 532-540. PMID: 16464644
- Kizakevich, P.N., Furberg, R.D., Duncan, S., HUBAL, R., Stanley, J., Merino, K., & Holloway, J. (2006). Mass casualty triage simulation for emergency preparedness and response [abstract]. *Telemedicine Journal and e-Health*, 12(2), 165. DOI: 10.1089/tmj.2006.12.165
- HUBAL, R.C., Evens, N.R., FitzGerald, D.P., Hardy, K.K., Willard, V.W., & Bonner, M.J. (2008). Implementation of FACS for synthetic characters for use in studying facial expression recognition by survivors of childhood cancer. *Annual Review of Cybertherapy and Telemedicine*, 6, 35-40.
- HUBAL, R.C., Fishbein, D.H., Sheppard, M.S, Paschall, M.J., Eldreth, D.L., & Hyde, C.T. (2008). How do varied populations interact with embodied conversational agents? Findings from inner-city adolescents and prisoners. *Computers in Human Behavior*, 24(3), 1104-1138. PMID: 19412316
- Fishbein, D.H., Sheppard, M.E., Hyde, C., HUBAL, R.C., Newlin, D.B., Serin, R., Chrousos, G., & Alesci, S. (2009). Deficits in behavioral inhibition predict treatment engagement in prison inmates. *Law and Human Behavior*, 33(5), 419-435. PMID: 19139980

Selected Publications, cont'd

Journals, cont'd

- Hourani, L.L., Council, C.L., HUBAL, R.C., & Strange, L.B. (2011). Approaches to the primary prevention of posttraumatic stress disorder in the military: A review of the stress control literature. *Military Medicine*, 176(7), 721-730. PMID: 22128712
- Hourani, L.L., Kizakevich, P.N., HUBAL, R., Spira, J., Strange, L.B., Holiday, D.B., Bryant, S., & McLean, A.N. (2011). Predeployment stress inoculation training for primary prevention of combat-related stress disorders. *Journal of CyberTherapy & Rehabilitation*, 4(1), 101-116.
- HUBAL, R.C., Bonner, M.J., Hardy, K.K., FitzGerald, D.P., Willard, V.W., & Allen, T.M. (2011). Technical aspects and testing of a program to assess deficits in facial expression recognition in childhood cancer survivors. *Journal of CyberTherapy & Rehabilitation*, 4(3), 363-369.
- Hourani, L.L., Tueller, S.J., Kizakevich, P.N., Lewis, G., Strange, L.B., Weimer, B.J., Bryant, S.P., Bishop, E., HUBAL, R.C., & Spira, J.L. (2016). Toward preventing posttraumatic stress disorder: Development and testing of a stress inoculation program. *Military Medicine*, 181(9), 1151-1160. DOI: 10.7205/MILMED-D-15-00192
- HUBAL, R., & Schmorrow, D. (2016). Enabling effective training: Building for lifelong education [abstract]. *Aerospace Medicine and Human Performance*, 87(3), 303-304.
- Kawatsu, C., HUBAL, R., & Marinier, R. (2018). Predicting students' decisions in a training simulation: A novel application of TrueSkill. *IEEE Transactions on Computational Intelligence and AI in Games*, 10(1), 97-100. DOI: 10.1109/TCIAIG.2017.2680843
- Lam, H., & HUBAL, R. (2018). Approach to formalize psychological and behavioral characteristics in a virtual patient simulation: A literature review of pain management and opioid use [abstract]. *Journal of the American Pharmacists Association*, 58(3), e181. DOI: 10.1016/j.japh.2018.04.004
- Bray, A., Webb, J.B., Enquobahrie, A., Vicory, J., Heneghan, J., HUBAL, R., TerMaath, S., Asare, P., & Clipp, R.B. (2019). Pulse physiology engine: An open source software platform for computational modeling of human medical simulation. *SN Comprehensive Clinical Medicine*, 1(5), 362-377. DOI: 10.1007/s42399-019-00053-w
- Zeeman, J., HUBAL, R., Kiser, S.N., & Steeb, D.R. (2019). Identifying traits and building consensus on priority leadership and professionalism attributes in pharmacy education [abstract]. *Pharmacy Education*, 19(1), 346.
- Ma, C., HUBAL, R., & McLaughlin, J. (2020). Case element analysis for automated generation of cases in pharmacy education. *Education in the Health Professions*, 3(1), 22-26. DOI: 10.4103/EHP.EHP_3_20

Selected Publications, cont'd

Journals, cont'd

Zeeman, J., Kiser, S.N., Steeb, D.R., & HUBAL, R. (2020). Identifying priority student leadership and professionalism attributes among faculty, preceptors, and students via modified Delphi. *American Journal of Pharmaceutical Education*, 84(11), 8076. DOI: 10.5688/ajpe8076

Fuller, K., Lupton-Smith, C., HUBAL, R., Hann, A., Kahandage, V., & McLaughlin, J.E. (2020). Automated analysis of preceptor comments: The use of sentiment analysis to characterize student issues [abstract]. *American Journal of Pharmaceutical Education*, 84(6), ajpe8220. DOI: 10.5688/ajpe8220

McLaughlin, J.E., Lupton-Smith, C., Bell, E.L., HUBAL, R., & Persky, A. (2020). Automated analysis of course evaluation comments: The use of sentiment analysis to characterize classroom teaching [abstract]. *American Journal of Pharmaceutical Education*, 84(6), ajpe8220. DOI: 10.5688/ajpe8220

Shah, P., Donovan, K., Rexrode, L., & HUBAL, R. (2020). Pediatric patient interaction: Provider vs. parent expectations. *Journal of Communication in Healthcare: Strategies, Media and Engagement in Global Health*, 13(4), 289-300. DOI: 10.1080/17538068.2020.1794765

HUBAL, R., Bobbitt, L., Garfinkle, S., Harris, S.C., Powell, B.D., Oxley, M.S., Anksorus, H.N., & Chen, K.Y. (2020). Testing of a program to automatically analyze students' concept maps. *Pharmacy*, 8(4), 209. DOI: 10.3390/pharmacy8040209

Powell, B., Oxley, M., Chen, K., Anksorus, H., HUBAL, R., Persky, A., & Harris, S. (in publication). Concept mapping activity to enhance pharmacy student metacognition and comprehension of fundamental disease state knowledge. *American Journal of Pharmaceutical Education*.

Rhoney, D.H., Singleton, S., Nelson, N.R., Anderson, S.M., & HUBAL, R. (in publication). Forces driving change in pharmacy education: Opportunities to take ASTEP into the future. *Journal of American College of Clinical Pharmacy*.

Selected Publications, cont'd

Books, Book Series, & Book Chapters

- HUBAL, R.C., Kizakevich, P.N., Guinn, C.I., Merino, K.D., & West, S.L. (2000). The virtual standardized patient-Simulated patient-practitioner dialogue for patient interview training. *Studies in Health Technology and Informatics*, 70, 133-138. PMID: 10977526
- HUBAL, R.C., Deterding, R.R., Frank, G.A., Schwetzke, H.F., & Kizakevich, P.N. (2003). Lessons learned in modeling virtual pediatric patients. *Studies in Health Technology and Informatics*, 94, 127-130. PMID: 15455877
- Deterding, R., Milliron, C., & HUBAL, R. (2005). The virtual pediatric standardized patient application: Formative evaluation findings. *Studies in Health Technology and Informatics*, 111, 105-107. PMID: 15718709
- Eriksson, E.J., Rodman, R.D., & HUBAL, R.C. (2007). Emotions in speech: Juristic implications. In C. Müller (Ed.), *Speaker Classification I: Fundamentals, Features, and Methods* (pp. 152-173). Springer-Verlag. DOI: 10.1007/978-3-540-74200-5_8
- HUBAL, R., Kizakevich, P., & Furberg, R. (2007). Synthetic characters in health-related applications. *Studies in Computational Intelligence*, 65, 5-26. DOI: 10.1007/978-3-540-72375-2_2
- Kizakevich, P.N., HUBAL, R., Brown, J., Lyden, J., Spira, J., Eckhoff, R., Zhang, Y., Bryant, S., & Munoz, G. (2012). PHIT for Duty, a mobile approach for psychological health intervention. *Studies in Health Technology and Informatics*, 181, 268-272. PMID: 22954869
- HUBAL, R., & Parsons, T. (2017). Synthetic environments for skills training and practice. In L. Lin & J.M. Spector (Eds.), *The Sciences of Learning and Instructional Design: Constructive Articulation between Communities*. Oxford, UK: Routledge.
- Amdur, E., & HUBAL, R. (2019). *The coordinator: Managing high-risk high-consequence social interactions in an unfamiliar environment · 2nd revised & expanded edition*. Edgework Books.
- Amdur, E., & HUBAL, R. (2019). *The accord agent: Managing intense, problematic social interactions within business environments*. Edgework Books.

Conference Proceedings

- HUBAL, R.C., Helms, R.F., & Triplett, S.E. (1997). Advanced learning environments. In *Proceedings of the Industry/Interservice Training Systems and Education Conference* (pp. 79-86).
- HUBAL, R.C., & Frank, G.A. (2001). Interactive training applications using responsive virtual human technology. In *Proceedings of the Interservice/Industry Training, Simulation and Education Conference* (pp. 1076-1086).

Selected Publications, cont'd

Conference Proceedings, cont'd

- Frank, G., Guinn, C., HUBAL, R., Pope, P., Stanford, M., & Lamm-Weisel, D. (2002). JUST-TALK: An application of responsive virtual human technology. In Proceedings of the Interservice/Industry Training, Simulation and Education Conference (pp. 773-779).
- Guinn, C., & HUBAL, R. (2003). Extracting emotional information from the text of spoken dialog. In Proceedings of the Workshop on Assessing and Adapting to User Attitudes and Affect: Why, When and How? User Modeling, Inc. DOI: 10.1.1.119.5549
- HUBAL, R.C., Frank, G.A., & Guinn, C.I. (2003). Lessons learned in modeling schizophrenic and depressed responsive virtual humans for training. In Proceedings of the Intelligent User Interface Conference (pp. 85-92). ACM Press. DOI: 10.1145/604045.604062
- HUBAL, R.C., Fishbein, D.H., & Paschall, M.J. (2004). Lessons learned using responsive virtual humans for assessing interaction skills. In Proceedings of the Interservice/Industry Training, Simulation and Education Conference (pp. 989-999).
- HUBAL, R., Frank, G., Guinn, C., & Dupont, R. (2004). Integrating a crisis stages model into a simulation for training law enforcement officers to manage encounters with the mentally ill. In Proceedings of the Workshop on Architectures for Modeling Emotion: Cross-Disciplinary Foundations, AAAI Spring Symposium Series (pp. 68-69). ACM Press.
- Guinn, C., & HUBAL, R. (2006). Augmented transition networks (ATNs) for dialog control: A longitudinal study. In Proceedings of the International Conference on Computational Intelligence Special Session on Natural Language Processing for Real Life Applications (#523-815) (pp. 395-400). Calgary, AB: Acta Press.
- HUBAL, R., Staszewski, J., & Marrin, S. (2007). Overcoming decision making bias: Training implications for intelligence and leadership. In Proceedings of the Interservice/Industry Training, Simulation and Education Conference (pp. 798-808).
- Frank, G.A., & HUBAL, R.C. (2008). Bias inoculation advanced simulation (BIAS) training. In Proceedings of the Behavior Representation in Modeling and Simulation conference. Simulation Interoperability Standards Organization.
- HUBAL, R., & Frank, G. (2008). Enticing mistakes: A strategy within simulation training of soft skills. In Proceedings of the Interservice/Industry Training, Simulation and Education Conference (pp. 57-66).
- HUBAL, R., Kizakevich, P., McLean, A., & Hourani, L. (2010). A multimedia environment for stressing warfighters before they deploy. In Proceedings of the Interservice/Industry Training, Simulation and Education Conference (pp. 1688-1696).
- HUBAL, R., Mitroff, S.R., Cain, M.S., Scott, B., & DeWitt, R. (2010). Simulating a vigilance task: Extensible technology for baggage security assessment and training. In Proceedings of the IEEE Conference on Technologies for Homeland Security (pp. 543-548). IEEE. DOI: 10.1109/THS.2010.5654982

Selected Publications, cont'd

Conference Proceedings, cont'd

- HUBAL, R. (2012). The imperative for social competency prediction. In S.J. Yang, A.M. Greenberg, & M. Endsley (Eds.), *Proceedings of the International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction* (pp. 188-195). Springer-Verlag. DOI: 10.1007/978-3-642-29047-3_23
- HUBAL, R., Folsom-Kovarik, J., Woods, A., Jones, R., & Carbone, J. (2015). Patterns of life in the foreground and background: Practical approaches to enhancing simulation-based interaction skills training. In *Proceedings of the Behavior Representation in Modeling and Simulation Conference* (pp. 75-83). The BRIMS Society.
- HUBAL, R., van Lent, M., Marinier, B., Kawatsu, C., & Bechtel, B. (2015). Enhancing good stranger skills: A method and study. In *Proceedings of the Interservice/Industry Training, Simulation and Education Conference* (pp. 1437-1447).
- Chen, F., Lee, Y., & HUBAL, R. (2020). Testing of a virtual patient: Linguistic and display engagement findings. In D. Economou, A. Klippel, H. Dodds, A. Peña-Rios, M.J.W. Lee, D.E. Beck, J. Pirker, A. Dengel, T.M. Peres, & J. Richter (Eds.), *Proceedings of the Immersive Learning Research Network Conference* (pp. 348-350).

White Papers & Technical Reports

- Curtin, T.R., & HUBAL, R.C. (1998). Review of teacher assistant education programs and standards. Policy Paper, January 27, 1998. Submitted to North Carolina Department of Public Instruction, Raleigh, NC.
- HUBAL, R.C. (2009). Mental models for effective training: Comparing expert and novice maintainers' mental models. Research Report 1898. Arlington, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Hedge, J., & HUBAL, R. (2009). Job proficiency work sample testing for critical DHS jobs and job tasks. Research Brief Pre-Project Report prepared for the Institute for Homeland Security Solutions, Research Triangle Park, NC.
- HUBAL, R., Newlin, D., & Reyes, C. (2009). Individual differences in vigilance tasks. Research Brief Pre-Project Report prepared for the Institute for Homeland Security Solutions, Research Triangle Park, NC.
- HUBAL, R., & McLaughlin, J. (2017). Professional social competency identification, assessment, and training. White paper submitted to the National Academies of Science, Engineering, and Medicine Division of Behavioral and Social Sciences and Education Board on Behavioral, Cognitive, and Sensory Sciences decadal survey on social and behavioral sciences for national security.

Selected Publications, cont'd

Theses

HUBAL, R.C. (1992). Retro-adaptive testing and evaluation system. Master's Thesis. North Carolina State University, Raleigh, NC.

HUBAL, R.C. (1996). Studies of alternative representations: Selective interference and experience. Doctoral Thesis. Duke University, Durham, NC.

Selected Presentations & Posters

- HUBAL, R.C. (1996). Alphabets and experience. Poster presented at the Midwestern Psychological Association Conference, May 02, 1996, Chicago, IL.
- HUBAL, R. (1996). When is a representation 'good'? Studies on language, presentation format, and the role of experience. Talk presented to the IBM Human Factors Group, Research Triangle Park, NC.
- HUBAL, R.C. (1999). Learner evaluation for skills training. Panel member at the Army Learning and Training Effectiveness Symposium, Panel 6—Evaluation of Army Training Programs and Products, February 23-25, 1999, Newport News, VA.
- Kizakevich, P.N., & HUBAL, R.C. (2000). The Sunday morning adventure into virtual reality EMS training. Talk presented at the 2000 Clinical Conference on Out of Hospital Emergency Care, July 16, 2000, Orlando, FL.
- HUBAL, R.C., & Frank, G.A. (2000). AVATALK virtual humans for training with computer generated forces. Poster presented at the Conference on Computer Generated Forces and Behavioral Representation, May 17, 2000, Orlando, FL.
- HUBAL, R.C., & Guinn, C.I. (2001). A mixed-initiative intelligent tutoring agent for interaction training. Poster presented at the Intelligent User Interface Conference, January 15, 2001, Santa Fe, NM.
- Kizakevich, P.N., HUBAL, R., Guinn, C., Frank, G., McCartney, M.L., & Magee, J.H. (2001). Virtual simulated patients for trauma and medical care. Invited presentation, Advanced Technology Applications to Combat Casualty Care, September 10-12, 2001, Ft. Walton Beach, FL.
- Kizakevich, P.N., HUBAL, R., Weaver, A., Whiteford, B., Zimmer, J., & Magee, J.H. (2002). A virtual EMS simulator for practice of emergency medical care. Poster presented at the Medicine Meets Virtual Reality Conference, January 24, 2002, Newport Beach, CA.
- HUBAL, R., & Day, R.S. (2003). Why would I interact with a virtual character when there are plenty of real characters around here? Talk presented at the North Carolina Cognition Group Annual Meeting, February 22, 2003, Durham, NC.
- Deterding, R., HUBAL, R., & Guinn, C. (2003). New horizons: Responsive virtual human (RVH) technology for pediatric training. Poster presented at the Council on Medical Student Education in Pediatrics Annual Meeting, April 04, 2003, Broomfield, CO.
- HUBAL, R. (2003). Talk to a computer without looking foolish; Converging evidence to suggest users accept responsive virtual human technology. Talk presented at the North Carolina State University Cognition Seminar, October 8, 2003, Raleigh, NC.
- HUBAL, R., Kizakevich, P., Frank, G., & Guinn, C. (2004). Psychologically plausible models that drive synthetic character behavior within applications for assessing interaction skills. Talk presented at the Annual Workshop on Cognitive Systems: Human Cognitive Models in System Design, June 30, 2004, Santa Fe, NM.

Selected Presentations, cont'd

- Fishbein, D., & HUBAL, R. (2005). An innovative use of synthetic characters for assessment of adolescents' risky behaviors. Talk presented at the Technology NOW! Seminar, April 26, 2005, Research Triangle Park, NC.
- Staszewski, J., & HUBAL, R. (2006). Expert intelligence analysis: A foundation for analyst training and assessment. Invited presentation to the Institute for Intelligence Studies Faculty, Mercyhurst College, December 18, 2006, Erie, PA.
- Frank, G.A., & HUBAL, R.C. (2007). Modeling affective reactions for training adaptive interviewing. Poster presented at the Behavior Representation in Modeling and Simulation Conference, March 27, 2007, Norfolk, VA.
- HUBAL, R. (2007). Serious games: Taking education and training to the next level. Panel member at the Human Factors and Ergonomics Society Annual Meeting—Serious Games: Taking Education and Training to the Next Level, October 4, 2007, Baltimore, MD.
- Frank, G.A., & HUBAL, R.C. (2008). Bias inoculation advanced simulation (BIAS) training. Poster presented at the Behavior Representation in Modeling and Simulation Conference, April 15, 2008, Providence, RI.
- Hourani, L.L., & HUBAL, R.C. (2009). Posttraumatic stress mitigation: PRESIT study. Invited presentation at the ONR Force Health Protection Future Naval Capability Science and Technology Review, January 30, 2009, Washington, DC.
- HUBAL, R., & Frank, G. (2009). Mental modeling used as input to tailoring training: Application using ordnance electronics maintenance technicians. Invited presentation to the U.S. Army Research Institute for the Behavioral and Social Sciences Institutional Training Research Unit, February 18, 2009, Ft. Benning, GA.
- HUBAL, R. (2009). Situated assessment: Getting the right measures and the measurement right. Invited presentation, Caesarea Rothschild Institute for Interdisciplinary Applications of Computer Science, May 26, 2009, Haifa, Israel.
- Hourani, L.L., HUBAL, R.C., Kizakevich, P.N., Spira, J.L., Strange, L.B., Furberg, R.D., & Holiday, D.B. (2009). Combat stress casualty reduction: Development of a predeployment stress inoculation training (PreSTINT) program. Invited presentation at the DoD Military Health Research Forum, August 31 - September 3, 2009, Kansas City, MO.
- HUBAL, R. (2009). Quick relevant observations with situated assessment. Brief presentation given at the AFRL Accelerated Learning and Facilitated Retention of Proficiency Workshop, October 10, 2009, Mesa, AZ.
- HUBAL, R. (2009). Fun with dialog systems: Studies involving conversations with little kids, surly teenagers, subject-matter experts, telephone survey respondents, schizophrenics, clinic patients, impatient customers, and other regular people. Invited presentation, North Carolina State University Department of Computer Science Seminar

Series, October 19, 2009, Raleigh, NC.

Selected Presentations, cont'd

- HUBAL, R., & Mitroff, S. (2009). Improving vigilance for homeland security personnel. Talk presented at the Institute for Homeland Security Solutions inaugural Research Summit, October 23, 2009, Chapel Hill, NC.
- Barton, K., & HUBAL, R.C. (2010). Methods for investigation of performance profiles for the benefit of professional development and instructionally relevant information. Talk presented at the McGraw-Hill Companies, Inc. Innovation R&D Symposium, September 16, 2010, Monterey, CA.
- HUBAL, R., Mitroff, S.R., Cain, M.S., Scott, B., & DeWitt, R. (2010). Simulating a vigilance task: Extensible technology for baggage security assessment and training. Poster presented at the IEEE Conference on Technologies for Homeland Security, November 08, 2010, Waltham, MA.
- Hourani, L., Strange, L., Holiday, D., Kizakevich, P., & HUBAL, R. (2011). Building resilience: Development and testing of a predeployment stress inoculation training (PreSTINT) program. Talk presented at the Annual Armed Forces Public Health Conference, March 23, 2011, Hampton, VA.
- HUBAL, R. (2014). A [really fast] tour through some PA applications. Talk presented at the Workshop on Empirical Research with Pedagogical Agents, October 20-22, 2014, Playa Vista, CA.
- HUBAL, R. (2015). Training consequential social interactions that involve participants from dissimilar cultures. Panel chair at the International Conference on Cross-Cultural Decision Making, July 30, 2015, Las Vegas, NV.
- HUBAL, R. (2016). Technology in learning. Seminar presented to the National Science Foundation Division of Research on Learning in Formal and Informal Settings, April 27, 2016, Arlington, VA.
- HUBAL, R. (2016). Making serious simulations real: A discussion of both obvious and non-obvious design factors. Invited presentation, University of North Carolina at Wilmington Department of Computer Science department seminar, November 16, 2016, Wilmington, NC.
- Heneghan, J., & HUBAL, R. (2017). The UNC nXHuman virtual patient. Invited presentation, Nova Southeastern University faculty development retreat, May 16, 2017, Ft. Lauderdale, FL.
- HUBAL, R., Burch, E.K., & Lanzo, K.S. (2018). Lessons learned in modeling complex dialog for productive encounters. Talk presented at the East Coast Game Conference, April 17-19, 2018, Raleigh, NC.
- HUBAL, R., & Heneghan, J. (2017). Carolina virtual patient initiative. Snapshot teaching innovation poster at the Monash University Pharmacy Education Symposium, July 10, 2017, Prato, Italy.

Selected Presentations, cont'd

- HUBAL, R., Pamplin, J., Liu, A., Miller, G., & Taylor, G. (2018). Augmented reality applications for evolving casualty care. Panel chair at the International Conference on Human-Computer Interaction, July 20, 2018, Las Vegas, NV.
- Lyons, K., HUBAL, R., Brock, T., & MacDougall, C. (2018). Better, cheaper, faster, easier: The story of four educational technology innovations in pharmacy education. Special session to be held at the American Association of Colleges of Pharmacy annual meeting, July 21-25, 2018, Boston, MA.
- Metoyer, R., HUBAL, R., & Heneghan, J. (2018). beFIT for adaptive physical training. Poster presented at the Military Health System Research Symposium, Prevention of Musculoskeletal Injury in the Military, August 21, 2018, Kissimmee, FL.
- HUBAL, R., & Messer, M. (2019). Thinking about smart ways to use XR. Talk presented at the East Coast Game Conference, April 18, 2019, Raleigh, NC.
- HUBAL, R., et al. (2019). Blurring the line between digital and physical environments. Poster presented at the PharmAlliance meeting, February 06, 2019, Melbourne, Australia.
- McLaughlin, J., & HUBAL, R. (2019). Case element analysis for automated generation of cases in pharmacy education. Poster presented at the PharmAlliance meeting, February 06, 2019, Melbourne, Australia.
- HUBAL, R., & Heneghan, J. (2020). Comprehensive virtual human initiative for complex interaction skills training. Poster presented at the International Meeting on Simulation in Healthcare, January 19, 2020, San Diego, CA.

Selected Professional Service

Conference Review Panels

Cross-Cultural Decision-Making Conference
Program Committee, 2015

Human Factors and Ergonomics Society
Annual Meeting, 2007-2008, 2010-2012, 2014-2020
Healthcare Symposium, 2018-2020

International Conference on Augmented Cognition
Program Board, 2018-2019, 2021

International Conference on Social Computing, Behavioral-Cultural Modeling &
Prediction and Behavior Representation in Modeling and Simulation
Program Committee, 2013-2019

International Meeting for Simulation in Healthcare, 2020-2021

International Symposium on Human Factors and Ergonomics in Health Care, 2020

Military Health System Research Symposium
Poster Judge, 2015

Workshop on Cognitive Engineering for Technology in Mental Health Care and
Rehabilitation, 2010

Professional Memberships

American Association of Colleges of Pharmacy
Association for Psychological Science
Human Factors and Ergonomics Society
International Association of CyberPsychology, Training, and Rehabilitation
National Defense Industrial Association
Society for Simulation in Healthcare

Panel Member

Army Learning and Training Effectiveness Symposium
Duke University Master of Engineering Management
Institute for Homeland Security Solutions Research Summit
Military Operational Medicine Joint Program Committee
National Institute on Mental Health, proposal review (multiple)
National Science Foundation, proposal review (multiple)
North Carolina State University Graduate Association of Students in Psychology
U.S. Air Force Expertise Workshop