Cindy L. Bethel

809 Aspen Glen Dr.
Hamden, CT 06518
(home) (203) 823 – 9509 or (cell) (813) 316 – 8136
cbethel@gmail.com
www.cindybethel.com
U.S. Citizen

Curriculum Vitae – Short Version
as of 11/04/2009

EDUCATION

University of South Florida
Department of Computer Science and Engineering
August 2004 – August, 2009
Graduation Date: August 8, 2009
Ph.D. Computer Science and Engineering
Computing Innovation Postdoctoral Fellow
NSF Graduate Research Fellow
IEEE Robotics and Automation Society Graduate Fellow
Co-Advisors: Robin R. Murphy, Ph.D. and Lawrence O. Hall, Ph.D.
Dissertation: Robots Without Faces: Non-Verbal Social Human-Robot Interaction
Major emphasis: Human-Robot Interaction, Robotics, Affective Computing, AI
Minor emphasis: Psychology, Mathematics/Statistics

University of South Florida
Department of Computer Science and Engineering
August 2001 to May 2004
B.S. Computer Science – Summa cum Laude - 4.0 GPA
Honors Thesis Advisors: Dmitry Goldgof, Ph.D. and Lawrence O. Hall, Ph.D.
Honors Thesis: Mining for Implications in Medical Data

PUBLICATIONS

Refereed Journal Articles

Bethel, C. L. and Murphy, R. R., "Review of Human Studies Methods in HRI and Recommendations," in International Journal of Social Robotics, Under Review, November, 2009.

Bethel, C. L. and Murphy, R. R., "Non-facial/Non-verbal Affective Expressions for Appearance-Constrained Robots," in IEEE Transactions on Systems, Man, and Cybernetics, Part C – Applications and Reviews, Volume 38, No. 1. January, 2008.

Dick, S., Bethel, C., and Kandel, A., "Software Reliability Modeling: The Case for Deterministic Behavior," IEEE Transactions on Systems, Man and Cybernetics, Part A – Systems and Humans, Volume 37, Issue 1, Pages 106-119. January 2007.

Refereed Conference Papers/Videos Proceedings and Presentations

Bethel, C. L., Bringes, C., *et al*. "Non-Facial and Non-Verbal Affective Expression in Appearance-Constrained Robots for Use in Victim Management: Robots to the Rescue!" video in *4th ACM/IEEE International Conference on Human-Robot Interaction 2009,* San Diego, CA, March, 2009.

Day, B., Bethel, C. L., *et al*. "A Depth Sensing Display for Bomb Disposal Robots," in *IEEE International Workshop on Safety, Security, and Rescue Robotics (SSRR 2008)*. Sendai, Japan, October, 2008.

Bethel, C. L., Salomon, K., and Murphy, R. R., and J. L. Burke, "Survey of Psychophysiology Measurements Applied to Human-Robot Interaction," in *16th IEEE International Symposium on Robot & Human Interactive Communication*, Jeju Island, South Korea, August, 2007.

Bethel, C. L., Salomon, K., Burke, J. L., and Murphy, R. R., "Psychophysiological Experimental Design for Use in Human-Robot Interaction Studies," in *The 2007 International Symposium on Collaborative Technologies and Systems (CTS 2007)*, Orlando, FL, May, 2007.

Bethel, C. L. and Murphy, R. R., "Non-Facial/Non-Verbal Methods of Affective Expression as Applied to Robot-Assisted Victim Assessment," in 2nd ACM SIGCHI/SIGART Conference on Human-Robot Interaction (HRI2007), Washington, DC. March 2007.

Bethel, C. L., Hall, L. O., and Goldgof, D. "Mining for Implications in Medical Data," presented at 18th International Conference on Pattern Recognition (ICPR2006), Hong Kong. August, 2006.

Dick, S., Bethel, C., and Kandel, A., "Are Software Failures Chaotic?" in 2002 Annual Meeting of the North American Fuzzy Information Processing Society Proceedings, NAFIPS. June, 2002.

Refereed Workshops/Symposia/Extended Abstracts

Bethel, C. L., Bringes, C., *et al*. "HRI'09 Video Abstract/Non-Facial and Non-Verbal Affective Expression in Appearance-Constrained Robots for Use in Victim Management: Robots to the Rescue!" abstract in *4th ACM/IEEE International Conference on Human-Robot Interaction 2009,* San Diego, CA, March, 2009.

Bethel, C. L., Salomon, K., and Murphy, R. R., "Preliminary Results: Humans Find Emotive Non-Anthropomorphic Robots More Calming," in *4th ACM/IEEE International Conference on Human-Robot Interaction 2009,* San Diego, CA, March, 2009.

Bethel, C. L. and Murphy, R. R., "Use of Large Sample Sizes and Multiple Evaluation Methods in Human-Robot Interaction Experimentation," in *AAAI Spring 2009 Symposium: Experiment Design for Real-World Systems*. Stanford University, Palo Alto, CA, March, 2009.

Bethel, C. L. and Murphy, R. R., "Non-Verbal Affective Expression for Use in Robotic Systems," presented at AAAI 2006 Fall Symposia on Aurally Informed Performance: Integrating Machine Listening and Auditory Presentation in Robotic Systems. Washington, DC. October, 2006.

Bethel, C. L. and Murphy, R. R., "Affective Expression in Appearance-Constrained Robots," presented at 1st ACM SIGCHI/SIGART Conference on Human-Robot Interaction (HRI2006), Salt Lake City, UT, 2006.

FUNDED INVITATIONAL WORKSHOPS and COHORTS

May 19, 2008 – Pasadena, CA: NEWHRI: Unifying characteristics of research in human-robot interaction workshop as part of the ICRA'08 Conference - http://newhri.org/Home.html

March 12, 2008 – Amsterdam, Netherlands: NSF HRI Pioneers Workshop 2008 – http://www.hripioneers.org/hri08/

June 9-10, 2007 – San Diego, CA: CRA-W Career Mentoring Workshop - http://www.cra.org/Activities/craw/projects/mentoring/mentorWrkshp/2007/index.php

March 8, 2007 – Washington, DC: NSF HRI Pioneers Workshop 2007 – http://www.hripioneers.org/hri07/

August 2-6, 2006 – Carmel, CA: NSF Graduate Student Invitational Research Workshop on Human-Robot Interaction - http://peopleandrobots.org/workshop/index.html

March 31-April 1, 2006 – San Francisco, CA: CRA-W Grad Cohort – http://www.cra.org/Activities/craw/gradcohort/2006/schedule.php

February 25-26, 2005 – San Francisco, CA: CRA-W Grad Cohort – http://www.cra.org/Activities/craw/gradcohort/2005/schedule.php

AWARDS, HONORARY, PROFESSIONAL MEMBERSHIPS AND LEADERSHIP

University of South Florida – Tampa, FL

Awards:

King-O'Neal Scholar Award for 4.0 GPA
Computer Science and Engineering Outstanding Graduate Award
Engineering Alumni Society Outstanding Senior of the Year

Fellowships:

2009 – 2010 Computing Innovation Postdoctoral Fellowship – Mentor: Brian Scassellati at Yale
Fall 2008 Awarded an IEEE Robotics and Automation Society Fellowship (1 awarded per year)
2008 – 2009 Awarded a Mortar Board National Senior Honor Society Fellowship
2005 – 2008 Awarded a National Science Foundation Graduate Research Fellowship
2004 – 2005 Awarded an USF Investing in the Future Graduate Fellowship

Scholarships:

2004 Outstanding Honor Society Member of the Year Award and Scholarship
2003-2004 Awarded the Peter Pempsell Endowed Scholarship
2002-2004 Awarded the USF Women's Club Grace Allen Scholarship
2002-2003 Awarded the USF Computer Science and Engineering Scholarship
2001-2003 Awarded the Community College 2 + 2 scholarship through ATSS
2002-2003 Awarded the USF Honors College scholarship

Memberships and Leadership Positions:

Chair and Founder of the CSEWomen's group at the University of South Florida
Member of the USF Honors College
Member of Tau Beta Pi Engineering Honor Society
Member of USF Mortar Board Senior Honor Society-Athenaeum Chapter
President 2003-2004, Vice President of Internal Affairs Fall 2002,
Junior Advisor Fall 2004 – Spring 2005, Senior Advisor Summer 2005 – August 2009
Member of Association for Computing Machinery,

Chair 2003-2005, Co-Advisor 2005 – August 2009
Member of IEEE-Computer Society - Administrative Vice President 2002-2004
Member USF Council of Honor Societies - 1st Vice President of Programs 2003-2004

PROFESSIONAL DATA

Yale University, Postdoctoral Associate and Computing Innovation Fellow
September 2009 – Present
Duties: Conduct research associated with Human-Robot Interaction using Pleo robots with children diagnosed with autism spectrum disorders. Obtain new skills in conducting human studies with specialized groups of participants. Assist with other research projects; write research grants for future HRI studies through funding agencies such as NSF and NIH.

University of South Florida, Teaching Assistant
December 2008 – August 2009
Position: Teaching Assistant
Duties: Assisting students with assignments and course information. Assist the professor with grading assignments, communication with students, and other duties as assigned.

University of South Florida, IEEE Robotics and Automation Society Fellow and Microsoft Rescue Buddy Project Research Assistant
August 2008 – December 2008
Duties: Conducted the largest human study to date in Human-Robot Interaction with 128 participants and using 4 methods of evaluation (self-assessments, video observation – 4 camera angles, psychophysiology (EKG, Heart Rate, Interbeat Interval, Respiration – using thoracic and abdominal measurements, Skin Conductance Response, Blood Volume Pulse), and participant interviews). Prepared and analyzed data collected. Recruited, trained, and supervised nine volunteer undergraduate research assistants for this research project and study.

University of South Florida, ARL Research Grant Research Assistant
August 2006 – December 2007
Duties: Conduct research related to social interaction for Urban Search and Rescue (USAR) robotics. Prepared literature review, publications, implemented affect on appearance-constrained functional USAR robots, prepared experimental design and research methods for conducting human studies to determine the effectiveness of non-facial/non-verbal affective expression for use in keeping victims calm during USAR operations.

University of South Florida, NSF Graduate Research Fellow
June 2005 – May 2008
Duties: Conducted research related to fellowship proposal in the area of Human-Robot Interaction, Affective Computing, Robotics, and Artificial Intelligence. Prepared six publications on this research and presented the findings at conferences, symposia, and workshops.

University of South Florida, Department of Computer Science and Engineering – College of Engineering, Research Assistant
May 2005 – August 2005
Duties: Conduct research related to Human-Robot Interaction, Affective Computing, and Robotics including an extensive literature review related to these areas.

University of South Florida, Department of Graduate Studies, Teaching Assistant
August 2004 – May 2005
Award: Investing in the Future Teaching Assistantship/Fellowship

Duties: Assisted Professor and students in the Program Design course. Graded assignments and exams. Held office hours to assist students with concepts discussed by the course professor and assisted students with applying these concepts to course projects and assignments.

University of South Florida, Department of Computer Science and Engineering, Research Assistant
August 2003 – August 2004
Duties: Analyzed and entered patient data into a web-based expert system through Moffitt Cancer Center. Verified all the rules and inferences in the Automated Clinical Trial Selection expert system. Assisted in the preparation of grant documents and IRB modification documents. Used data mining system to determine associations and inferences that could be found in the dataset.

SERVICE RELATED ACTIVITIES:
Community Service
October 23, 2008 – Benito Middle School – Parents/Students Technology and Robotics Night with IBM
July 22, 2008-USF Polytechnic – Robots at Gifted & Talented Program
February 21, 2008- Black Engineering Month event in conjunction with IBM's Tampa Women in Technology held at the Bowers Whitley Career Center
July 26, 2007- Take Your Child to Work Day at IBM
June 20, 2007-2007 G.R.E.A.T. (Girls Really Excelling at Technology) Camp, hosted by the IBM Tampa Women In Technology at the Bowers Whitley Career Center near USF

Performed demonstrations using search and rescue robots and allowed the children to operate the robots. These events provided local underrepresented gifted children in elementary and middle school the opportunity to interact with and operate search and rescue robots. They were taught some basic techniques used in actual search and rescue applications. The purpose was to encourage underrepresented and female students to pursue their education in the areas of science, engineering, and technology to increase gender and minority diversity in these fields.

Institute for Safety Security Rescue Technology Research Demonstrations
April 30, 2008 – Research Demonstration for DARPA Interns
April 7, 2008 – Research Demonstration for the Defense Science Research Council (DSRC)
March 4, 2008 - Research Demonstration for Stewart Tansley of Microsoft Research

Demonstrated to participants the use of non-facial and non-verbal affective expression in Urban Search and Rescue (USAR) robots and applications. Placed participants in a confined space box and let them experience having robots driving toward and near them so they will know the difference between how robots are operated normally in search and rescue environments versus how they would be operated in an emotive mode to help keep located victims calm and make the robots appear less "creepy".

Conference and Journal Service – Reviewer
Fall 2009 – 5th Annual Conference on Human-Robot Interaction 2010
Fall 2008 – Spring 2009 Interaction Studies Social Behaviour and Communication in Biological and Artificial Systems
Spring 2008 - 2008 IEEE/RSJ International Conference on Intelligent Robots and Systems
Fall 2006 - 2nd Annual Conference on Human-Robot Interaction 2007
Spring 2006 - 15th IEEE Int'l Workshop on Robot and Human Interactive Communication
Fall 2005 - 1st Annual Conference on Human-Robot Interaction 2006
Fall 2006 - IEEE Transactions on Robotics, Special Issue on Human-Robot Interaction