

## Frederick W. P. Heckel

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### Education

Ph.D., Computer Science, University of North Carolina at Charlotte, expected 2010

M.S., Computer Science, Washington University in St. Louis, 2008

B.A. Computer Science and Political Science, Swarthmore College, 2005

### Research Goals

My research interest is in building models for understanding human interactions for use with intelligent agents, especially in simulations, games, and mobile robots. My current research project is developing a configurable agent engine which can be used in a variety of contexts.

### Research Experience

Research Assistant 2008–Present  
G. Michael Youngblood University of North Carolina at Charlotte  
Development of a highly configurable agent architecture and engine for simulations and games.

Research Assistant 2005–2008  
William D. Smart Washington University in St. Louis  
Development of Bayesian models for understanding human social interactions from physical motion.

Research Assistant Summer 2004  
Bruce Maxwell Swarthmore College  
Development of robot software and modification of hardware to compete in the 2004 AAAI USAR competition.

Research Assistant Summer 2003  
Bruce Maxwell Swarthmore College  
Development of robot software and modification of hardware to compete in the 2003 AAAI USAR competition.

### Teaching Experience

Teaching Assistant, Introduction to Mobile Robotics, Swarthmore College, Spring 2005

### Employment

Naval Research Lab Washington, D.C.  
Ph.D. Student Intern Summer 2008  
I worked with the ACT-RE cognitive architecture on a project to enable a cognitive agent to detect interest or boredom of a human from video. In addition, I implemented iconic memory for ACT-RE.

Planned Systems International Falls Church, VA  
Intern Summer 2001, Summer 2002  
UNIX systems support and software development in Solaris environments. Software deployment and support for outpatient insurance billing system.

## **Frederick W. P. Heckel**

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Xperts, Inc.  
Intern

Glen Allen, VA  
Summer 1999, Summer 2000

General IT systems support and software development using Perl, PHP, and PostgreSQL.

### **Software**

Frederick Heckel, William D. Smart (2007): **WURDE: Washington University Robotics Development Environment**, A software framework for developing robotics applications in C++.

### **Service**

Secretary, Gamers Alliance, University of North Carolina at Charlotte, 2008-2009

Treasurer, Computer Science and Engineering Graduate Students Association, Washington University in St. Louis, 2006

Staff, Swarthmore College Computer Society, Swarthmore College, 2002-2005

### **Workshop Participation**

ICRA 2008 NEWHRI Workshop. Graduate student presenter

HRI Pioneers Workshop, 2008. Attendee

HRI Pioneers Workshop, 2007. Attendee

AAAI Fall Symposium: Aurally Informed Performance, 2006. Presenter

Project on People and Robots Graduate Student Invitational Workshop, 2006. Attendee

AAAI Mobile Robotics Workshop, 2006. Attendee (Robot team member)

AAAI Mobile Robotics Workshop, 2004. Attendee (Robot team member)

AAAI Mobile Robotics Workshop, 2003. Attendee (Robot team member)

### **Honors and Awards**

2nd Place, 2008-2009 UNC Charlotte Graduate Research Fair, Computer Science Category

TIAA-CREF Doctoral Fellowship, 2008-2009.

ICRA 2008 NEWHRI Workshop, 2008. Travel funding

HRI Pioneers Workshop, 2008. Travel funding

HRI Pioneers Workshop, 2007. Travel funding

Project on People and Robots Graduate Student Invitational Workshop, 2006. Travel funding

Swarthmore College nominee for Churchill Fellowship, 2005

First Place, 2004 AAI Urban Search and Rescue Competition

Second Place, 2003 AAI Urban Search and Rescue Competition

Sigma Xi, 2003

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### Publications

Frederick W. P. Heckel, G. Michael Youngblood, and D. Hunter Hale, "BehaviorShop: An Intuitive Interface for Interactive Character Design". To appear, AIIDE 2009.

Frederick W. P. Heckel, G. Michael Youngblood, and D. Hunter Hale, "Making User-Defined Interactive Game Characters BEHAVE". In Proceedings of FLAIRS 2009, Sanibel Island Florida, May 2009.

Frederick W. P. Heckel, G. Michael Youngblood, and D. Hunter Hale, "Influence points for tactical information in navigation meshes". In Proceedings of the 4th international Conference on Foundations of Digital Games (Orlando, Florida, April 26 - 30, 2009). FDG '09.

Allison M. Jacobs, Benjamin Fransen, J. Malcolm McCurry, Frederick W. P. Heckel, Alan R. Wagner, and J. Gregory Trafton, 'A Preliminary System for Recognizing boredom'. In Proceedings of the 4th ACM/IEEE international Conference on Human Robot interaction (La Jolla, California, USA, March 09 - 13, 2009). HRI '09.

Frederick Heckel and William D. Smart, "Mapping the Field of Human Robot Interaction", ICRA 2008 NEWHRI Workshop.

Michael Dixon, Frederick Heckel, Robert Pless and William D. Smart, "Faster and More Accurate Face Detection on Mobile Robots Using Geometric Constraints" in Proceedings of IROS 2007, San Diego, October 2007.

Frederick Heckel and William D. Smart, "Non-Speech Aural Communication for Robots" in "Aurally Informed Performance: Integrating Machine Listening and Auditory Presentation in Robotic Systems: Papers from the 2006 AAAI Fall Symposium", pp. 28-32, AAAI Technical Report FS-06-01.

Frederick Heckel, Tim Blakely, Michael Dixon, Chris Wilson, and William D. Smart, "The WURDE Robotics Middleware and RIDE Multi-Robot Tele-Operation Interface", AAAI Mobile Robotics Workshop, Boston, July 2006. (pdf)

Bruce A. Maxwell, Nicolas Ward, and Frederick Heckel, "A Configurable Interface and Architecture for Robot Rescue", AAAI Mobile Robotics Workshop, San Jose, July 2004.

Bruce A. Maxwell, Nicolas Ward, and Frederick Heckel, "Game-Based Design of Human-Robot Interfaces for Urban Search and Rescue", CHI 2004 Fringe, <http://www.chiplace.org/chifringe/2004/796.pdf>, April 2004.

Bruce A. Maxwell, Nicolas Ward, and Frederick Heckel, "A Human-Robot Interface for Urban Search and Rescue", in Proc. of AAAI Mobile Robot Competition and Exhibition Workshop, Acapulco, pp. 7-12, August 2003.